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Willingness to renew national hospital insurance fund among voluntary scheme members in Kajiado County-Kenya

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Abstract

Objective: This study established determinants for readiness to renew the NHIF (national hospital Insurance fund) among informal sector national scheme members in Kenya for universal health coverage (UHC).

Methods: This was a cross sectional survey on 394 purposively sampled national health insurance members in Kajiado County. Data was collected through questionnaires rated on a 5-point Likert scale. Binary logistic regression was used to establish the significant determinants associated with the willingness to renew the insurance covers. P-values of less than 0.05 were considered statistically significant.

Results: Majority of the participants were male (n=266, 67.5%), over 36 years of age (n=330, 83.7%), married (n=200, 50.8%) and lived in large households of over 3 people (n=358, 90.9%). Overall, respondents showed high willingness to continue paying the insurance premiums and renew their insurance covers for health services (Median: 3.86, IQR 0.75). Controlling for all factors, married (AOR 15.6, 2.3-106.4), large household sizes with more than 3 people, low household income per month (less than KSh. 5000), awareness of NHIF fund services (AOR 13.2, 3.1-55.5), service provider factors (AOR 109, 14.8-803.8) and adverse selection on willingness to renew (AOR 0.043, 0.009-0.202) were significant determinants of willingness to renew the insurance cover ($p<0.05$).

Conclusion: Individual factors - married, belonging to larger household, and lower income group, awareness of NHIF services and system/external factors - service provider's factors and adverse selection on the other hand influenced willingness to renew insurance covers. There is need to increase the community's awareness on the health insurance risk-benefits through member education and improve access to quality health services in the health facilities to enhance renewal of the NHIF covers by members.

Keywords: Health insurance; Universal health coverage (UHC); Informal sector; Health financing; Kenya

1. Introduction

Health systems are weak across many parts of advanced economies and emerging Countries in the world. In their quest to achieve states' global health agenda, such as the sustainable development goal 3. World health organization[1] established "a common framework of action for strengthening health systems made up of the six building blocks including: service delivery, human resources for health , information, medical products, vaccines and technologies;

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financing; and leadership and governance (stewardship)"[1 p3]. Health financing through universal health coverage (UHC) is among the key ingredients for strengthening sustainable development goal 3.

In Africa, most countries consider UHC as priority in the national development agenda for their health sectors. However, progress in actualizing these commitments to balloon the domestic resource envelope for health, external support in aid, equity and quality health services, and ultimately financial protection, is yet to catch-up with expectations [2]). A study conducted in Rwanda established that community-based health insurance (CBHI) is achievable and can stand the test of time, but only when there are persistent political commitment efforts are put to achieve UHC in the long-term [3].

Kenya is rolling-out national health insurance scheme through National Hospital insurance Fund (NHIF) as the main mechanism of a voluntary contributory scheme towards achieving UHC [4]). The Ministry of Health (MOH) has piloted this in four Counties. According to reports generated from the pilots, several challenges in equity, access, strategic purchasing leads to catastrophic out of pocket expenditure [5]. The Kenya government is using NHIF with the intention of increasing the number of citizens voluntarily contributing to prepaid financing of health care. NHIF in the last few years rolled out and executed number of changes with the aim to scale up membership by including incentives such as out-patient benefit [6], as a way to achieve universal health coverage [7].

A recent review, revealed that uptake of insurance for health in Kenya is modest and that the voluntary contribution is marked by high drop-out rates [8]. In 2021,reports indicated that despite a rise in the number of contributors [9], over of the 10.6 million(50%) contributors had not paid premiums on time by end of June that year after allegedly after benefiting from NHIF services. From NHIF data, Kitengela in Kajiado country [10], the number of active members had dropped from 14,470 in 2018/19 financial year to 9,962 in 2019/2020 representing a 32% drop and from 9617 to 7400 (23%) drop among the self-employed group. This is despite the strategy of paying 0.16 $ a day implemented for the Informal sector national scheme of the NHIF.

This paper presents the findings of a study to examine the key determinants of willingness to pay, among voluntary contributors of NHIF in Kenya.

2. Material and methods

2.1 Study site

Kajiado County is located southwest of the Nairobi city in Kenya. It has an estimated population of about 1,117,840 (560,704 females and 557,098 males) with about 316,179 households [11]. Administratively, the county has six sub-counties and served by 3 NHIF offices. This was an ideal site to assess willingness to renew NHIF as it has low NHIF coverage and therefore the need to understand what motivates national scheme members to renew their covers.

2.2 Study design

This was a cross-sectional study to establish the determinants of willingness to renew NHIF, in the national scheme from the demand side stakeholders in Kajiado County.

2.3 Study population and sampling procedures

The study targeted national insurance scheme members who previously had defaulted on premiums. The appropriate sample size that was utilized in the study was calculated using The Yamane's (1978) formula as offered by Israel [12] was applied in determining fixed sample size from a population of 316,297. The Yamane formula is enumerated below:

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

Where;
n= Sample size,
N= Population size
e= Level of Precision.
At 95% level of confidence and ρ=5

The study employed a confidence interval of 95% and a margin of error of 5%. In applying Yamane's formula, fixed (total) sample size was; 399.A proportionate sample of 399 geographically representative participants from all the six sub-counties were purposively selected from the clients visiting NHIF offices in Kajiado County who had defaulted on premium payments in the last 3 months. Clients visiting the 3 NHIF Offices in Kajiado County (Ongata Rongai (n=128), Kitengela (n=138) and Kajiado town (n=133), and the sample size was distributed proportionally based on the catchment population in the sub-counties. NHIF members with membership other than the national scheme (supa cover) regardless of their membership status were excluded.

2.4 Data collection tools

The research employed a pre-tested interviewer administered questionnaire. External, predictive and content validity were estimated by Kaiser-Meyer-Olkin (KMO) test and reliability was tested using the internal consistency score (Cronbach alpha =0.7). Cronbach alpha coefficients for all the variables were above the minimum threshold of 0.7 [13]; premium level was 0.900; awareness of NHIF was 0.781; service providers was 0.818; adverse selection was 0.778 and willingness to renew was 0.885. Therefore, our pre-test inferred that the 5-point Likert of the elements used to measure the study variables was reliable and acceptable for further appraisal.

2.5 Data collection procedures

NHIF National scheme members were approached by the researcher, informed about the survey before consenting and completing the questionnaire. All the individuals that own NHIF membership, and belong to the national scheme and had defaulted on payments in the last 3 months within in Kajiado County were included. Data was collected in the month of March-May 2022. Only 394 questionnaires were completely and adequately filled for inclusion in this study.

2.6 Data management and analysis

Data input was done in Microsoft Excel 2016 version. Data was exported to SPSS version 26 for cleaning, coding and analysis. At univariate analysis, respondents' socio-demographic characteristics, were summarised in form of frequencies and percentages. Data on the four main proposed determinants: premium level, awareness of NHIF fund services, service providers role and the effect of adverse selection on willingness to renew insurance cover were measured using a 5-point Likert scale that ranged from 1=Strongly Disagree (SD), 2=Disagree (D), 3=Undecided (U), 4=Agree (A) and 5=Strongly Agree (SA). Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) tests of normality were computed to determine which descriptive statistics and analysis to follow for the factors influencing willingness to renew the insurance covers based on the distribution of the data. For each of the four determinants, we summed the scores of a given respondent and a median score of items per each of the four determinants: premium level (5 items), awareness of NHIF fund services (6 items), service provider's role (9 items) and the effect of adverse selection on willingness to renew (4 items) were calculated as data was non-normally distributed. The minimum median score per item was 1 and a maximum of 5. Interquartile ranges were also reported.

We categorised/dichotomized willingness to renew the insurance cover into willing: if the participant scored above the median value (3.86) of willingness to renew measuring questions or unwilling: if the participant scored under the median value on willingness to renew measuring questions.

Determinants for willingness to renew insurance cover were recognized by applying binary logistic regression model. Bivariate logistic regression analysis was performed for association between each independent variable and the willingness to renew the insurance cover. A multivariable logistic regression analysis was performed to determine the significant determinants for the willingness to renew the insurance cover. The association was spelt-out using the adjusted odds ratio (AOR) and a 95% confidence interval (CI). Multicollinearity, was checked using a variance inflation factor (>10) using the collinearity diagnostic function in SPSS. The goodness of fit was examined by applying the Hosmer-Lemeshow test (>0.05). Statistical significance was set at $p< 0.05$.

2.7 Ethical considerations

This study was approved by Kenya Methodist University Scientific Ethical Research Committee (approval number KeMU/SERC/HSM/2/2022) and research license to conduct the research was obtained from the national commission for science, technology and innovation (NACOSTI) (license number NACOSTI/P/22/15653. Confidentiality and privacy of the information extracted from study subjects were guaranteed by de-identifying personal data on the data collection tool. Informed consent was obtained from the participants and participation was strictly voluntary.

3. Results

3.1 Socio-demographic characteristics

Two-thirds of the participants were male, with half of the total participants being 46 years and above (N=196, 49.7%) as shown on table 1.

Table 1 Socio-demographic characteristics of the participants

Characteristic	Category	Total (N=394)	Percentage (%)
Gender	Male	266	67.5
	Female	128	32.5
Age (years)	18-25	11	2.8
	26-35	53	13.5
	36-45	134	34.0
	46+	196	49.7
Marital status	Separated	98	24.9
	Married	200	50.8
	Single	69	17.5
	Divorced	27	6.9
Household size	1-2	36	9.1
	3-5 pax	234	59.4
	6+	124	31.5
Children below 18yrs in HH	1-3	43	10.9
	4-6	221	56.1
	7 and above	130	33.0
When first registered as NHIF supa cover member	<6 months	70	17.8
	7 - 12 months	172	43.7
	12 - 18 months	112	28.4
	>18 months	40	10.2
Have other cover other than NHIF	No	305	77.4
	Yes	89	22.6
Source of income	Salaried	244	61.9
	Entrepreneur	119	30.2
	Casual	31	7.9
How do you frequently receive income?	Daily	63	16.0
	Weekly	222	56.3
	Monthly	109	27.7
Household income per month (KSH)	<5000	54	13.7
	5001 - 15000	193	49.0
	15001 - 30000	147	37.3

The majority of the participants were married (N=200, 50.8%). Most of the participants (N=358, 90.9%) were living in households with over 3 members and 351, 89.1% of the households had over four children below the age of 18 years. Over three-quarters (N=305, 77.4%) had no alternative insurance cover other than NHIF. The majority of the participants were salaried (N=244, 61.9%) with most of them earning weekly wages (N=222, 56.3%). About half of the participants earned between Ksh. 5,001 – 15,000 (N=193, 49.0%).

3.2 Descriptive Analysis of Determinants of Willingness to Renew

3.2.1 Influence of Premium Level on Willingness to Renew

Establishing the influence of premium level on willingness to renew the NHIF among members of the national scheme members of Kajiado County was the first objective of the study. A 5-point Likert scale ranging from 1-5 (1=strongly disagree, 2 = disagree, 3=neutral, 4=agree and 5=strongly agree) was used. Median scores and inter-quartile ranges (IQR) were reported as the data was non-normally distributed. The overall median score for the premium level on willingness was 3.8 (IQR 2) and the specific items had a higher median score than the overall category score. This means that a larger part of the study participants opined that the current NHIF premiums were affordable (median 4.00, IQR 2.00), modes of payment were easy (median 5.00, IQR 2.00), premium payment were flexible (median 4.00, IQR 2.00), monthly frequency of payment appropriate (median 4.00, IQR 2.00) and were comfortable with the penalties on default (median 4.00, IQR 2.00). The table 2 shows the ratings of the different components by the respondents.

Table 2 Ratings of the premium level

Premium level	Median	IQR
The current NHIF premiums is affordable to me	4.00	2.00
The current modes of paying premiums are easy	5.00	2.00
I find premium payment to be flexible	4.00	2.00
The monthly frequency of premium payment is appropriate	4.00	2.00
Penalties on default is comfortable for me	4.00	2.00
Overall	3.80	1.00

3.2.2 Awareness of NHIF fund Services and Willingness to Renew

The second question of the survey was to assess the influence of awareness of fund services on the willingness to renew the insurance scheme among Kajiado County residents. Overall, a median score of 3.50 (IQR 1.33) was reported for the category. Table 3 shows that a large portion of the respondents agreed that they understood the renewal procedure of membership when it expires (median 5.00, IQR 2.00) and were always aware that the insurance will pay their visits at the health facility (median 5.00, IQR 2.00). Similarly, majority of participants were aware of the accredited health facilities to seek care from in-country (median 4.00, IQR 0) and also were aware that they could get treatment overseas with the supa cover package (median 4.00, IQR 3.00).

Table 3 Ratings for awareness of NHIF fund services

Awareness statement	Median	IQR
I understand the renewal procedure of membership of NHIF when it expires	5.00	2.00
I often receive communication from NHIF about super cover benefits	3.00	2.00
I know the NHIF accredited health facilities to go to when I need service.	4.00	0.00
I have been educated on NHIF supa cover benefits	1.00	4.00
I am often aware that NHIF will pay for my visits to a health facility.	5.00	2.00
I know I can get treatment overseas with the supa cover package	4.00	3.00
Overall	3.50	1.33

However, majority of respondents disagreed on whether they receive communication from NHIF about supa cover benefits (median 3.00, IQR 2.00) or have been educated on NHIF supa cover benefits (median 1.00, IQR 4.00). This implies that, although there is good awareness among residents on costs being covered by the insurance at the facility and renewal of the expired covers, NHIF needs to expand their communication strategy to include, information on the benefits accruing from registering and retaining the insurance cover to the residents for achievement of UHC.

3.2.3 Influence of Service Providers on Willingness to Renew

The third objective of the study was to establish the influence of service providers on the willingness to renew the insurance scheme among Kajiado County residents. A 5-point Likert scale ranging from 1-5 (1=strongly disagree, 2 = disagree, 3=neutral, 4=agree and 5=strongly agree) was used. Medians and IQRs were reported. As shown on table 4, overall, respondents believed service provider factors are a major influence on their willingness to renew the insurance cover (median 3.67, IQR 1.00). Majority of respondents were satisfied that their cards were accepted as modes of payment (median 5.00, IQR 1.00), received most of the services in the accredited health facilities (median 5.00, IQR 1.00), and were comfortable with the waiting time (median 5.00, IQR 2.00). However, a larger number of participants were not satisfied, as the services in the NHIF guidelines did not match what they receive in the facilities (median 1.00, IQR 4.00). On average, there was good satisfaction that respondents were treated with courtesy (median 3.00, IQR 2.00), received satisfactory services in accredited health facilities (median 3.00, IQR 2.00), and often received drugs prescribed in the accredited health facilities (median 3.00, IQR 3.00).

Table 4 Ratings on service providers

Service provider statement	**Median**	**IQR**
I am confident that my card will be accepted as a mode of payment in an accredited health facility	5.00	1.00
NHIF accredited health facilities are available within 10 Kms of my residence	4.00	2.00
I receive most of the health services under the super-cover in the accredited health facilities	5.00	1.00
NHIF card holders are treated with courtesy	3.00	2.00
I would like to enrol for the other NHIF covers but I am not allowed to	3.00	2.00
The services in the NHIF guidelines match what I receive in the facilities.	1.00	4.00
The waiting time is comfortable for me in the accredited health facilities	5.00	2.00
I am confident of receiving satisfactory services in accredited health facilities	3.00	2.00
I often receive all drugs prescribed in the accredited health facilities	3.00	3.00
Overall	3.67	1.00

3.2.4 Influence of Adverse Selection on Willingness to Renew Insurance

The fourth objective was to determine the influence of adverse selection on willingness to renew insurance cover among national scheme members of Kajiado County. Similar to the previous objectives, mean scores were computed from a Likert scale ranging from 1-5. As shown on table 5, overall, respondents reported that adverse selection had an influence on willingness to renew with a median score of 3.75, IQR 1.00. Majority of the respondents believed they needed a health service immediately (median 4.00, IQR 2.00), would stop NHIF once they get the health services (median 5.00, IQR 2.00), had individuals who need urgent health services (median 4.00, IQR 2.00) and they considered themselves as healthy (median 4.00, IQR 2.00). Majority of respondents report an increased likelihood of renewal of insurance cover because they need health services and/or have an individual who need the health services.

Table 5 Ratings of adverse selection

Adverse selection statement	Median	IQR
I currently need a health service immediately	4.00	2.00
Stop NHIF after I get the health services	5.00	2.00
In my household I have individual/s who need urgent health services	4.00	2.00
I consider myself a healthy individual	4.00	2.00
Overall	3.75	1.00

3.2.5 Willingness to Renew NHIF Cover

To assess willingness to renew insurance cover, a 5-point Likert scale ranging from 1-5 (1=strongly disagree, 2 = disagree, 3=neutral, 4=agree and 5=strongly agree) was used. Median scores and IQR are presented. As shown on table 6, overall, respondents showed high willingness to continue paying the insurance premiums and renew their insurance covers for health services (median 3.86, IQR 0.75). Respondents were willing to enrol and renew their covers with NHIF if they knew the cover benefits (median 5.00, IQR 1.00), continue with payments largely if the costs of inpatient services are covered (median 5.00, IQR 1.00), if they would receive quality health services (median 5.00, IQR 1.00) and also continue with NHIF payments due to the benefits (median 5.00, IQR 2.00).

Table 6 Ratings on willingness to renew NHIF

Statement	Median	IQR
I am willing to continue with NHIF payments due to its benefits	5	2
I would reconsider enrolling with the NHIF if I knew all the NHIF cover benefits	5	1
I would enrol for the NHIF cover if my dependents were all covered	4	2
If the NHIF accredited providers would provide quality services I would enrol for it	5	1
I would renew the NHIF cover if there more NHIF accredited facilities near me	4	3
I would renew the membership if NHIF was offering services for chronic diseases	2	1
I would renew my membership if NHIF membership covered Inpatient services	5	1
Overall	3.86	0.75

3.3 Bivariate Analysis

Table 7 Binary logistic analysis of relationships between independent and dependent variable

Independent variable	Hosmer & Lemeshow test significance	Categories	Odds Ratio	P-value
Gender		male	3.8	<0.001
		female	1	
Age	1	18-25	1	
		26-35	287207022.91	0.9999
		36-45	2182395470.15	0.9999
		46+	1942277830.50	0.9999
Marital status	1	Separated	1.000	
		Married	0.883	0.614
		Single	0.381	0.003

		Divorced	0.652	0.328
Household size	1	1-2 people	1.000	
		3-5 people	0.147	<0.001
		6+ people	0.207	0.001
Children below 18yrs in HH	1	1-3 children	1	
		4-6 children	1048846945.93	0.997
		7 and above	6784954726.10	0.997
Household income per month (KSh)	1	<5000		
		5001 - 15000	0.109	0.604
		15001 - 30000	0.035	0.504
Premium level	<0.001		2.278	<0.001
Awareness of NHIF fund services	<0.001		3.885	<0.001
Service Providers on willingness to renew	<0.001		6.064	<0.001
Adverse selection on willingness to renew	<0.001		2.180	<0.001

A binary logistic regression analysis to show the relationship between each of the independent variables/determinants (socio-demographics, premium level, awareness of NHIF services, service providers' factors and adverse selection) and the dependent variable (willingness to renew the insurance cover) was conducted. P-values (showing significance of relationship), odds ratios (showing the strength of the relationship between independent determinant and willingness to renew) were reported and summarised in table 7. From the bivariate analysis in table 7, males were 3.8 times more likely to renew their insurance compared to females (OR=3.8, p<0.001). Singles were 62% less likely to renew compared to the marrieds (OR=0.38, p=0.003). Households with 1-2 people were more willing to renew compared to those with 3-5 (OR=0.15, p<0.001) or 6 and more people (OR=0.21, p=0.001). For the covariates, for every unit increase in premium level, the odds of willingness to renew increased by 2.3 times (OR=2.28, p<0.001). For every unit increase in awareness of NHIF fund services, the odds of willingness to renew increased by 3.9 times (OR=3.89, p<0.001). A unit increase in service providers factors scores increased the odds of willingness to renew by 6.1 times (OR=6.06, p<0.001), making it the largest determinant for willingness to renew. For every unit increase on adverse selection category, the odds of willingness to renew increased by 2.2 times (OR=2.18, p<0.001). However, age, number of children less than 18 years in household and household income per month were not statistically significant factors to determine the willingness to renew the insurance cover (p>0.05).

3.4 Multivariate Analysis

A multivariate binary logistic regression model was performed to determine whether the independent variables (socio-demographics, premium level, awareness of NHIF services, service provider's factors and adverse selection on willingness to renew) were determinants of the dependent variable (willingness to renew the insurance cover).This included the model's goodness of fit using the Hosmer and Lemeshow test in SPSS 26. Premium level was eliminated from the final model due to multicollinearity (with a VIF of 180.1 in the model).

The study findings show that controlling for all factors (or holding all factors at zero); marital status, household size, household income per month, awareness of NHIF fund services, service providers and adverse selection on willingness to renew were significant determinants of willingness to renew the insurance cover. As shown on table 8, marital status was significantly associated with willingness to renew the insurance cover. The marrieds were 16 times more willing to renew their insurance covers (AOR =15.6, 95%CI 2.3 – 106.4, p=0.005) compared to those singles or separated.

Larger household sizes were more willing to renew their insurance covers compared to the smaller households. Households with 3-5 people were 57 times (AOR = 57.2, 95%CI 4.9-661.0, p=0.001) while those with over six people were 16 times (AOR = 15.8, 95%CI 2.5 – 102.3, p=0.004) more willing to renew their insurance covers compared to households with 1-2 people.

Respondents with higher income had less chances of renewing their health cover in comparison to those earning low income of less than Ksh. 5000 per month.

Awareness of NHIF services was a significant determinant for willingness to renew the insurance cover in the study. A unit increase in awareness of NHIF services, led to 13 times increase in odds of willingness to renew of insurance cover (AOR = 13.2, 3.1 – 55.5, p<0.001.

Consequently, a unit increase in service providers' factors led to a 109 increase in odds of willingness to renew insurance cover (AOR=109.0, 95%CI 14.8-803.8,p<0.001).Services provider factors such as access to accredited NHIF facilities and quality were associated with greater willingness to renew of insurance cover.

Table 8 Multivariate analysis

	Categories	**P-value**	**AOR**	**95% C.I.**	
				Lower	**Upper**
Constant		**0.998**	**0.000**		
Gender	Male (ref)				
	Female	0.140	5.797	0.562	59.779
Age (years)	18-25 (ref)				
	26-35	0.999	0.000	0.000	
	36-45	1.000	0.000	0.000	
	46+	1.000	0.014	0.000	
Marital status	Separated (ref)				
	Married	0.005	15.6	2.3	106.4
	Single	0.907	0.911	0.191	4.346
	Divorced	0.070	235.480	0.634	87408.199
Household size	1-2 people (ref)				
	3-5 people	0.001	57.2	4.9	661.0
	6+	0.004	15.8	2.5	102.3
Children below 18yrs in HH	1-3 children (ref)				
	4-6 children	0.997	13364749096.2	0.000	
	7 and above	0.996	1518214160164.7	0.000	
Household income per month (KSh)	<5000 (ref)				
	5001 - 15000	0.000	0.009	0.001	0.056
	15001 - 30000	0.001	0.028	0.004	0.213
Awareness of NHIF fund services		<0.001	13.2	3.1	55.5
Service providers on willingness to renew		<0.001	109.0	14.8	803.8
Adverse selection on willingness to renew		<0.001	0.043	0.009	0.202

Adverse selection on the other hand, had a lower influence on the willingness to renew insurance cover (AOR = 0.043, 95%CI 0.009-0.202, p<0.001). This may be due to the fact that the concept medical insurance such as NHIF cover is still misunderstood by a section of the population in Kajiado County where individuals seek to renew the cover at the point of needing services then drop-off there-after.

4. Discussion

This study set out to determine the influence of NHIF premium level, awareness of NHIF fund services, service provider's factors and adverse selection on willingness to renew insurance cover among members of the national scheme of the NHIF in Kajiado County.

Our study revealed that demographic characteristics such as marital status, household size and level of income were important elements that influence willingness to renewal of NHIF cover. Awareness of NHIF fund services, service provider factors and adverse selection were significant influencers of willingness to renew NHIF. Being married was significantly associated with willingness to renew the insurance cover. This concurs with other studies [14], which found a strong association between being married has a relationship with having health insurance coverage in comparison to those never married and previously married. Similar findings have been reported in a study [15].

Larger household sizes were more willing to renew their insurance covers compared to the smaller households. This finding is consistent with a study in low- and middle-income countries like Kenya, which revealed that homes with more members had increased likelihood to pay for health insurance [16]. This implies that households with big numbers have higher chances of avoiding the catastrophic out of pocket expenditures for health services as the overall benefits masks the families against huge health services costs, a key deterrent against access and utilisation of health services in low-resource settings.

Respondents with higher income had less chances of renewing their health cover in comparison to those earning low income of less than Ksh. 5000 per month. A result consistent with another study conducted in Ghana where individuals with relatively high income had low chances to pay for medical cover in contrast to the low-income earners ([17,18]. However, our finding differs with studies conducted in Ghana and Kenya respectively that found that richer families had more chances to pay for cover [15, 19, 20]. This may be due to the fact that respondents with higher income may feel more secure and able to pay out-of-pocket compared to the low-income earners who perceive themselves as more vulnerable. In this case, the low-income earners may find the benefits of NHIF cover outweighs the costs. Moreover, wealthier individuals are more likely to have alternative private health insurance schemes as opposed to the public statutory NHIF, a feature demonstrated in a study in Kenya on determinants of health insurance choice [17]. This finding demonstrates that inequities still persist in health insurance mechanisms. Those from low socio-economic status are willing to voluntarily contribute to their health covers compared to their higher socio-economic counterparts, who probably feel secure and can afford to pay out-of-pocket health care costs. To achieve a national insurance scheme for all, this means that funding health care through alternative mechanisms, preferred by the majority such as tax instead of national health insurance scheme as proposed in a study conducted in Kenya , is a viable mechanism to achieve UHC [21].

Awareness of NHIF services was a significant determinant for willingness to renew the insurance cover in the study. Evidence from a systematic review conducted in emerged and emerging countries and survey studies in India, showed that awareness, knowledge and understanding of insurance especially by the households was associated with enrolment and retention in the insurance scheme [16,22]. Our findings are similar to a study in Kenya which reported that new benefit packages were defiantly disseminated and imbalanced across the layers of populations [6 ,23]. NHIF members felt that they received sub-optimal information about the benefit entitlements, often fluctuating and at odds messages from the NHIF and also divergent between the on-paper benefits and the real benefits given to the members. In addition, studies in Kenya and India showed that individuals who were exposed to media had high awareness of health insurance and increased chances of enrolment and renewal of an insurance cover (15,24]). Although, our study showed high knowledge of health cover among residents on costs being covered by the insurance at the facility and renewal of the expired covers, NHIF needs to expand their communication strategy to include information on the benefits accruing from registering and retaining the insurance cover to the residents. It is imperative that for UHC targets to be achieved, awareness about the insurance services must be created and healthcare must be accessible, affordable and of high quality to the community with cost not being a hindrance for all.

Service providers' factors had a higher influence willingness to renew insurance. Similar findings have been reported where access to NHIF infrastructure and high quality of services – including availability of medicine and consumable

supplies; good healthcare worker frame of mind, and fair lead times offered, was significantly related with enrolment and renewal of insurance schemes [6,23,25,26]. As shown in Ghana and Ethiopia, insurance offering and low calibre of health services, national health insurance scheme-certified health institutions possibly decreases customers confidence in the scheme and eventually reduces the willingness to renew insurance [27,28]. Evidence from a systematic review on factors promoting renewal in health insurance in LMICs (low and middle income countries) shows that the insight that healthcare of high calibre and are close to their homes act as elements that increase insurance membership [16]. In contrast however, the mismatch between services indicated in the NHIF guidelines and the accredited health facilities shows that there is need to strengthen responsible modalities linking insurance and service provider institutions to ascertain that active subscribers receive the envisaged medical service packages that are due to them and their encounters at health facilities are good enough. Findings which were emphasized in a study in Kenya[6]. It is imperative that for these UHC targets to be achieved, health care services provided must be accessible, affordable and of high quality to the community with cost not being a hindrance whatsoever.

Adverse selection on the other hand had a lower influence on the willingness to renew insurance cover. This finding is similar to the study conducted in Ghana which showed that renewal of insurance was more likely for those who used healthcare services than those who did not and also increased for those who frequent that health institutions [29]. This may be due to the fact that the concept medical insurance such as NHIF cover, is still misunderstood by a section of the population in Kajiado County where individuals seek to renew the cover at the point of needing services then drop-off there-after. Evidence suggests that, if individuals are knowledgeable of the mechanisms on how their insurance works, they are at an increase state to regsiter in insurance and especailly when claims are honoured they are most likely to pay their monthly premiums [16].This clearly demonstrates that more efforts are needed to create awareness on the risk benefit analysis of healthcare and the social protection provided for by the voluntary insurance covers against catastrophic out-of-pocket expenditures on healthcare especially for chronic illnesses.

Overall, respondents showed high willingness to continue paying the insurance premiums and renew their insurance covers for health services. As evidenced in previous studies, one will largely renew their insurance cover if the premiums are affordable, understands the benefits expected from the cover, is guaranteed of quality health services at the health facilities for self and his dependants [6, 15,23, 24,28,29].

5. Conclusion

Our findings shows that residents have high willingness to continue paying the insurance premiums in Kajiado County although with individual and system challenges experienced.

Marital status, larger household sizes, lower income, awareness of NHIF services, and service providers' factors were significantly associated with high willingness to renew. Adverse selection on hand had a lower influence on willingness to renew. There is need to increase the community's awareness of NHIF fund services. NHIF needs to address equitable access to services across the NHIF packages. Member education on health insurance risk-benefits is critical. Service providers should ensure high grade health services availability in accredited health institutions as an incentive NHIF renewal by voluntary contributors.

Compliance with ethical standards

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Disclosure of conflict of interest

Authors declare no conflict of interest of any nature in this study.

Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors'. Ethical approval was sought from Kenya Methodist University Scientific Ethical Research Committee.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Authors' contributions

KSS: Designed the study, conducted data collection, performed data analysis and drafted the manuscript; KMN provided the overall technical guidance and reviewed the manuscript.MOO provided technical input and guided the study design, and reviewed the manuscript; DNS participated in the design of the intervention, provided technical support with data analysis and reviewed the manuscript. All authors read and approved the final manuscript.

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