

# Determinants of Nonrenewal of National Health Insurance (NHI) Membership Cards Among Healthcare Workers in the Kintampo North Municipality, Bono East Region of Ghana.

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## Research Article

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# Abstract

## Introduction:

National Health Insurance Scheme (NHIS) was implemented in Ghana in 2004 to serve as the lifeline to realizing Universal Health Coverage (UHC). Available evidence suggests that, formal sector workers do not promptly renew their expired NHIS membership cards. This study was therefore conducted to unearth factors responsible for the failure of healthcare workers in the Kintampo North Municipality to promptly renew their health insurance membership whenever it expires.

## Methods

A descriptive cross-sectional approach was used to conduct this study where three hundred and ninety-seven (397) participants were recruited using a proportionate stratified sampling technique. All variables with a p-value < 0.25 at the bivariate analysis level were selected and put into multiple logistic regression analysis models for statistical significance (p-value < 0.05). Odds ratios with their corresponding 95% Confidence Interval were reported. A p-value < 0.05 was set as level of significance.

## Results

Almost all the respondents (94.0%) had NHIS membership cards; out of which 70.7% had valid membership cards. 40.0% did not renew their expired NHIS membership cards for more than 7 months. From the study, reasons given for health workers' inability to promptly renew NHIS membership included: 212 (19.8%) indicated forgetfulness, busy schedules 191 (17.9%), procrastination 167 (15.6%), self-medication 170 (15.9%) and utilization of spiritual homes (4.5%). All socio-economic factors were significantly associated at the bivariate level ( $p < 0.05$ ). However, in the multiple logistic regression model, employment status, the type of health staff and monthly salary lost their statistical significance.

## Conclusion

NHIS subscription and membership renewals is high among healthcare works in the Kintampo North District of the Bono East Region of Ghana. However, there is the need to encourage those who do not renew their expired cards by ensuring that more NHIS cards renewal centers are established at close proximity to the health facilities. It will be prudent for NHIS to liaise with Government of Ghana (GoG) to put measures in place to facilitate automatic membership renewals for public sector workers who for some other reasons often fail to renew their cards.

## Introduction

Universal Health Coverage (UHC) through advance payment funding modality has proven to be a formidable vehicle for realizing the sustainable development goals (SDG) [1]. The National Health Insurance (NHI) was established to be the lifeline of UHC across the globe and Sub-Saharan Africa is no exception. Diverse types of Health Insurance (HI) could be identified in Sub-Sahara African countries such as Ghana, Nigeria, Kenya, Tanzania and Uganda [2]. According to [1, 2] the National Health Insurance Scheme (NHIS) was implemented in Ghana in August, 2003 to increase access to quality healthcare services for all populations irrespective of one's social and financial backgrounds. The National Health Insurance Fund (NHIF) receives its financial strengths from five main sources namely: Value-Added Tax (VAT), Social Security and National Insurance Trust (SSNIT) from the formal sector workers, proceeds from reserves of the National Health Insurance Authority (NHIA), contributions and premiums paid by the scheme subscribers. Exemptions are however, provided to the aged (70 years and above), SSNIT retirees, children who are below 18 years, pregnant women and people who are captured under Livelihood Empowerment Against Poverty (LEAP).

Being a prepaid system, NHIS ensures mutual merging of risks and the redistribution of economic resources in a way that guarantees monetary security against the cost of ailments [3]. Similarly, a member of the NHIS could also enroll in a private health insurance scheme (HIS) as per Act 852 of parliament of Ghana. This same Act enjoins all employers to ensure their employees are registered under the NHIS [3].

Deprived households captured under social health insurance policies have reduced mortality and improved accessibility to health services. Also, out-of-pocket payments by well-to-do households have decreased by 64%, and has contributed to the reduction of out-of-pocket settlements by, between 16% and 18% [4]. According to a study established by [1] the NHIA has a predetermined benefit package; out of which almost 95% caters for common disorders being treated at health facilities in Ghana. Benefits under the NHIS package include general out-patients and in-patients cares, reproductive, child and maternal cares, ophthalmic, oral and emergency care services, and a detail of essential drugs pre-qualified by the NHIA are also paid for by the scheme. Cosmetic surgeries, dialysis and organ transplants are not paid for by the scheme.

Management of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS), Expanded Program on Immunization (EPI) and family planning services are included in the NHIA for payments. In 2012, through an Act of Parliament of the Republic of Ghana, the membership of NHIS was made compulsory for all inhabitants of the country. Out of the 18.5 million people who subscribed to the scheme, just 10 million denoting 40% were valid; a situation that has the potential of obstructing the nation's goal of achieving 100% HI coverage for the populace by the year 2030 [5].

A study conducted by [6] established that the HI in Africa is struggling and it was predicted in 2007, that over 7 million people in Ghana had subscribed to cover 35% of the main workforce. Discovery from investigations carried out by [7] on the factors that influence enrolment and retention in Ghana's NHIS showed that the determinants are multi-dimensional and encompass all shareholders. It further detected

that subscribers register and renew their memberships with NHIS because of the benefits and healthcare service providers' positive behaviors; limitations to enrolment and retention include but not limited to poverty, disappointments and attitudes of healthcare service providers. Again, traditional risk-sharing arrangements influenced the renewal of membership cards because they need healthcare services. In 2014, a study conducted among 180 healthcare service providers in Lagos State, Nigeria, by [8] revealed that only 61% of the participants accepted NHIS clients and not only that but also, half of the participants were dissatisfied with the operations of the scheme. The operations of the NHIS in Ghana is endangered in terms of finances and effective operational determinants like spatial distribution of healthcare facilities and professionals, large exemption classifications, inadequate sensitization of the public, poor quality care in NHIS approved facilities, hence, reduction in enrolments and or renewals of membership cards [9]. Enrolment and renewal of NHI memberships are recognized to have helpful effects in advancing accessibility to healthcare delivery services and produce mechanisms of preventing exorbitant healthcare expenses that have the potential of plunging low resourced households into poverty [10].

Formal sector workers are exempted from the flat rate premium deductions because their premiums are deducted from their SSNIT contributions to the scheme, however, that does not qualify them to be automatic members of the scheme until they enroll with any district health insurance management scheme (DHIMS) of their choices and pay the required registration fee [10]. NHIS subscriptions have been explored by quite a number of scholars, however, these studies were carried out on the scheme managers and service providers with dearth focus directed at subscribers with little attention given to factors influencing nonrenewal of NHIS membership cards among healthcare workers [11]. Some studies have established the factors impacting the enrollment and retention of NHIS memberships in the Ashanti, Eastern, Central and Volta Regions of Ghana [5]. Searches in relevant literature produced no results of scholarly study conducted in Kintampo North Municipality of the Bono East Region regarding factors responsible for the renewal or otherwise of health insurance membership among healthcare workers. It is in view of this that this study was carried out to determine the factors that influence non-renewal of NHIS membership cards among healthcare providers in the Kintampo North Municipality of the Bono East Region, Ghana.

## **Methods And Materials**

### **Study area**

The study was conducted in the Kintampo North Municipality of the Bono East Region, Ghana West Africa.

### **Study Design**

This was a municipality-based descriptive cross-sectional study that employed quantitative data collection methods. Participants were recruited within a duration of 12 weeks in the Kintampo North Municipality.

## **Study Population**

The population under study comprised healthcare workers within the Kintampo North Municipality who were in active service. A total of three hundred and Ninety-Seven participants were interviewed.

## **Inclusion and Exclusion Criteria**

All healthcare workers within the Kintampo North Municipality who were in active service were given equal opportunity to participate in the study. Healthcare workers who were on retirement, those doing their national service, students on industrial/clinical attachments were not recruited to participate in the study. Healthcare providers who met the inclusion criteria but were unwilling to participate were excluded from the study.

## **Sample Size Estimation, Sampling Technique and Procedure**

The sample size was estimated using Yamané's formula of sample size estimation [12], with a confidence interval of 95% and margin of error of 5%. The municipality had an estimated total healthcare providers of 1061. The final sample size was estimated as 320 including a 10% non-response rate. Eventually, a total of 397 healthcare workers were recruited during the data collection period using google forms from October, 2021 to December, 2021. Proportionate stratified sampling technique was used to organize participants into two strata, Mechanized staff (849) and casual staff (212). In the second stage, portions of the sample size were allocated to the two categories based on their ratio to the total staff population (mechanized staff = 256 and casual staff = 64). In the final stage of the technique, a link to the google form questionnaire was sent to the WhatsApp platforms of each stratum. The first 397 entries by end of 31<sup>st</sup> December, 2021 midnight were used for the study.

## **Data Collection Tools and Procedures**

The data was gathered using a structured questionnaire. The questionnaire was designed based on the objectives of the study to elicit information from the participants. The questionnaire was segmented into sections A and B. Whilst the Section A composed of the socio-economic and demographic characteristics of respondents, Section B consisted of the proportion of respondents with valid NHIS membership cards. The questionnaire was piloted among 15 healthcare workers in the Kintampo South District which shares geological boundary with the study setting and has similar socio-economic and demographic characteristics as those in the study setting. This was to ensure the reliability and consistency of the instrument. The appropriate corrections were effected before the actual data collection was carried out on the study participants. The questionnaire was digitized and shared on WhatsApp platforms made of only the study participants (healthcare workers in the Kintampo North Municipality). The digitized questionnaire was restricted in such a way that multiple responses from the same device were not allowed.

## **Statistical Analysis**

Data was entered, cleaned and managed using Microsoft excel version 16. The data was later exported to Stata version 15 and analyzed. Gender, religion, marital status, educational level were coded as categorical variables. Age was collected as continuous variable and categorized during analysis. Descriptive statistics were used to present the proportions on background characteristics of the respondents at the univariate level. Binary and multiple logistic analysis were performed to establish the strength of associations between socio-demographic and socio-economic factors influencing the nonrenewal of NHIS membership. All variables with p-value <0.25 at the bivariate analysis level were selected and put into a multiple logistic regression analysis model for statistical significance (p-value < 0.05). Odds ratio with their corresponding 95% Confidence Interval were reported. A p-value < 0.05 was set as level of significance.

### **Demographic Characteristics of Respondents**

The study surveyed 397 healthcare workers in the Kintampo North Municipality to assess the determinants of nonrenewal of the National Health Insurance Membership card. The demographic characteristics are presented in Table 1. The minimum age of the respondents was 20 years while the maximum age was 48 years. The mean age of the healthcare workers was 31.3±4.7 years. The median age of these healthcare workers in the study was 30 years. Majority of the healthcare workers (51.9) were in age group 30-39 years, 42.1% were in age group 20-29 years while 6.0% were in age group 40-49 years. In terms of sex, the healthcare workers were approximately equally distributed with the females (52.1%) slightly edging out the men (47.9%). More than half of the healthcare workers (75.3%) were Christians. Majority of the healthcare workers (98.5%) reported having attended school before. The healthcare workers were of varying educational levels. Only 1.5% of the healthcare workers had no formal education. Majority of them (96.0%) had tertiary education. More than half of the healthcare workers (48.9%) were married while 1.5% were divorced (Table 1).

**Table 1:** Demographic characteristics of respondents

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age group</b>		
20-29	167	42.1
30-39	206	51.9
40-49	24	6.0
<b>Sex</b>		
Female	207	52.1
Male	190	47.9
<b>Level of education</b>		
No formal education	6	1.5
SHS	10	2.5
Tertiary	381	96.0
<b>Religion</b>		
Christianity	299	75.3
Islam	79	19.9
Traditional	19	4.8
<b>Marital status</b>		
Single	159	40.0
Married	194	48.9
Co-habitation	38	9.6
Divorced	6	1.5

### **Socioeconomic characteristics of respondents**

Most of the healthcare workers (98.5%) had a form of a certificate. About half of the healthcare workers (46.3%) have diploma. Some of the healthcare workers (1.5%) did not have any form of qualification at all. Most of the healthcare workers (82.9%) were mechanized. Majority of the healthcare workers (75.3%)

were clinical staff. Most of them (40.1%) had worked for 3-7 years only. Majority of the healthcare workers 41.6% earn at least 2000 Ghana Cedis while 2.6% of them earn less than 500 Ghana Cedis on monthly basis (Table 2)

**Table 2:** Socioeconomic characteristics of respondents

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Qualification</b>		
None	6	1.5
Certificate	66	16.6
Diploma	184	46.3
Undergraduate	90	22.7
Postgraduate	51	12.9
<b>Employment status</b>		
Casual	68	17.1
Mechanized	329	82.9
<b>Category of health staff</b>		
Clinical staff	299	75.31
Non-Clinical Staff	98	24.69
<b>Working experience</b>		
< 3 years	101	25.4
3 -7 years	159	40.1
8 years and above	137	34.5
<b>How much do you earn monthly</b>		
<500	14	3.6
500-999	23	5.9
1000-1499	77	19.9
1500-1999	112	29.0
>2000	161	41.6

## Proportion of respondents with valid NHIS membership cards

The proportion of respondents who were willing to renew their NHIS membership upon expiration was 81.9% [(95%CI = 77.5 - 85.1)] (Figure 1).

Most healthcare workers in this study 94.0% had NHIS membership card. Out of these, majority 70.7% had a valid NHIS membership card. Most of the healthcare workers (40.0%) with expired NHIS membership card did not renew their membership for at least 7 months while 24.4% of them had their cards expired between 0-3 months and 4-6 months respectively

(Table 3).

**Table 3:** NHIS membership

Variables	Frequency	Percentage
<b>Do you have NHIS membership card?</b>		
No	24	6.0
Yes	373	94.0
<b>If "Yes" to question 13, is your NHIS membership card valid?</b>		
Maybe	64	17.2
No	45	12.1
Yes	263	70.7
<b>If "No" to question 14, how long has your NHIS membership card expired?</b>		
0 - 3 months	11	24.4
4 - 6 months	11	24.4
7 months and above	18	40.0
Don't know	5	11.1

## Barriers to renewal of NHIS membership

When asked about factors that prevented healthcare workers from renewing their membership, 212 (19.8%) indicated forgetfulness as the reason why they did not renew their NHIS membership. Those

who could not renew their membership due to busy schedules were 191 (17.9%) while 4.5% of the healthcare workers did not renew their NHIS membership card because they preferred spiritual homes to attending a healthcare facility. Details are as shown figure 2.

### **Motivators for the renewal of NHIS membership**

When quizzed about what should be done to encourage healthcare workers to renew their NHIS membership cards on time, it was observed that 271 (29.0%) expressed that strict measures should be put in place to stop self-medication. About a quarter of the healthcare workers were of the opinion that more institutional NHIS offices should be created so that members can easily renew their membership when it expires. Some of the healthcare (8.7%) workers were of the view that membership renewal should be deducted at source (Figure 3).

### **Demographic factors influencing the nonrenewal of health insurance membership**

Multiple logistic regression analysis was performed on all variables with p-value < 0.25 at 95% confidence interval. Adjusted odds ratio showed that level of education, religious affiliation of healthcare workers and their marital status were significant predictors of nonrenewal of health insurance membership in the Kintampo North Municipality. Healthcare workers who have attained tertiary education were 5 times more likely not to renew their NHIS memberships compared to those without a formal education. Also the healthcare workers who were affiliated to Christianity were 2.8 times likely not to renew their expired NHIS membership card compared to the traditional believers. Those who were divorced were 0.076 times likely not to renew their expired NHIS membership cards compared to those who were single. All other demographic characteristics were not significantly associated to nonrenewal of expired NHIS membership card (Table 4).

**Table 4:** Demographic factors influencing the nonrenewal of health insurance membership

Variables	Binary logistic regression			Multiple logistic regression		
	cOR	95% CI	p-value	aOR	95% CI	p-value
<b>Age</b>						
20-29	Ref			Ref		
30-39	1.089	0.648 - 1.829	0.748	0.832	0.456 - 1.518	0.548
40-49	2.709	0.606 - 12.102	0.192	4.595	0.702 - 30.085	0.112
<b>Sex</b>						
Female	Ref			Ref		
Mae	0.711	0.427 - 1.184	0.19	0.627	0.361 - 1.086	0.096
<b>Level of education</b>						
No formal education	Ref			Ref		
SHS	0.667	0.087 - 5.127	0.697	0.574	0.07 - 4.685	0.605
Tertiary	4.953	0.978 - 25.096	0.053	5.616	1.049 - 30.069	<b>0.044*</b>
<b>Religion</b>						
Traditional	Ref			Ref		
Christianity	2.905	1.090 - 7.743	<b>0.033*</b>	2.875	1.026 - 8.056	<b>0.045*</b>
Islam	2.297	0.779 - 6.775	0.132	2.719	0.864 - 8.556	0.087
<b>Marital status</b>						
Single	Ref			Ref		
Married	1.436	0.820 - 2.515	0.206	1.194	0.636 - 2.244	0.581
Co-habitation	0.594	0.266 - 1.327	0.204	0.609	0.258 - 1.435	0.257
Divorced	0.242	0.047 - 1.258	0.092	0.076	0.011 - 0.555	<b>0.011*</b>

**\*Significance (p<0.05)**

**Socioeconomic factors influencing the nonrenewal of health insurance membership**

All the socio-demographic factors were statistically significant at the bivariate level ( $p < 0.05$ ). However, employment status, category of health staff monthly salary lost their significance in the multiple logistic regression model. After adjusting for other variables in the multiple logistic regression model, there was 8.4 folds increased odds of NHIS nonrenewal among postgraduate participants compared to those without formal education (aOR = 8.419, 95% CI = 1.037 - 68.327). With all other socio-demographic factors controlled for, those with working experience of at least 8 years were 63.6% less likely to renew their health insurance membership compared those who have worked for less than 3 years (aOR = 0.36, 95% CI = 0.153 - 0.868). All other factors that were not statistically adjusted were not significant after adjusting (Table 5).

**Table 5:** Socioeconomic factors influencing the nonrenewal of health insurance membership

Variables	Binary logistic regression			Multiple logistic regression		
	cOR	95% CI	p-value	aOR	95% CI	p-value
<b>Qualification</b>						
None	Ref			Ref		
Certificate	11.2	1.804 - 69.532	<b>0.01*</b>	5.52	0.804 - 37.902	0.082
Diploma	7.436	1.313 - 42.103	<b>0.023*</b>	3.44	0.522 - 22.67	0.199
Undergraduate	11.846	1.966 - 71.396	<b>0.007*</b>	7.024	0.96 - 51.385	0.055
Postgraduate	12.571	1.927 - 82.01	<b>0.008*</b>	8.419	1.037 - 68.327	<b>0.046*</b>
<b>Employment status</b>						
Casual	Ref			Ref		
Mechanized	2.17	1.192 - 3.949	<b>0.011*</b>	1.888	0.765 - 4.655	0.168
<b>Category of health staff</b>						
Non-clinical staff	Ref			Ref		
Clinical staff	1.791	1.034 - 3.101	<b>0.038*</b>	1.062	0.508 - 2.221	0.872
<b>Working experience</b>						
< 3 years	Ref			Ref		
3 -7 years	0.375	0.177 - 0.796	<b>0.011*</b>	0.351	0.157 - 0.784	<b>0.011*</b>
8 years and above	0.448	0.206 - .974	<b>0.043*</b>	0.364	0.153 - 0.868	<b>0.023*</b>
<b>How much do you earn monthly</b>						
<500	Ref			Ref		

500-999	2.7	0.633 - 11.509	0.179	3.563	0.718 - 17.668	0.120
1000-1499	3.375	1.01 - 11.279	<b>0.048*</b>	2.579	0.574 - 11.591	0.217
1500-1999	3.917	1.213 - 12.651	<b>0.022*</b>	3.12	0.691 - 14.084	0.139
>2000	3.275	1.058 - 10.142	<b>0.04*</b>	1.763	0.358 - 8.677	0.486

**\*Significance (p<0.05)**

## Discussion

The study sought to elicit from participants reasons for the nonrenewal of NHIS membership cards among healthcare workers in the Kintampo North Municipality (KNM) of the Bono East Region of Ghana. The mean and median average ages of the participants were  $3.13 \pm 4.7$  and 30 years respectively. The age characteristics displayed an active and productive adult population in the study area which has the capabilities of adding on to labour force. This is in line with [13] and the National Population and Housing Census 2021 [14]. The age structures depict an active and productive adult population hence could be a reason why majority could afford to subscribe and renew their NHIS membership cards.

Data from the study also indicated a higher and least monthly income earnings of 2000 Ghana Cedis (282.20 USD) and 500 Ghana Cedis (70.55) respectively. This revelation is inconsistent with a similar study carried out among households in the Ashanti Region which reported 412.94 Ghana Cedis (108.12USD) and 200 Ghana Cedis (52.35USD) respectively [13]. Also, further findings from the study on the socio-economic characteristics of the study participants do not agree with [15, 16] outcomes that suggested minimum monthly earnings of 200 Ghana Cedis and 300 Ghana Cedis respectively. These minimum monthly income earnings may be as a result of the kind of services they provide, their corresponding salaries, their market premiums and conditions of service, but, this may not translate into the real standard of living of the health workers in the municipality since the actual standard of living could be influenced by their families, household sizes and the state of the country's economy.

Majority of the participants had some form of certificates. This is consistent with studies by [13, 17] which revealed that majority (more than 60%) and more than a third had graduated from senior high school or more respectively. Likewise, the finding in this study supports another one by [18]. However, most of the participants in this study were tertiary graduates which do not support previous findings from studies carried out in Dormaa Municipality of Ghana [15] and [4, 5, 7]. Again, our finding on the level of education (tertiary) contradicts that of [19] in the Hohoe Municipality of Ghana. A similar study carried out in Nigeria discovered higher level of education being first degree [8]. The difference in the level of education could be as result of the kind of services they provide and the certificate requirements for that form of employment.

Almost all the respondents were NHIS subscribers and majority of them had a valid NHIS membership cards. This finding is consistent with that of [4, 20] which reported higher proportions for those in the East Gonja District and patients who visited some selected healthcare delivery centers in some selected areas in Ghana. However, it is inconsistent with a similar study carried out by [21] which discovered that NHIS subscription and renewal rate were low. Again, our finding does not support the study by [22] which revealed that SSNIT contributors are unlikely to subscribe and renew their memberships with the NHIA. This could be ascribed to the study participants' job descriptions, knowledge and experience they have gained on how to prevent diseases and not falling sick. Inferences from the study points that, most of the healthcare providers in KNM use NHIS as the key means of seeking healthcare. However, this current study discovery is about twice more than that of the 2012 and 2013 national level active NHIS membership which stands at 37% and 38% respectively[23]. Similarly, this study outcome is higher than that of a study established by[24] in Barekese in the Ashanti Region of Ghana. It supports a study by [15] that revealed increment in NHIS subscriptions. Additionally, available literature from[21] indicated that majority(63.0%) had not renewed their NHIS membership cards which is in contradiction to this current study which revealed less than half of the respondents not renewing their NHIS membership cards. Majority of our study participants were however, willing to renew their NHIS memberships upon expirations. This discovery does not back previous studies findings that revealed that less than half of the people had previously renewed their memberships with NHIS and significant others not willing to renew their cards upon expirations [7, 25–27].

A number of barriers were identified by the study to be responsible for the nonrenewal NHIS membership cards. These barriers included forgetfulness, busy schedules, self-medications, procrastination and the choice of spiritual homes which do not require NHIS membership cards. These challenges are in variance with studies established by [7, 15, 21] which reported non affordability of renewal premiums, dissatisfaction of NHIS services, the need to buy drugs outside NHIS accredited facilities, vast distances to health facilities and no transportation fares, NHIS covered drugs are of low quality and feeling being healthy. Again, this study finding is inconsistent with available literature that stated long waiting in queues to renew NHIS memberships due to administrative protocols as barriers to NHIS dropouts and non-renewals [3]. Evidence from the Hohoe Municipality of Ghana in a study carried out by [19] does not support our findings on the barriers to the renewals of NHIS membership cards. According to another study conducted in Ghana on the informal sector workers also made discoveries that do not support our findings [28], however, in the rural South – Western Uganda findings from a similar study revealed high premiums as the major barrier [29]. These variations in the barriers to the renewal of NHIS membership cards may be due to differences in the geographical locations of the study settings, the sector they find themselves and the caliber of the study participants involved in the study.

Interestingly, there were a significant number of factors that could be used motivate healthcare workers to renew their membership cards. These reasons included: the need to put in place strict measures to curb self-medications, establishment of institutional NHIS offices, at source deductions or deductions from the Controller and Accountant Generals Department (CAGD) for automatic renewals of NHIS membership cards, creation of renewal centers closer to health facilities and education/promotion of NHIS cards

renewals. This is inconsistent with a similar study from [9] that reported on geographical accessibility of accredited health facilities in terms of expansion, stringent monitoring mechanisms on health providers and early reimbursement of health providers. Again, our findings contradict that of another study that proposed that the introduction of instant NHIS membership cards at the point of registration and the electronic renewal methods are likely to alleviate and motivate the protracted registration and renewals process [1]. The high mobile phone penetration in Ghana gives a special chance for NHIA to apply the voice or short text messages as techniques to educate the general public about the procedures of the scheme which can also include sending reminders to NHIS customers whose memberships are nearing expiration to avoid inadvertent loss of memberships; text messages have been confirmed to stay on mobiles phones for longer periods and could remind individuals better and further [1, 30]. Above that, findings from our study on the motivators for renewals of NHIS membership cards are inconsistent with that of [7]. The variations in the motivators for the renewals of NHIS membership cards could be attributed to the fact that there are varied ways of motivating clients and they could be client specific depending on choices coupled with individual and group interests.

It was further revealed that, educational level (tertiary), religious affiliation (Christianity) and marital status (being divorced) were significant predictors of non-renewal of NHIS membership cards. This is consistent with previous studies carried out by [5, 13]. However, it is in contrast with earlier studies by [20, 23] which revealed that educational level, marital status and religious beliefs were insignificant predictors to non-renewal of NHIS membership cards. In addition, our findings on educational level being a significant predictor to NHIS nonrenewal agrees with that of [31]. Again, our findings are inconsistent with other discoveries by [29] that suggested that educational level and religious affiliation were significant predictors to non-renewal of NHIS membership cards. The results suggest that having a spouse/partner could be beneficial because of the financial assistance obtained from being in a dual-income household, which increases the probability of renewing NHIS membership cards. Those who had attained tertiary education being more likely not to renew their NHIS membership cards compared to those without a formal education may be because at that level of their educational status, they might have accumulated sufficient knowledge on primary prevention of diseases. Hence, no need to subscribe or renew their NHIS memberships. Furthermore, it is possible they have other alternative health insurance policies.

## **Limitations**

As with self-reported surveys, there was recall bias among some of the study participants in determining exactly when their NHIS membership cards expired. It is a cross sectional study, hence causality cannot be established. The sample size wasn't large enough for some factors that were statistically significant, as such they had wider confidence interval.

## **Conclusion**

The study discovered that almost all the healthcare workers in the KNM had subscribed to NHIS and majority had their membership cards valid. However, significant number of them whose NHIS cards had expired had not renewed them for the past seven months, a situation that calls for practical efforts to sensitize people on the need to promptly renew their memberships with NHIA.

Conscious efforts should be made by the NHIA and its accredited facilities to reduce NHIS card waiting time and bureaucracies in accessing healthcare with the NHIS; this will encourage more people to subscribe or renew their memberships. This could be in the form creating more NHIA offices/ renewal centers closer to health facilities.

Above that, policymakers must apply the compulsory subscription provision in the rules governing the set-ups of the scheme. This could be realized by ensuring that subscription and renewals of NHIS membership cards are requirements for accessing certain services in both public and private institutions such as securing passports, driving licenses and gaining admissions to schools.

Eventually, pragmatic measures ought to be implemented by stakeholders and policymakers, the Municipal Health Directorate (MHD), Regional Health Directorate (RHD), the Municipal Health Insurance Authority (MHIA), Ministry of Health and its agencies to intensify education and promotion of NHIS membership renewals; attention should be paid to measures that could NHIS membership subscriptions and prompt renewals of expired membership cards.

## **Declarations**

### **Ethics approval and consent to participate**

The study was carried out in strict adherence to the 1964 Helsinki declaration as revised in 2013 [33]. Ethical clearance was sought and obtained from the Kintampo Municipal Hospital Institutional Review Committee (KMH-IRC023/09/21) before data was collected. Verbal and written informed consents were obtained from the participants before they were allowed to participate in the study. Adequate information about the study was provided to the participants regarding the aim of the study. Participants were assured and guaranteed of anonymity, privacy and confidentiality. Furthermore, they were guaranteed of data safety and appropriate data usage and storage on the digitized questionnaire. Only participants who consented were recruited into the study. All participants' personal identifiers were deleted from the summarised data, ensuring confidentiality.

### **Consent for publication**

Not applicable

### **Availability of data and material**

All data generated or analyzed during this study are included in this manuscript as a supplementary information files (S\_1 dataset).

## Competing interests

The authors declare that there is no conflict of interest

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The authors did not receive any external funding for the work.

## Authors' contributions

Mustapha Hallidu conceptualized the topic, drafted the manuscript and collected the data.

Issah Sumaila analyzed the data. Both authors reviewed the manuscript before submitting it for publication.

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## Figures

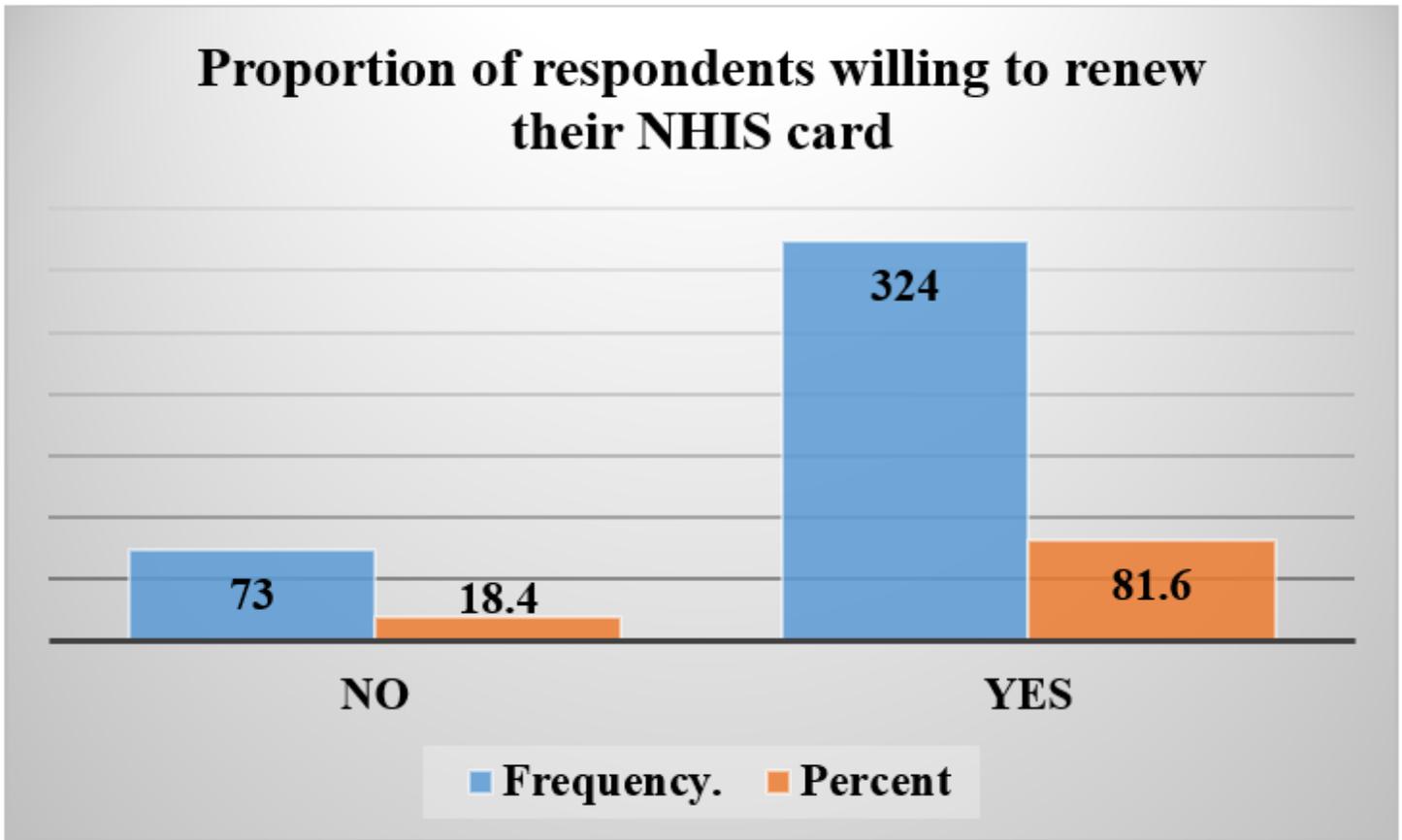


Figure 1

Proportion of respondents willing to renew their NHIS card

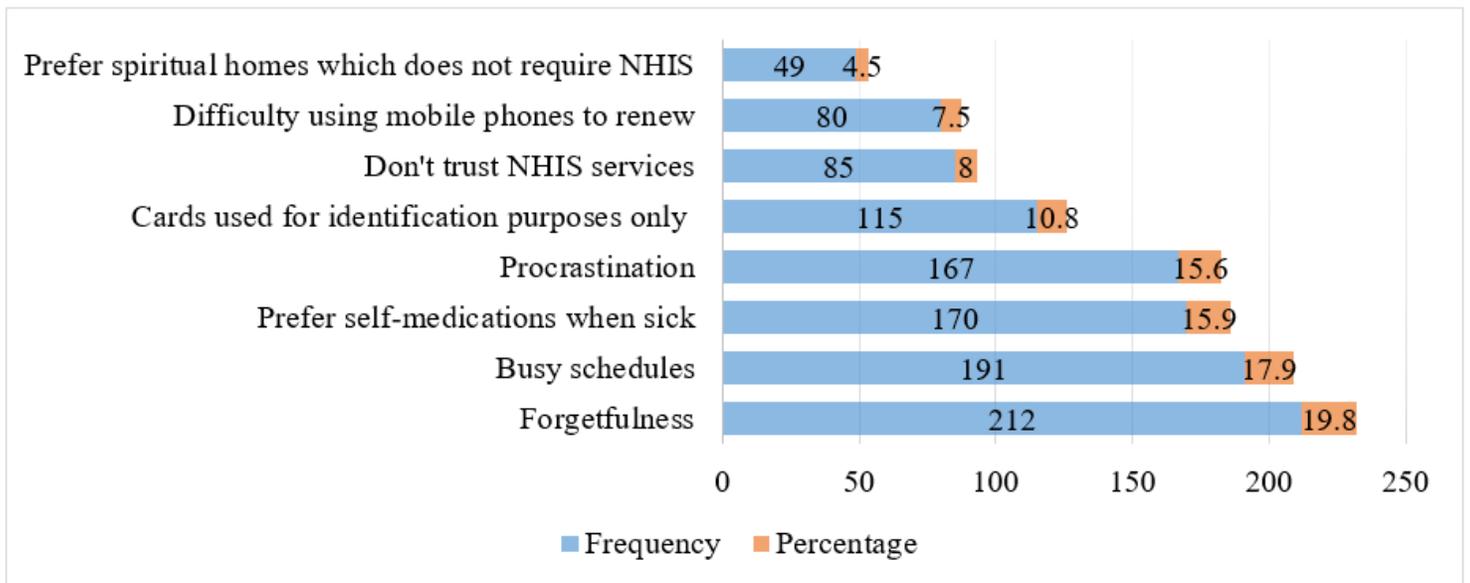
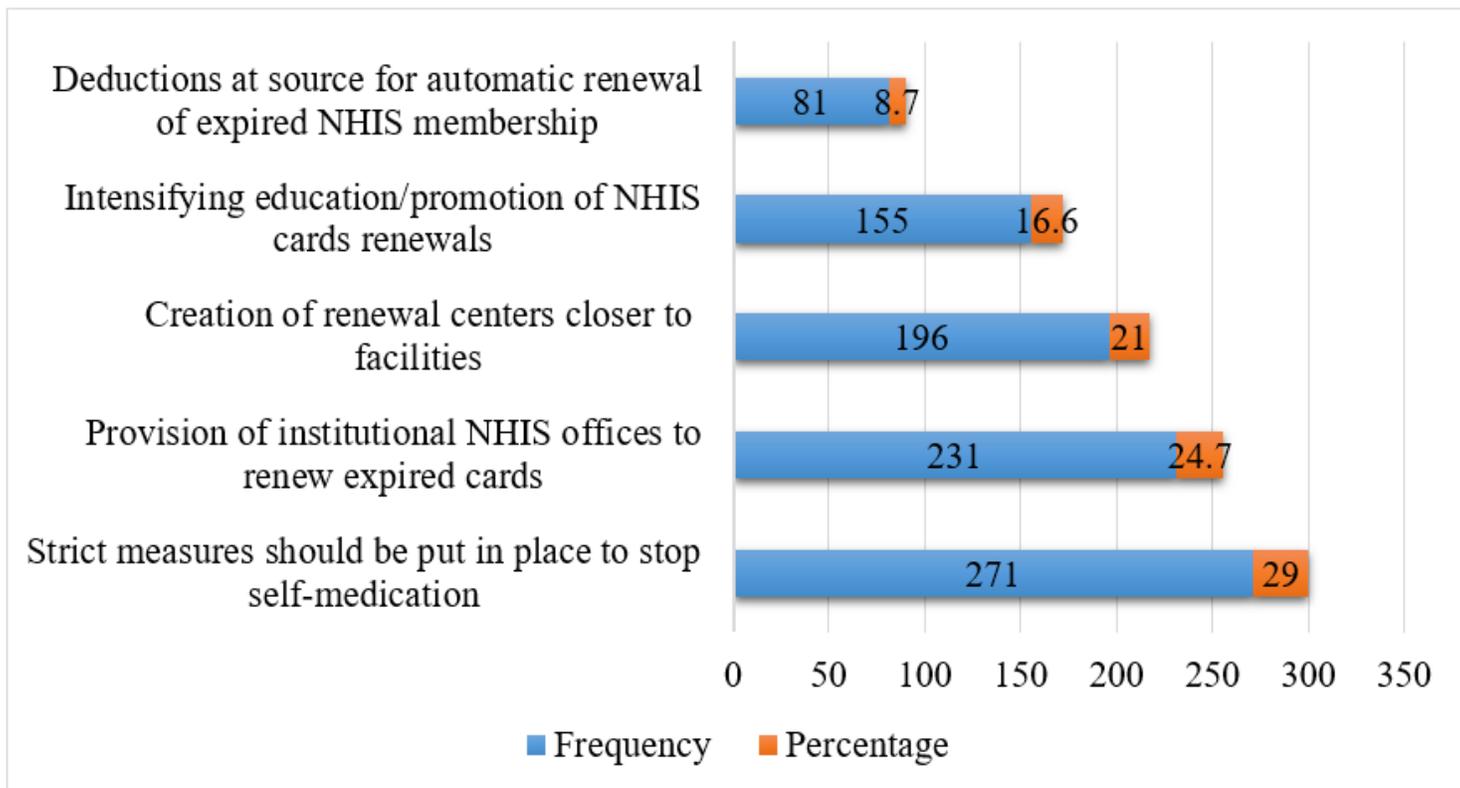


Figure 2

Reasons why healthcare workers fail to renew their expired NHIS membership cards



**Figure 3**

What should be done to encourage healthcare workers to renew their NHIS membership cards on time

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [S1dataset.xlsx](#)