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Original Article

Enrollment and Uptake of Health Care Financing Schemes among Adult Inpatients in Baringo County, Kenya

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ABSTRACT

A high burden of healthcare expenditure precludes the poor from access to quality healthcare services. Due to the dearth of studies detailing healthcare financing in rural-based counties in Kenya, the study examined enrolment and uptake of healthcare financing schemes among adult inpatients in Baringo County, Kenya. The study employed a descriptive cross-sectional research design and was situated in Baringo County Referral Hospital with a target population of about 8,400 monthly or more than 100,000 patients annually. A sample size of 398 patients/and or caregivers was selected based on the stratified simple random sampling method. The results indicated age > 35 years (OR = 0.76120, p = 0.004), Occupation (OR = 0.65730, p = 0.000), income levels (OR = 1.67921, p = 0.000), marital status (OR = 0.38342, p = 0.000) and household size > 4 but less than 9 (OR = 3.66847, p = 0.000) and explain about 21.58 percent in the enrolment in a healthcare insurance scheme. The conclusions are that demographic factors (age, marital status, occupation, income levels and household size) influence enrolment This implies that young unmarried individuals < 35 years, employed with income > Ksh 20,000 and with household size < 5 persons were more likely to enroll for a healthcare financial scheme. The study recommends that a universal healthcare financing scheme should be implemented to make healthcare financing more affordable and accessible through policy interventions.

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INTRODUCTION

A good healthcare financing strategy must be capable of mobilizing resources for healthcare; achieving equity and efficiency in healthcare spending; offering affordable and high-quality healthcare and adequately providing essential healthcare goods and services (Uzochukwu et al., 2015). A weak healthcare system solely relies on out–of–pocket payment (Taiwo et al., 2023) and depends on user fees or charges at the point of service use is more likely to generate catastrophic levels of health expenditure (Asante et al., 2016). This is a situation in which healthcare systems in low medium-income countries (LMICs) particularly those in Africa and Asia are still heavily dependent on out-of-pocket (OOP) payments to cover the costs of healthcare services (Barasa et al., 2017). Thus, very few countries in sub–Saharan Africa (SSA) can spend $34–$40 per person annually to provide basic health care (Michael et al., 2019).

Healthcare financing varies in different contexts and economic developments. There are three major forms of healthcare financing, the publicly–funded scheme, the private–funded schemes and the last, and the out–of–pocket payments. The publicly–funded schemes are largely found in developed countries. For instance, the publicly – funded schemes in countries under the Organization for Economic Co-operation and Development (OECD) have the highest portion of healthcare funding at 72% while that figure stands at 48% in the USA, 49% in Chile (Choi et al., 2016) and 66% in Portugal (Simões et al., 2017). The proportion of the different healthcare schemes varies, with privately – financed schemes in the EU zone accounting for an average of 24% of the total healthcare financing and 35% in Portugal (Simões et al., 2017). Publicly financed schemes are predominant in Canada with approximately 70% of health expenditures financed while the remaining 30% is private–funded schemes based on employer-based private health insurance and out-of-pocket payments (Marchildon et al., 2020).

In Switzerland, publicly–funded health insurance covers more than 74% of the total funding with the share of the risk with out-of-pocket payments being exceptionally high at 26% (De Pietro et al., 2016). In Mexico, publicly–funded schemes account for 58% of total financing, while privately–funded health scheme covers 8%, with significant private contributions comprising out-of-pocket spending (Block et al., 2020). In South Korea, publicly–-funded schemes comprise 55% of the healthcare financing while 35.2% comes from out–of–pocket payments (Choi et al., 2016).

The healthcare systems in low- and middle-income countries (LMICs) are reliant on out-of-pocket (OOP) payments (Barasa et al., 2017). For instance, out-of-pocket (OOP) payments account for 60.1% of healthcare financing in Tajikistan, with significant funding from bilateral agencies at 10.3% of total health expenditure (Khodjamurodov et al., 2016). In the Indian sub-continent, out–of–pocket payments make up 60% of the healthcare financing in Bangladesh, Nepal, and Vietnam (Van Doorslaer et al., 2016) and remain the major source of healthcare financing comprising two-thirds of the total health spending in India (Kastor & Mohanty, 2018). Private healthcare scheme that are largely out–of–pocket payments contributes more than 70% of total healthcare spending in Cambodia and Lao (Tangcharoensathien et al., 2011). In contrast, out-of-pocket payments comprise approximately,

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19.6% of the healthcare expenditures in OECD countries (Choi et al., 2016).

In India, the poorest 40% of households rely more on – pocket payments for inpatient healthcare financing (Manchanda & Rahut, 2021) while in Sri Lanka, chronically ill patients rely on the public-funded scheme while the rich tend to utilize the privately – funded healthcare schemes (Pallegedara & Grimm, 2017). Out-of-pocket payments are still rampant in many sub-Saharan African (SSA) countries because of a lack of financial risk-pooling mechanisms (Onwujekwe et al., 2012) and account for between 20% and 80% of total health spending in Africa (Masiye et al., 2016) between 15% in Burkina Faso, to 40.2% in Nigeria (Chuma & Maina, 2016).

In Nigeria, about 70% of healthcare payments in Nigeria are largely out-of-pocket and there is a preference for out-of-pocket models in many low- and middle-income countries (Michael et al., 2019). In Ethiopia, 38.5% of health financing came from out-of-pocket charges, which is higher than that of other African countries at 30.6% (Haile et al., 2014). In Ghana, OOP healthcare expenditures still comprise 29.1% of healthcare payments (Kusi et al., 2017). The healthcare financing system in Kenya is 27.3% funded by public – health schemes, 29.3 % financed by privately – funded schemes, 17.3 % funded by donors and 26.1 % funded by out–of–pocket expenditures (Kabia et al., 2019).

A national report on healthcare financing indicated that one in four persons in Kenya has some form of health insurance with the NHIF being the most common type of health insurance. The coverage of the health insurance scheme is as twice as much as 40% in urban areas and 19% in rural areas. The health insurance coverage varies across the 47 counties from as low as 5% and 6%, in Tana River and Mandera counties respectively to a high of 46% and 44% in Nairobi City and Laikipia counties, respectively (KNBS, 2022). Due to the contextual gaps in the uptake of healthcare financing schemes in rural-based counties in Kenya, the study examined the uptake of a healthcare financing scheme in Baringo County, Kenya.

The problem is that healthcare systems in Africa are funded primarily through out-of-pocket payments, a situation which impedes the provision of improved healthcare (Van Doorslaer et al., 2016) and disrupts the welfare of households (Kusi et al., 2017). In Kenya, Out-Of-Pocket payments are the most common form of healthcare financing a situation which impedes accessibility to affordable healthcare (Mwaambi, 2017). Since a large proportion of Kenya's is informally employed, 85% of the households are left susceptible to financial shocks due to catastrophic healthcare expenses (Oraro & Wyss, 2018). Income levels in rural-based counties are low and therefore individuals are not able to access or afford healthcare financing schemes and thus use Out-of-pocket expenses to pay for their healthcare needs. This financing arrangement impoverishes households and retards economic development. Therefore, due to the lack of studies on healthcare financing in rural-based counties in Kenya, the study examines factors influencing the state of enrolment and uptake of healthcare financing schemes among adult inpatients attending Baringo County referral hospital, Baringo County, Kenya.

LITERATURE REVIEW

Awareness of the Healthcare Financing scheme

The study on awareness of the healthcare financing scheme is drawn from different contexts. In Bangladesh, Sheikh et al., (2022) used an exploratory qualitative design to examine the barriers to the implementation of community–based healthcare insurance scheme. The study observed that enrolment is determined by several factors that include lack of knowledge of healthcare insurance schemes, lack of external assistance, inadequate insurance coverage, adverse selection and moral hazard among other significant factors. Based on a meta-analytical review, Conde et al., (2022) reviewed the factors determining enrolment in

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CBHI schemes in West Africa. The findings indicated that enrolment was negatively influenced by inadequate information campaigns, stricter registration rules, low education levels, advancing age, low household income, poor quality of care, lack of trust in providers, and remoteness and low trust in administrators.

Masengeli et al., (2017) examined the levels of awareness of healthcare insurance schemes among patients in Bungoma County referral Hospital and findings indicated that about 98 % of the respondents were aware of insurance coverage especially the NHIF and that the importance attached to the insurance scheme was significantly associated with uptake of healthcare insurance cover. Kigume and Maluka (2021) examined the challenges facing community-based health insurance schemes in Tanzania using a descriptive study. The study observed that low levels of awareness, poor collections and management of revenues and limited benefit packages impeded the successful implementation of community–based insurance schemes.

Fenny et al., (2016) examined the factors contributing to the low uptake of health insurance schemes in Ghana. The study observed that socio-cultural factors impede the uptake of health insurance schemes. The socio-cultural include age, disability and religious beliefs while the systemic factors were largely the inadequacy in the social health infrastructural facilities, weak administration among the insurance providers and poor-quality healthcare. Adedeji et al., (2017) surveyed the willingness of households in Lagos, Nigeria to enrol in a Community Health Insurance Scheme. The findings indicated that there was a low level of awareness of community health insurance among the respondents.

Mulupi et al. (2013) explored the communal perceptions towards a preference for healthcare insurance schemes in Kenya using a cross-sectional household survey. The study observed that there are higher levels of awareness among most communities but at the individual level, there is limited know-how on the functions of healthcare insurance schemes such as key concepts relating to income and risk cross-subsidization. Further, the study observed National Health Insurance Scheme is preferred for its comprehensive benefit package. Minyihun et al. (2020) examined the willingness of rural communities in Ethiopia to *join* community-based health insurance using a community-based cross-sectional study. The findings indicated that the illness history of illness in the household during the past 3 months determined the intention to join a community–based health insurance scheme.

These studies show that the levels of awareness of health insurance coverage vary widely with the publicly–-funded insurance scheme having the highest level of awareness (Masengeli et al., 2017) being preferred (Mulupi et al., 2013), while the community–based insurance scheme being leastly known (Sheikh et al., 2022, Conde et al., 2022, Kigume and Maluka, 2021). Based on the foregoing review, the study therefore sought to examine the awareness levels of health insurance schemes using a field study of adult inpatients in Baringo County, Kenya.

Uptake of a Healthcare Financing Scheme

The empirical studies on the uptake of health insurance schemes are drawn from several contexts. For instance, based on a systematic review, Derakhshani et al., (2021) examined the factors influencing enrollment in the public health insurance scheme in Iran. The findings indicated that enrolment is influenced by public healthcare systemic factors such as the weakness of the information system, service prioritization, fragmented health system, lack of managerial support and lack of standard benefits packages.

Based on a meta-analytical review, Odeyemi (2014) reviewed the status of the community–based health insurance schemes in Sub–Saharan Africa with a special focus on a national health insurance scheme in Nigeria. The findings indicated that CBHI

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schemes have varied schemes across different countries in SSA with two exceptions being Ghana and Rwanda where the governments effectively controlled and intensive implementation programmes. Based on the study, enrolment in a healthcare scheme is largely influenced by enrolment requirements, lack of clear legislative and regulatory frameworks, inadequate financial support, and failure to engage and account for the needs of beneficiaries.

Mensah and Yeboah (2022) examined the impact of education levels on the uptake of a healthcare insurance policy among university staffers in Ghana. The study findings indicated that the level of education was associated with the uptake of a health insurance scheme with female staff more likely to buy into a healthcare insurance. In Nigeria, Iyalomhe et al. (2021) examined the uptake of community health insurance using cross-sectional research. The findings indicated that younger individuals tend to buy into healthcare insurance schemes that older individuals aged more than 50 years with the likelihood of women buying into a healthcare insurance than their male counterparts.

In Malaysia, Abd Khalim and Sukeri (2023) examined the uptake of private health insurance among the Malaysian adult population. The findings indicated that an estimated 20% of the population enrolled on a private health insurance scheme and that enrollment was determined by marital status, age, educational level, employment status, household income, and location of residence. Alesane and Anang (2018) examined the factors influencing the uptake of health insurance products in Western districts of Ghana. Based on logistic regression, the findings indicated that socio-demographic characteristics such as age, sex, education level and household size influence enrollment in a healthcare insurance scheme.

The foregoing reviews indicate that the uptake of health insurance covers is influenced by demographic factors (Alesane & Anang, 2018; Mensah & Yeboah, 2022; Iyalomhe et al., 2021) and the public healthcare system (Derakhshani et al., 2021; Odeyemi, 2014). Based on the foregoing review, the study therefore sought to examine the awareness levels of health insurance schemes using a field study of adult inpatients in Baringo County, Kenya.

METHODOLOGY

The study employed a descriptive cross-sectional research design as it sought to unravel the uptake levels of healthcare insurance schemes among households in a rural county in Kenya. The study adopted descriptive cross–sectional design since a descriptive research design describes the characteristic features of a phenomena thus it was used to describe the factors influencing the enrolment and utilization of healthcare financing at a designated point in time. The study took a field study approach as the target population was largely adult inpatients or their corresponding caregivers. The target population was based on adult inpatients in Baringo County Referral Hospital, Baringo County, Kenya with a total bed capacity of 180 beds translating into 8,400 inpatients a month. The sample size was computed using the following Yamane's formula;

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

Where *n* was desired sample size, *N* was the entire population and *e* is the margin of error (which is 0.05). Thus, the sample size for the study was 398 inpatients and/or caregivers who were sampled through stratified sampling based on departments. The study excluded critically ill patients or individuals below 18 years of age who were procuring health services as dependents and those who did not or were unable to give consent. The study adopted a questionnaire as the main research instrument which was validated through a pilot study in male wards in Kapenguria County Referral Hospital upon which it was subjected to a Cronbach's Alpha reliability test to confirm

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Data Analysis

The study ran the descriptive statistics on the socio-demographic characteristics and study variables before analyzing the data through bivariate analysis using a Chi-Square distribution and multivariate analysis through logistic regression.

RESULTS

Socio-demographic characteristics of the respondents

The descriptive statistics on the socio-economic characteristics of the respondents indicated that 51.8 per cent were male while 48.2 per cent were female. More than 58.8 % of the respondents were aged between 24 to 35 years and formed the majority, 21.4 per cent were aged between 18 and 23 years, 9.5 per cent were aged between 36 to 41 years and the remaining percentage were aged 42 years and above. More than 44.3 per cent of the respondents had completed secondary school and formed the majority, 38.1 per cent had completed diploma certification, 7.5 per cent had bachelor's degrees, 6.7 per cent had primary school level, In terms of marital status, 42.3 per cent were married and 57.7 per cent being either unmarried, divorced or separated.

In terms of socio-economic characteristics, the descriptive analysis indicates that 50.8 per cent of the respondents had between 1 and 3 children, 25.3 per cent had between 4 and 6 children, 21.4 per cent had no children and 2.6 per cent had more than children. Commensurately, 45.6 per cent of the households had between 4 to 6 persons, 43.3 per cent had between 1 to three persons, and 10.2 per cent of the households had more than 7 persons. Occupation-wise, 19.6 per cent were unemployed, 24.5 per cent were involved in business, 15.2 per cent were self – 18.8 per cent were in the education sector, 12.6 per cent were involved in agriculture and 5.2 per cent worked for public sector organizations. Regarding income levels, 18.04 per cent had no monthly income, 33.76 per cent had income levels ranging between Kshs 10,001 to Kshs 20,000, 18.04 per cent had an income of less than Kshs 10,000, 16.24 per cent had income ranging between Kshs 20,001 to Kshs 30,000 while 6.19 per cent had income levels of between Kshs 30,001 to Kshs 40,000 and those with income levels greater than Kshs 40,001 comprised 4.12 per cent.

Descriptive statistics on healthcare financing schemes

Table 1: Statistics on the Healthcare Financing Scheme

Variable	Categories	N	%
Awareness of the Healthcare Financing Scheme	YES	344	88.7
	NO	44	11.3
	Total	**388**	**100**
Sources of Information for Healthcare Financing Scheme	Radio Adverts	176	45.4
	Relatives	13	3.4
	Friends	142	36.6
	Fellow Patients	15	3.9
	County Government	42	10.8
	Total	**388**	**100**
Mode of Healthcare Financing Scheme	Family Resources	145	38.1
	Public NHIF Scheme	168	43.3
	Private Insurance Scheme	65	16.8
	Harambee and Contributions	7	1.8
	Total	**388**	**100**
Emergency Modes of Healthcare Financing	Family Resources	151	38.9
	Public NHIF Scheme	156	40.2

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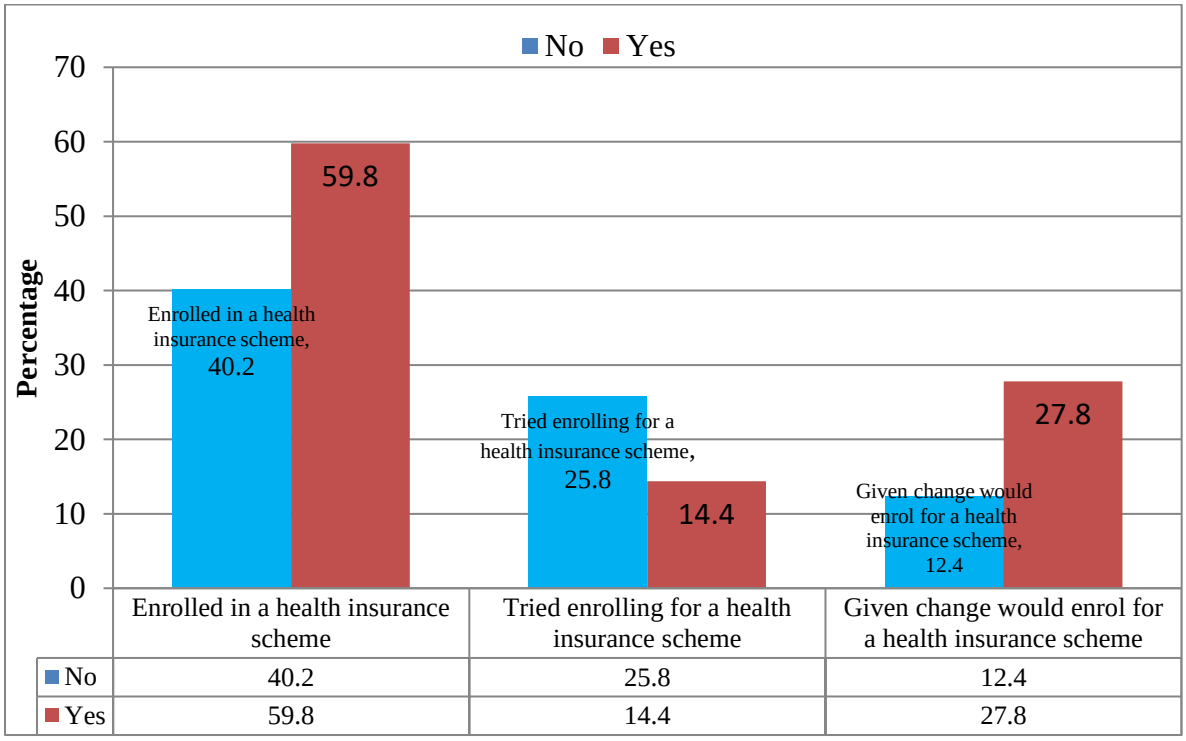
Private Insurance Scheme	50	12.9
Harambee Contributions	18	4.6
Family contributions	13	3.4
Total	**388**	**100**

The distribution in Table 1 indicates that the levels of awareness of healthcare insurance schemes were high at 88.7 % of the respondents while 11.3 % were not aware of a healthcare insurance plan. When asked to identify the sources of information on healthcare insurance, 45.4 % of the respondents accessed the information from radio adverts, 36.6 % accessed the information from friends, 10.8 % accessed the information from county government, and 3.9 % and 3.4 % obtained information from fellow patients and relatives respectively.

The study also examined the modes of the healthcare financing scheme and the distribution in Table 1 shows that 43.3 % of the respondents utilized the public NHIF scheme, 38.1 % used family resources commonly referred to the out – of - Pocket (OOP) financing, 16.8 % had a private healthcare insurance scheme, while 1.8 % sought contribution from friends, families in form of 'Harambee'. When the respondents were asked about emergency modes of healthcare financing, the distribution shows that there is an increase in contributions from friends and family from 1.8 % to 8.2 % with the commensurate reduction in the use of both public and private insurance schemes from 60.1 % to 52.1 %. The results indicated that out–of–pocket payments comprise nearly half (47.9%) while the health insurance scheme covers 52.1%.

Figure 1: Status of enrolment in a health insurance scheme



The distribution in Figure 1 shows that 59.8 % of the respondents had enrolled in a health insurance scheme while 40.2 % had not enrolled in any healthcare insurance scheme. Of the 40.2 per who had not enrolled, 14.4 % had tried to enrol for a healthcare insurance scheme while 25.8 % had not tried to enrol. Furthermore, for those who had not enrolled in a healthcare insurance scheme and were

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given a chance, 27.8 % would enrol for a healthcare insurance scheme, while 12.4 % would not. Cumulatively, those registered or with intent to enrol comprise 74.2 % or about three quarters while the remaining quarter probably only enrol in case of illness.

Association between Demographics and mode of healthcare Financing

Chi-square analysis was used to evaluate the relationship between demographic characteristics and modes of healthcare financing to delineate the use of the different financing arrangements as indicated in Table 2 below.

Table 2: Demographic Characteristics and Mode of Healthcare Financing

Variable	$\chi 2$ statistic	df	p-value	Decision criteria
Gender	11.504	3	0.009	Significant
Age	147.406	24	0.000	Significant
Marital status	39.538	3	0.001	Significant
Level of education	65.975	15	0.000	Significant
Occupation	106.095	18	0.000	Significant
Income level	79.775	15	0.000	Significant
Number of children	53.600	12	0.000	Significant
Household size	55.200	9	0.000	Significant

Table 2 indicates that all the demographic characteristics have statistically significant associations with the different modes of healthcare financing. The study findings reported that several demographic characteristics (gender, age, level of education and marital status) and several socio-economic factors (occupation, income levels, number of children and household size) were statistically and significantly linked to different modes of healthcare financing.

Gender has a statistically significant association with the mode of healthcare financing ($\chi^2 = 11.504$, $p < 0.05$) with male patients preferring to utilize public healthcare insurance coverage, and personal, family and friends' resources while female respondents prefer private insurance cover. Age has a statistically significant association with the mode of healthcare financing ($\chi^2 = 147.406$, $p < 0.05$) with individuals aged below 40 years preferring public healthcare insurance coverage and family resources, while individuals less than 30 years use Harambee to pay for healthcare expenses.

Marital status is statistically linked to the mode of healthcare financing ($\chi^2 = 39.358$, $p < 0.05$) with a preference for the use of private healthcare insurance coverage complemented by family resources by married individuals while public healthcare insurance coverage complemented by harambee contributions by the unmarried individuals. The level of education has a statistically significant association with the mode of healthcare financing ($\chi^2 = 65.975$, $p < 0.05$) with individuals having a post-secondary education preferring public healthcare insurance coverage while individuals with basic education levels utilizing family resources to pay for healthcare expenses.

Occupation is statistically linked to the mode of healthcare financing ($\chi^2 = 106.095$, $p < 0.05$) with a preference for the use of public healthcare insurance coverage by employed individuals while private healthcare insurance covers self – employed and business people but there is continued use of family resources across the board. Income levels are statistically linked to the mode of healthcare financing ($\chi^2 = 79.775$, $p < 0.05$) with a preference for the use of public healthcare insurance coverage across the board but specifically for individuals earning < Kshs. 20,000 would be more likely to use family resources to pay for their healthcare expenses.

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The number of children is statistically linked to the mode of healthcare financing ($\chi^2 = 53.600$, $p < 0.05$) with a preference for the use of a healthcare insurance cover by individuals < six children and use of family resources for individuals having 1 to 3 children. Household size is statistically linked to the mode of healthcare financing ($\chi^2 = 55.200$, $p < 0.05$) with a preference for the use of family resources for household size < three persons, public healthcare insurance coverage for household size > four persons and private healthcare insurance cover for household size < six persons.

Association between Demographics and Enrolment in a Health Insurance

Based on the current enrollment status, Chi-square analysis was used to evaluate the association between demographic characteristics and enrolment in a healthcare insurance scheme as indicated in Table 3 below.

Table 3: Demographic Characteristics and Enrolment in health insurance

Variable	χ2 statistic	df	p-value	Decision criteria
Gender	2.217	1	0.136	Not Significant
Age	31.649	8	0.000	Significant
Income level	8.304	5	0.140	Not Significant
Level of education	8.599	5	0.126	Not Significant
Occupation	11.872	6	0.065	Not Significant
Marital status	1.519	1	0.213	Not Significant
Number of children	29.363	4	0.000	Significant
Household size	20.251	3	0.000	Significant

As indicated in Table 3 shows that there was no statistically significant association between enrolment into a healthcare insurance scheme and gender ($\chi^2 = 2.217$, $p > 0.05$), income levels ($\chi^2 = 8.304$, $p > 0.05$), level of education ($\chi^2 = 8.599$, $p > 0.05$), occupation ($\chi^2 = 11.872$, $p > 0.05$) and marital status ($\chi^2 = 1.519$, $p > 0.05$). The age of the respondent was statistically and significantly associated with enrolment in a healthcare insurance scheme ($\chi^2 = 31.649$, $p < 0.05$) with individuals < 35 years being likely to enrol for a healthcare insurance plan. The number of children was also statistically and significantly associated with enrollment ($\chi^2 = 29.363$, $p < 0.05$) with individuals having more than four but less than seven children showing the likelihood of enrolling on a healthcare insurance scheme. Furthermore, the household size was significantly associated with registration ($\chi^2 = 20.251$, $p < 0.05$) with respondents having a household size of four persons but less than nine persons showing the likelihood of enrolling for a healthcare insurance scheme.

Determinants of Enrolment and Uptake of a Health Financing Scheme

To determine the effect size of the demographic characteristics, the study used the status of enrolment in a medical insurance scheme as the dependent variable and regressed it against the socio-demographic characteristics.

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Table 4: Demographic characteristics and enrolment of a health insurance

Model summary						
Log Likelihood		-210.1082		χ^2 (8) = 115.64		0.0000
Pseudo R^2		0.2158				
Coefficient Estimates						
Variable	Odd ratio	Standard Error	t	p	[95% Conf. Interval]	
Constant	0.65156	0.47850	-0.58	0.560	.1544642	2.748353
Gender	1.21966	0.30326	0.80	0.424	.7491962	1.985572
Age	0.76120	0.07182	-2.89	0.004	.6326917	.9158333
Level Of Education	1.15867	0.16377	1.04	0.297	.8783164	1.528515
Occupation	0.65730	0.05578	-4.94	0.000	.5565766	.7762418
Income Level	1.67921	0.22495	3.87	0.000	1.291444	2.183415
Marital Status	0.38342	0.11676	-3.15	0.002	.2110863	.6964487
Number of children	1.14542	0.24353	0.64	0.523	.7550694	1.737574
Household Size	3.66847	0.83363	5.72	0.000	2.349941	5.726808

The results in Table 4 concern the influence of demographic characteristics on enrolment in a healthcare insurance scheme. The R^2 = 0.2158 indicate that demographic characteristics explain a 21.58 % variance in enrolment in a healthcare insurance scheme. Whereas gender (Odds = 1.21966, t = 0.80, p > 0.05), level of education (Odds = 1.1587, t = 1.04, p > 0.05) and the number of children (Odds = 1.1454, t = 0.64, p > 0.05) do not explain the likelihood of enrolment in a healthcare insurance scheme, age (Odds = 0.7612, t = -2.89, p < 0.05), occupation (Odds = 0.6573, t = -4.94, p < 0.05), income level (Odds = 1.6792, t = 3.87, p < 0.05), marital status (Odds = 0.3834, t = -3.15, p < 0.05) and household size (Odds = 3.6685, t = 5.72, p < 0.05) explains the likelihood of enrolment in a healthcare insurance scheme.

Thus, household size has the largest effect with a household size of 4 persons having a higher likelihood of enrolment in a healthcare insurance scheme, followed by income levels where individuals earning more than Kshs. 20,000 are 1.6792 times more likely to participate in a medical insurance scheme than individuals earning less than Kshs 20,000, unmarried individuals are 0.3834 times more likely to participate in medical insurance than married individuals, and individuals in formal employment are 0.6573 times more likely to enrolment in a medical insurance scheme than individuals in self – employment and unemployed. The enrollment status of households among participants with a family size of 5 was higher in comparison.

DISCUSSION

The results in Table 1 indicate that more than four-fifths of the population were aware of the healthcare insurance scheme. The high levels of awareness of the healthcare insurance schemes have been identified by Adewole et al. (2016) who observed that close to four-fifths of the study respondents were aware of a healthcare insurance scheme. Indumathi et al. (2016) also observed that more than nine–tenths of the study respondents were aware of the publicly–funded healthcare insurance scheme. However, in low – and middle–income countries, Fadlallah et al. (2018) observed that individuals living in rural are more likely to be unaware of a healthcare insurance scheme. As observed by Madhukumar, Sudeepa and Gaikwad (2012) and Adewole et al. (2016), a publicly – -funded scheme is the most common type of healthcare insurance scheme. Further, Indumathi et al., (2016) observed that the publicly funded model was followed by the privately funded scheme.

Media is the largest source of information for many individuals with friends and colleagues being another major source of information and this has

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collaborated Adewole et al. (2016) indicated that electronic media such as the radio and television formed the main source of information on healthcare insurance schemes while other sources included friends, colleagues and relatives.

The results indicate that healthcare insurance financing schemes comprise six-tenths of healthcare financing while out–of–pocket financing is about four-tenths. These findings mirror the findings by KDHS (2022), which indicate that at national levels, 26 % of adults have some form of healthcare insurance which is largely the National Hospital Insurance Fund. The Healthcare insurance coverage is as high as 40% in urban areas and 19% in rural areas and the coverage varies across the counties from as low as 5% and 6 % in Tana River and Mandera counties to as high as 46% and 44% in Nairobi City and Laikipia counties, respectively. In other studies, out–of–pocket expenses comprise about 27% of total health expenditures (Munge & Briggs, 2014). The out-of-pocket expenditure accounted for more than 29% of the total healthcare expenditures (Kimani et al., 2012).

Regarding the emergency modes of healthcare financing, the ratio of health insurance scheme coverage and out–of–pocket payments is similar and indicates the relapse to the use of out–of–pocket financing coupled with insufficient of the publicly–funded healthcare scheme. In support, KDHS (2022) observed that out–of–pocket cash payments were the most common method for paying healthcare expenditures followed by NHIF payments, for both inpatient and outpatient expenditures. Nageso et al. (2020) observed that in many low and middle-income countries, there are limitations in the healthcare insurance scheme and therefore direct out-of-pocket (OOP) payments tend to dominate the healthcare financing system.

The distribution in Figure 1 shows a 59.8 % enrolment rate in a healthcare insurance scheme and progressively grows to about three-quarters in cases of emergency illness. The enrolment figures show the increased likelihood of more individuals registering for a healthcare insurance scheme. This indicates the increased likelihood of health insurance gaining popularity in Kenya, as the government pursue universal health coverage (Mugo, 2023).

The findings in Table 2 showed the preference for the use of different healthcare schemes by different individuals, women preferred private insurance schemes, while men preferred publicly – -funded schemes, older individuals > 40 years preferred publicly–funded schemes, married individuals preferred privately - -funded schemes while unmarried individuals preferring public – funded schemes. Individuals with post-secondary school education would prefer a healthcare insurance scheme to those with lower education levels. There is a preference for the use of publicly–funded schemes by employed individuals and privately–funded schemes by self–employed with income levels > Kshs. 20,000 preferring to use a healthcare insurance scheme. Household size > 4 persons prefers the use of a healthcare insurance scheme.

The findings find support in studies by Adewole et al. (2016) which observed that the awareness and use of healthcare insurance schemes were linked to age, gender as well as marital, educational and socio-economic status to the likelihood of participating in healthcare insurance schemes. Madhukumar et al. (2012) also linked the awareness of health insurance to the education, occupation and socio-economic status of the individual.

The findings in Table 3 indicate that several demographic characteristics (gender, income levels, level of education, occupation and marital status were not statistically and significantly linked to enrolment while age, number of children and household size were statistically and significantly linked to enrolment. The difference could be explained by the education levels of the respondents and thus younger people with higher education levels were more likely to enrol as opposed to people with lower education levels. Fadlallah et al. (2018) observed that the consumer's understanding

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of the concepts and principles of the healthcare insurance scheme influences their decision to enrol on a scheme. On the converse, individuals who do not understand the concept of pooling of risk and the purpose of the co-payments would not register into a healthcare insurance scheme.

The findings in Table 4 indicated that age, marital status, occupation, income level, and household size explain the likelihood of enrolment in a healthcare insurance scheme. Gender, level of education and the number of children do not explain the likelihood of enrolment. The findings compare favourably with Nageso et al., (2020) and Fadlallah et al. (2018). Nageso et al. (2020) observed that several demographic characteristics influence registration to a healthcare insurance scheme and these include; educational status, family size > 5 persons while Fadlallah et al. (2018) considered age, gender, marital status, religion, economic status, and level of education were found to be associated with enrolment in a healthcare insurance scheme. Amu and Dickson (2016) observed that economic status, age, religion, birth parity, marriage and ecological zone significantly predicted enrollment in health insurance subscriptions among women.

In a cross–country study Amu et al. (2018) observed that health insurance schemes in sub–Saharan Africa vary with age and gender with coverage being highest among males in their late thirties but females in Ghana, aged 30–39 years recorded the highest coverage. In Tanzania and Nigeria, coverage among females increased with age with the highest coverage among males in their late 40s. Further, coverage is higher in urban areas when compared to rural areas. The probability of enrolling in a health insurance scheme increases with wealth in Kenya and Nigeria and among males in Tanzania. Educating women has a significant influence on enrolment in a healthcare insurance scheme as education is a strong factor influencing health insurance coverage among women. The likelihood of health insurance coverage increases with the levels of education in SSA countries. The fact that level of education predicted health insurance subscription is an indication that educational attainment cannot be ruled out when decisions regarding the utilisation of health care insurance services (Atnafu et al., 2018). Fadlallah et al. (2018) observed that consumer awareness of a healthcare scheme significantly determines the uptake of any healthcare insurance scheme as individuals living in rural are more likely to be unaware of a healthcare insurance scheme.

CONCLUSION

There is a high level of awareness of healthcare insurance schemes among the respondents and this indicates that individuals can discern the need for a health insurance scheme. The level of enrollment of the healthcare insurance scheme is commendable and is above the desired level of 50%. There is an increased likelihood of individuals enrolling on a healthcare insurance scheme to save for the informational and financial challenges. Demographic characteristics have a statistically significant association with the type of healthcare financing and enrolment in a healthcare insurance scheme with age > 35 years (OR = 0.76120, p = 0.004), Occupation (OR = 0.65730, p = 0.000), income levels (OR = 1.67921, p = 0.000), marital status (OD = 0.38342, p = 0.000) and household size > 4 but less than 9 (OD = 3.66847, p = 0.000) and these determinants explain about 21.58 per cent in the enrolment in a healthcare insurance scheme. Based on the findings, demographic characteristics explain the enrolment in a healthcare insurance scheme.

RECOMMENDATION

Considering that there are low levels of enrolment among young people < 35 years, there is a need to encourage the rural young population residing in rural-based counties to register for a healthcare insurance scheme to aid them in dealing with healthcare emergencies. On the converse, older individuals should be financially aided to help them enrolment in healthcare insurance schemes that

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would come in handy during healthcare emergencies.

The healthcare insurance scheme should strive to make the products more affordable and accessible to individuals in rural regions in Kenya. They should also seek to introduce community-based healthcare schemes that would be more appropriate to individuals in rural-based counties in Kenya because the pooled form of insurance can be much easier to implement and operate.

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