



## Full Length Article



# Does health insurance status influence healthcare-seeking behavior in rural communities? evidence from rural Ghana

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## ABSTRACT

**Introduction:** National health insurance programs are considered important mechanisms for ensuring equity in access to and utilization of healthcare services by removing financial barriers associated with seeking treatment in healthcare facilities. Although studies on health insurance schemes in many low-and-middle-income countries (LMICs) have demonstrated a significant relationship between health insurance status and healthcare-seeking behavior, data on the influence of this health financing policy on the decision to seek formal healthcare among rural inhabitants remains limited. Underpinned by the Andersen-Newman behavioral model of healthcare use, this study examined the influence of health insurance status on healthcare-seeking behavior among rural dwellers in Ghana.

**Methods:** A community-based cross-sectional study was conducted among 460 rural residents in Ghana from 8th September to 5th December 2022. Chi-square tests were used to study the significance level and association between healthcare-seeking behavior and selected independent variables. A multiple logistic regression model was fitted to test the association between health insurance status and healthcare-seeking behavior, introducing other selected explanatory variables as controls.

**Results:** The mean age of the respondents was  $29.6 \pm 6.8$  years. A little above half (53.1 %) disclosed having insurance, whereas 46.1 % stated they were without coverage. Regarding healthcare-seeking behavior, the most commonly chosen treatment source was traditional healers (37.2 %), followed by the public healthcare system (28.3 %) and self-treatment (18.2 %). The private healthcare system was the least preferred, with only 16.3 % opting for it. While the bivariate analysis demonstrated a significant relationship between health insurance status and healthcare-seeking behavior ( $p=0.001$ ), the logistic regression model results showed that health insurance status was not an independent predictor of healthcare-seeking behavior ( $p = 0.069$ ).

**Conclusion:** It could, therefore, not be concluded that the respondents with health insurance coverage were more likely than the uninsured to use formal healthcare providers as their most frequent source of treatment during illness. This study provides vital information for policymakers aiming at increasing access to and utilization of facility-based formal care in rural and remote settings.

## 1. Introduction

Globally, access to quality healthcare continues to be a major concern for health systems, and as a result, universal healthcare remains

unattained in many countries, especially those in limited resource settings [1,2]. Owing to this challenge, the World Health Organization (WHO) recommended that countries develop appropriate policies and interventions to facilitate access to quality healthcare and promote

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universal health coverage for their citizens [1]. In response to the recommendation, many governments have adopted health financing strategies to enhance universal access to quality healthcare. Subsequently, some countries have developed and implemented social health insurance programs to improve healthcare utilization and protect households against impoverishment resulting from out-of-pocket payments for healthcare services [3,4].

In the era predating the introduction of social health insurance schemes in many African countries, including Ghana, the financial responsibility of healthcare expenses rested entirely on individuals. This particular system, commonly referred to as “cash and carry”, required of individuals to pay for healthcare services upfront, often leading to financial strain and significant barriers to accessing essential medical care [1,5]. The implications of this system were particularly burdensome for individuals with lower socio-economic statuses as they grappled with the daunting challenge of affording necessary healthcare services [5].

The National Health Insurance Scheme (NHIS) was introduced in Ghana in 2003 to improve universal access to quality primary health care and thus promote utilization of health services and improve health outcomes [2]. Active members pay premium contributions ranging between GHS7.2 and GHS48, [equivalent \$0.60 and \$4.0] renewable on a yearly basis. The scheme provides premium exemptions for the elderly (70 years and above), children under the age of 18 years, pregnant women, Social Security and National Insurance Trust (SSNIT) pensioners, and beneficiaries of the Livelihood Empowerment Against Poverty (LEAP) – a pro-poor social intervention being implemented by the government [6]. The NHIS covers 95 % of the burden of diseases in the country. Services covered include inpatient and outpatient care, comprehensive maternity care, diagnostic testing, generic medicines, and emergency care [6,7].

Many studies conducted in low- and middle-income countries (LMICs) have consistently revealed a noteworthy relationship between health insurance status and healthcare-seeking behavior, indicating the extent to which individuals utilize formal healthcare systems [8–13]. For instance, a study by Chen et al. [9] demonstrated a substantial rise in the utilization of Taiwan’s formal healthcare system following the implementation of national health insurance. In Vietnam, Giang et al. [13] reported a 2.5-fold increase in outpatient service usage among individuals with non-communicable diseases who were covered by health insurance compared to those without coverage. A facility-based comparative study in north-east Nigeria uncovered that a higher percentage (84 %) of insured patients, as opposed to 59 % of non-insured patients, typically chose the hospital as their primary healthcare option [10]. A study conducted by Getahun et al. [11] in Addis Ababa, Ethiopia, revealed that prior to enrolling in a community-based insurance scheme, only 8.7 % of the population utilized modern healthcare services. However, following enrollment in the scheme, this percentage significantly increased to 69 %. Setyawati and colleagues observed a similar trend in Indonesia, where the introduction of the national health insurance led to increased utilization of public facility care and a decrease in self-medication practices [14]. Furthermore, a comprehensive analysis of 68 studies in LMICs by Erlangga et al. [15] concluded that, overall, health insurance schemes in these countries have consistently boosted the utilization of healthcare facilities. In Ghana, evidence supports the significant contribution of the NHIS since its inception in 2003 to the enhancement of healthcare access, utilization, and overall health outcomes [3,16,17].

Although there is a plethora of literature on the effect of NHIS on healthcare-seeking behavior as demonstrated above, data on the influence of this health financing policy on the decision to seek formal healthcare among rural inhabitants remains limited. Whereas few studies on the topic have been documented in Ghana, the existing studies tend to have limitations in terms of geographical scope and analytical methodology [8,18]. For example, in 2017, Asibey and Agyemang examined the impact of health insurance status on healthcare

utilization in four rural communities within the Bekwai Municipality in the Western North Region [8]. In addition to the study having a limited geographical scope, the authors conducted only bivariate analysis. A more robust multivariate analysis would have been beneficial to ascertain whether health insurance independently predicted healthcare utilization among the respondents. Likewise, Dalinjong et al. [18] examined the association between health insurance status and the utilization of outpatient and inpatient health services within impoverished rural communities in the Kasena-Nankana districts of the Upper East Region. Despite utilizing a substantial sample size (55,992), the study’s geographical focus was restricted. This limitation raises concerns regarding the generalizability of the findings. Consequently, the study’s conclusions and observations may not be universally applicable to a broader population or other regions in Ghana. In two related studies, Amegbor et al. [19] and Fenny et al. [20] pooled samples from both rural and urban communities to investigate the impact of NHIS on healthcare-seeking behavior. Nevertheless, these investigations run the risk of overlooking or underestimating the unique factors influencing healthcare-seeking behavior in each specific setting. As health-seeking behavior is known to be significantly shaped by diverse factors such as lifestyle, access to healthcare services, cultural influences, and socio-economic conditions [10], combining rural and urban samples might obscure the nuanced dynamics at play in each context.

As an attempt to address the aforementioned research gap and contribute to the existing body of knowledge, this study examined the influence of health insurance status on healthcare-seeking behavior among rural dwellers in Ghana. We hypothesized that rural residents with health insurance coverage would be more likely to use formal healthcare providers as their most frequent source of treatment during illness compared to those with no insurance coverage.

Despite the increasing availability of modern healthcare services, significant sections of populations in the Ghanaian rural communities continue to rely on indigenous healing practices (informal) for their healthcare needs [21,22]. The NHIS was established, as part of its aim, to address this situation by increasing the affordability and utilization of formal healthcare services among the poor and most vulnerable populations in the country. This study, therefore, has broad implications for informing policies, improving healthcare practices and advancing research in the field. The findings have the potential to contribute to the enhancement of healthcare systems and outcomes for rural populations, not only in Ghana but also in other contexts facing similar challenges.

## 2. Theoretical background

This study is informed by the Andersen-Newman behavioral model of healthcare use. The model postulates that three dynamics determine an individual’s use of healthcare: predisposing, enabling and needs factors [23,24]. Predisposing factors are individual characteristics that are not directly related to healthcare use, but instead influence the likelihood of utilization. They include demographic (age, gender), social structure (education, occupation, ethnicity) and health beliefs (attitudes, values and knowledge an individual may have about health and health services) [25]. Enabling factors are individual, family and community resources that play a supporting role in fulfilment of an individual’s need of healthcare. They include income, health insurance status and availability of health services. Need factors focus on the immediate grounds for healthcare use by an individual. These factors include perceived illness and evaluated illness of individuals [24]. Health insurance, an enabling factor, was the primary variable of interest in this study. The predisposing and needs factors were introduced as control variables.

## 3. Materials and methods

### 3.1. Study design and setting

A community-based cross-sectional and quantitative design was used

to investigate the influence of national health insurance status on rural inhabitants' healthcare-seeking behavior in Ghana from 8th September to 5th December 2022. Ghana, a lower-middle-income country, lies along the Gulf of Guinea in West Africa and covers a total land area of 238,539 km<sup>2</sup> [26]. With a population of 31.73 million, the country is bordered on the east by Togo, on the west by Cote d'Ivoire and on the north by Burkina Faso. It is divided into 16 administrative regions, and sub-divided into 261 metropolitan, municipal and district assemblies (MMDAs). About 42 % of the country's population is rural [26].

The Ministry of Health (MOH) anchors Ghana's health system. The Ministry has the oversight responsibility of regulating the entire health sector. Its main function involves policy formulation, coordination, and regulation of the stakeholders in the health sector [27]. The Ministry has about 25 agencies through which its functions are performed, in conjunction with various ministries and departments, as well as key development partners and stakeholders within the health sector. The agencies are grouped under five main functions: regulatory, service delivery, financing, research and training [27,28]. Service delivery is organized under four main categories of delivery system: public, private-for-profit, private-not-for-profit and traditional systems. Healthcare facilities are made up of a variety of facility types and affiliations, ranging from government-owned to privately owned facilities [22,29].

### 3.2. Study population

The study population included all adult rural inhabitants in Ghana. However, only persons who were 18 years and above, had resided in the study communities for at least 6 months, were available at the time of data collection, were willing to respond, and were of sound mind to participate in the study were included.

### 3.3. Sample size estimation and sampling procedure

The sample size for the study was determined using the Kish Leslie formula [30]:

$$n = \frac{Z^2 P(1 - P)}{e^2}$$

Where  $n$  is the sample size desired,  $z$  is the statistical certainty chosen = 1.96 at a confident level of 95 %,  $p$  is the proportion of rural dwellers who utilize the formal healthcare system = 47.3 % (obtained from a pilot study used to pre-test the study instrument), and  $e$  is the desired precision = (5 %) = 0.05

Substituting the above figures:

$$n = \frac{1.96^2 \times 0.473 \times 0.527}{0.05^2}$$

$$n = 383$$

A nonresponse rate of 20 % was added to give a total sample size of 460.

Selection of the study sample involved a multi-stage sampling approach. First, Ghana was divided into three clusters based on the three ecological zones in the country: coastal, middle belt and northern. Second, one region was randomly selected from each of the three ecological zones: Central Region from the coastal zone, Ashanti Region from the middle belt, and Savannah Region from the northern zone. Third, after excluding all metropolitan areas, which we considered more urban, one district was randomly selected from each of the three regions. The same procedure was used to select six sub-districts, two from each of the three randomly selected districts. We then purposively sampled rural communities within each of the selected sub-districts based on the criterion of having a population below 5000, as per the classification provided by the Ghana Statistical Service [31]. From these purposively sampled communities, three were randomly selected from each sub-district, resulting in a total of 18 communities. Information on the

population size of the communities, together with the list of housing units within each of the selected communities was obtained from the local assemblies in the study districts. Finally, we used proportional and systematic sampling techniques to select the 460 respondents from the 18 communities. Each community's population was treated as an independent sub-population. Community sample size (Table 1) was determined by dividing the community's total population by the total population of the study (i.e., total population of the 18 communities) and then multiplying it by the total sample size (i.e., 460). Using the total number of housing units in each community as the sampling frame, we calculated the sampling interval (Table 1) for the respective communities by dividing the total number of housing units by the sample sizes. Once the sampling interval was established for each community, we proceeded to randomly choose a starting point within the range of 1 to the sampling interval for each community. From there, we systematically selected housing units by incrementing the sampling interval from the starting point until we attained the desired sample size for each community. Following this, we randomly selected one eligible household representative from each sampled housing unit to participate in the study.

### 3.4. Variables and measures

The outcome variable, healthcare seeking behavior, was a measure of the type of healthcare frequently utilized by the rural dwellers in the past three years. This was assessed using a single item adopted from the WHO's Study of Global Ageing and Adult Health (SAGE): "Thinking about healthcare you needed in the last three years, where did you go most often when you felt sick or needed to consult someone about your health?" [32]. Response options included: private healthcare provider, public healthcare provider, traditional healer, and self-treatment with pharmaceutical or herbal drugs. Traditional healer, in this study, means "a person with no formal medical training, but is considered by the local community as being competent to provide healthcare using animal, plant and mineral substances and certain other techniques based on social, cultural and religious background" [33]. Thus, the traditional and complementary medical practices that have been integrated into the mainstream healthcare system were not classified as traditional healing. The response options were dichotomized: public and private healthcare providers (formal healthcare) = 1, traditional healer and self-treatment (informal healthcare) = 0. Health insurance status, the main explanatory variable, was defined as having a valid NHIS card (insured) = 1 and not registered or having a valid NHIS card (uninsured) = 0.

Drawing on the Andersen-Newman's model [24] and based on the existing literature on healthcare-seeking behavior [34], we included other theoretically relevant independent variables which could be described as predisposing, enabling and need factors of the respondents. The predisposing factors included were age (18–39, 40–59, 60 + years), gender (male, female), education (no formal education, primary, secondary or higher), marital status (married, never married, divorced/separated/widowed), religion (Christian, Muslim, Traditionalist), occupation (Farming, Trading, Artisan, public/civil servant), ethnicity (Akan, non-Akan), and trust in the formal healthcare system (completely trust, rather trust, rather mistrust, completely mistrust). Enabling variables included, in addition to health insurance status, were average monthly income ( $\leq 200$ , 201–600, 601–1000, >1000 GHS) (US\$1.00 = GHS12 at the time of the study), perceived adequacy of health professionals (yes, no) and distance to health facility ( $< 5$ km,  $> 5$ km), the last two being proxies for availability of health services. For the need factors, we used perceived health status, rated on a scale from 1 (bad) to 3 (good).

### 3.5. Data collection

A structured questionnaire was developed and used for the data collection. The questionnaire consisted of 14 items covering the

**Table 1**  
Sample size for each of the 18 selected communities.

Community	Population	Proportion (%)	Sample	Sampling frame	Sampling Interval
1	2468	6.9	32	448	14
2	2327	6.5	30	480	16
3	1669	4.6	21	357	17
4	1736	4.8	22	321	15
5	2141	6.1	28	387	14
6	1739	4.8	22	360	16
7	1901	5.2	24	312	13
8	4169	11.7	54	994	18
9	1704	4.8	22	379	17
10	1793	5.0	23	370	16
11	2259	6.3	29	495	17
12	1457	4.1	19	346	18
13	2018	5.7	26	343	13
14	1933	5.4	25	371	15
15	1613	4.6	21	255	12
16	1893	5.2	24	310	13
17	1604	4.6	21	373	18
18	1308	3.7	17	259	15
<b>Total</b>	<b>35,732</b>	<b>100</b>	<b>460</b>	<b>7160</b>	–

respondents' healthcare-seeking behavior (1 item); and the predisposing (8 items), enabling (4 items), and need (1 item) factors predicting their healthcare-seeking behavior. After pre-testing the questionnaire at Dashei, a community in the North-East Gonja District in the Savanna Region of Ghana, the updated and well-structured data collection tool was used to conduct a face-to-face structured interview with the respondents in the sampled study communities. Six research assistants were trained to assist in the data collection, which lasted approximately three months (from 8th September to 5th December 2022).

Through meticulous planning, rigorous training of research assistants, and diligent execution of the data collection process, we achieved a remarkable 100 % response rate from all targeted respondents. This high response rate underscores the effectiveness of our approach in engaging participants and eliciting their valuable insights.

### 3.6. Data analysis

Bivariate and multivariable analyses were conducted to examine the relationship between the outcome and the explanatory variables. Chi-square tests were used to study the significance level and association between healthcare-seeking behavior and each explanatory variable. A multiple logistic regression model was then fitted to test the association between health insurance status and healthcare seeking behavior, introducing the other explanatory variables as controls. Variables with significant association with healthcare seeking behavior were identified based on the odds ratio (OR) with a 95 % confidence interval (CI) and *p*-values  $\leq 0.05$ . Age, gender and socio-economic status have been found to influence enrollment into the NHIS in Ghana [35]. Thus, the presence of collinearity between NHIS status and the other explanatory variables was investigated using Pearson's correlation coefficient, and tolerance and variance inflation factor (VIF) values. No correlation coefficient was found to be greater than 0.8; tolerance values were above 0.2; and no VIF value was below 10, thus demonstrating the validity of our statistical model. All analyses were done using Statistical Package for Social Sciences (SPSS) software version 20 (IBM© Corporation, Armonk, NY, USA).

### 3.7. Ethical statement and approvals

Ethical clearance was obtained from the Ghana Health Service Ethics Review Committee under the protocol ID No. GHS-ERC 031/05/22. Permission was also sought from the local assemblies and the district health directorates of the study areas. In addition, permission was sought from the respondents and household heads before the instrument administration. The social, cultural and economic status of the

respondents were respected and regarded as much as possible during the instrument administration. All information captured was treated confidentially.

## 4. Results

### 4.1. Description of the study sample

The mean age of the respondents was  $29.6 \pm 6.8$  years, with more than half (58.5 %) being between the ages of 18 and 39 years. The majority of the respondents were male (54.1 %), had obtained primary level of education (56.1 %), were married (76.5 %), were Christian (69.5 %), indicated farming as their occupation (67.8 %), claimed their average monthly income was between GHS 201 (US\$16.8) and 600 GHS (US\$50) (45.7 %), reported inadequacy of health professionals in their communities (64.3 %), indicated that they travelled less than 5 km to access healthcare, answered that they completely trusted the formal healthcare system (52.6 %), and reported that they had good health status (56.3 %). In terms of NHIS status, 248 (53.1 %) indicated that they were insured, while 212 (46.1 %) reported that they were not insured. The majority of the insured were female (53.6 %). On the contrary, most of the uninsured were male (63.2 %). Also, the uninsured had a higher percentage (50.9 %) of individuals with low average monthly income ( $\leq$ GH¢200, equivalent to US\$16.7) compared to the insured (38.7 %). We observed further that among the insured, 35.9 % had secondary or higher level of education compared to 21.2 % of the uninsured. Detailed descriptive characteristics of the study sample is presented in Table 2.

### 4.2. Healthcare-seeking behavior

The respondents were to indicate where they sought care most often in the past three years. Traditional healer was the most frequent source of treatment among the respondents (37.2 %), followed by the public healthcare system (28.3 %) and self-treatment (18.2 %), with the private healthcare system being the least (16.3 %). In total, informal care (traditional healing and self-treatment) constituted 55.4 %, while formal care (public and private healthcare providers) formed 44.6 %. Half (50 %) of the insured respondents sought care most often from formal healthcare providers, while the majority (62 %) of the uninsured sought care most often from informal healthcare providers. More uninsured individuals (21.2 %) engaged in self-treatment compared to the insured (15.7 %). Table 3 provides further details on the respondents' healthcare-seeking behavior.

**Table 2**  
Description of the study sample by health insurance status.

Variable	Category	National Health Insurance Status		Total (n=460)
		Insured (n = 248, 53.1 %)	Uninsured (n = 212, 46.1 %)	
		n (%)	n (%)	n (%)
Age (years):	18–39	146(58.9)	123(58.0)	269 (58.5)
	40–59	74(29.8)	72(34.0)	146 (31.7)
	60+	28(11.3)	17(8.0)	45(9.8)
Gender:	Male	115(46.4)	134(63.2)	249 (54.1)
	Female	133(53.6)	78(36.8)	211 (45.9)
Education:	No education	23(9.3)	45 (21.2)	68 (14.8 %)
	Primary	136 (54.8)	122(57.6)	258 (56.1)
	Secondary/higher	89(35.9)	45(21.2)	134 (29.1)
Marital status:	Married	184(74.2)	168(79.2)	352 (76.5)
	Never married	41(16.5)	28(13.2)	69 (15.0)
	Divorced/separated/widowed	23(9.3)	16(7.6)	39(8.5)
Religion:	Christian	166(66.9)	153(72.2)	319 (69.5)
	Muslim	72(29.0)	51(24.1)	123 (26.7)
	Traditionalist	10(4.1)	8(3.7)	18(3.8)
Occupation:	Farming	168(67.7)	144(67.9)	312 (67.8)
	Trading	43(17.3)	39(18.4)	82 (17.9)
	Artisan Public/civil servant	15(6.1) 22(8.9)	17(8.0) 12(5.7)	32(6.9) 34(7.4)

  

Variable	Category	National Health Insurance Status		Total (n=460)
		Insured (n=248, 53.1%)	Uninsured (n=212, 46.1%)	
		n (%)	n (%)	n (%)
Ethnicity:	Akan	127(51.2)	128(60.4)	255 (55.4)
	Non-Akan	121(48.8)	84(39.6)	205 (44.6)
Average Monthly Income (GH¢):	≤200	96(38.7)	108(50.9)	204 (44.3)
	201–600	120(48.4)	90(42.5)	210 (45.7)
	601–1000	21(8.5)	10(4.7)	31 (6.7)
	>1000	11(4.4)	4(1.9)	15(3.3)
Adequacy of health professionals:	Yes	100(40.3)	64(30.2)	164 (35.7)

**Table 2 (continued)**

Variable	Category	National Health Insurance Status		Total (n=460)
		Insured (n=248, 53.1%)	Uninsured (n=212, 46.1%)	
		n (%)	n (%)	n (%)
Distance to health facility:	No	148(59.7)	148(69.8)	296 (64.3)
	<5km	189(76.2)	126(59.4)	315 (68.5)
	>5km	59(23.8)	86(40.6)	145 (31.5)
Trust in the formal healthcare system:	Completely trust	141(56.9)	101(47.6)	242 (52.6)
	Rather trust	68(27.4)	58(27.4)	126 (27.3)
	Rather mistrust Completely mistrust	21(8.5) 18(7.2)	30(14.2) 23(10.8)	51 (11.2) 41(8.9)
Perceived health status:	Bad	26(10.5)	30(14.2)	56 (12.2)
	Moderate	70(28.2)	75(35.4)	145 (31.5)
	Good	152(61.3)	107(50.5)	259 (56.3)

**Table 3**  
Healthcare seeking behavior by national health insurance status.

Variable	National health insurance status		Total (n = 460)
	Insured (n = 248, 53.1 %)	Uninsured (n = 212, 46.1 %)	
	n (%)	n (%)	n (%)
Where sought care most often in the past three years:			
Private healthcare provider	29(11.7)	46(21.7)	75(16.3)
Public healthcare provider	95(38.3)	35(16.5)	130 (28.3)
Traditional healer	85(34.3)	86(40.6)	171(37.2)
Self-treatment	39(15.7)	45(21.2)	84(18.2)

**4.3. Factors associated with healthcare-seeking behavior**

The results of our bivariate analysis (Table 4) showed a statistically significant relationship between NHIS status and healthcare-seeking behavior (p = 0.001). Other statistically significant variables revealed by the bivariate analysis were age (p = 0.012), gender (p = 0.039), educational level (p = 0.025), income (p = 0.021), adequacy of health professionals (p = 0.013), distance to health facility (p = 0.011), trust in the formal healthcare system (p = 0.001) and perceived health status (p = 0.003). Marital status, religion, occupation and ethnicity, all predisposing factors, were not significantly associated with healthcare-seeking behavior among the respondents.

After controlling for the other explanatory variables in the multi-variable logistic regression model, health insurance status was not found to be an independent predictor of healthcare-seeking behavior, although the p-value (0.069) was near significance (Table 5). Therefore, we could not conclude that the respondents with health insurance coverage were more likely to use formal healthcare providers as their most frequent

**Table 4**  
Bivariate analysis of the relationship between sample characteristics and healthcare seeking behavior.

Characteristics	Formal healthcare use n (%)	Informal healthcare use n (%)	X <sup>2</sup>	p-value
<b>Health insurance status:</b>				
Insured	125(50.4)	123(49.6)	16.12	0.001
Uninsured	80(37.7)	132(62.3)		
<b>Age (years):</b>				
18–39	130(48.3)	139(51.7)	12.69	0.012
40–59	56(38.4)	90(61.6)		
60+	19(42.2)	26(57.8)		
<b>Gender:</b>				
Male	86(34.5)	163(65.4)	10.69	0.039
Female	119(56.4)	92(43.6)		
<b>Education:</b>				
No formal education	17(25.0)	51(75)	17.5	0.025
Primary	87(33.7)	171(66.3)		
Secondary/higher	101(75.4)	33(24.6)		
<b>Marital status:</b>				
Married	140(39.8)	212(60.2)	1.64	0.441
Never married	41(59.4)	28(40.6)		
Divorced/separated/ widowed	24(61.5)	15(38.5)		
<b>Religion:</b>				
Christian	148(46.4)	171(53.6)	1.78	0.777
Muslim	48(39.0)	75(61.0)		
Traditionalist	9(50.0)	9(50.0)		
<b>Occupation:</b>				
Farming	132(42.3)	180(57.7)	5.4	0.139
Trading	29(35.4)	53(64.6)		
Artisan	15(46.9)	17(53.1)		
Public/civil servant	29(85.3)	5(14.7)		

  

Characteristics	Formal healthcare use n (%)	Informal healthcare use n (%)	X <sup>2</sup>	p-value
<b>Ethnicity:</b>				
Akan	123(48.2)	132(51.8)	0.73	0.392
Non-Akan	82(40.0)	123(60.0)		
<b>Average Monthly Income (GH¢):</b>				
≤200	40(19.6)	164(80.4)	17.7	0.021
201–600	129(61.4)	81(38.6)		
601–1000	23(74.2)	8(25.8)		
>1000	13(86.7)	2(13.3)		
<b>Adequacy of health professionals:</b>				
Yes	113(68.9)	51(31.1)	19.61	0.013
No	92(31.1)	204(68.9)		
<b>Distance to health facility:</b>				
<5km	167(53.0)	148(47.0)	22.07	0.011
>5km	38(26.2)	107(73.8)		
<b>Trust in the formal healthcare system:</b>				
Completely trust	127(52.5)	115(47.5)	34.67	0.001
Rather trust	64(50.8)	62(49.2)		
Rather mistrust	8(15.7)	43(84.3)		
Completely mistrust	6(14.6)	35(85.4)		
<b>Perceived health status:</b>				
Bad	40(71.4)	16(28.6)	18.89	0.003
Moderate	85(58.6)	60(41.4)		
Good	80(30.9)	179(69.1)		

source of treatment during illness compared to those without insurance coverage.

In all, six variables, namely: education, average monthly income, adequacy of health professionals, distance to a health facility, trust in the healthcare system, and perceived health status, were found to be independent predictors of healthcare seeking behavior among the rural residents. For instance, having a secondary or higher level of education (AOR = 1.55, 95 % CI: 0.76–2.95), reporting an average monthly income > GHS1000 (\$83.3) (AOR = 4.26, 95 % CI: 1.24–7.69), perceiving

**Table 5**  
Logistic regression analysis of independent predictors of healthcare seeking behavior (n = 460).

Variable	COR (95 % CI)	p-value	AOR (95 % CI)	p-value
<b>Health insurance status (Ref. Uninsured)</b>				
Insured	2.25 (1.00–5.05)	0.072	1.78 (1.07–4.96)	0.069
<b>Age (years) (Ref. 18–39)</b>				
40–59	1.43 (0.82–2.51)	0.205	1.34 (0.60–2.98)	0.471
60+	1.30 (0.54–3.12)	0.551	1.47 (0.72–2.44)	0.149
<b>Gender (Ref. Male)</b>				
Female	0.61 (0.037–1.01)	0.148	0.30 (0.13–0.69)	0.153
<b>Education (Ref. No formal education)</b>				
Primary	0.87 (0.36–2.09)	0.048	0.36 (0.21–1.93)	0.044
Secondary/higher	1.75 (0.77–3.04)	0.031	1.55 (0.76–2.95)	0.035
<b>Average Monthly Income (GHS) (Ref. ≤ 200)</b>				
201–600	1.09 (0.69–3.68)	0.027	1.00 (0.47–3.11)	0.038
601–1000	2.69 (1.53–4.76)	0.048	2.19 (0.52–4.72)	0.051
> 1000	6.13 (1.78–9.91)	0.001	4.26 (1.24–7.69)	0.001
<b>Adequacy of health professionals (Ref. No)</b>				
Yes	3.12 (1.82–5.37)	0.032	2.54 (1.71–4.91)	0.023
<b>Distance to health facility (Ref. &gt; 5 km)</b>				
<5km	5.54 (1.98–9.85)	0.001	4.15 (1.97–8.77)	0.001
<b>Trust in the formal healthcare system (Ref. Completely mistrust)</b>				
Completely trust	4.54 (1.97–9.25)	0.003	4.25 (1.43–8.67)	0.021
Rather trust	2.02 (0.77–4.25)	0.042	1.99 (0.73–3.87)	0.041
Rather mistrust	1.08 (0.27–1.95)	0.032	1.05 (0.25–1.87)	0.025
<b>Perceived health status (Ref. Bad)</b>				
Moderate	0.48 (0.18–2.27)	0.038	0.47 (0.13–2.16)	0.037
Good	0.45 (0.14–2.46)	0.012	0.23 (0.11–2.38)	0.022

health professionals to be adequate (AOR = 2.54, 95 % CI: 1.71–4.91), travelling less than 5 km to access healthcare (AOR = 4.15, 95 % CI: 1.43–8.77), and having complete trust in the formal healthcare system (AOR = 4.25, 95 % CI: 1.43–8.67) increased the odds of utilizing the services of formal healthcare providers. On the other hand, perceiving one’s health status as good decreased the odds (AOR = 0.23, 95 % CI: 0.11–2.38) of utilizing the formal healthcare system.

## 5. Discussion

National health insurance programs are considered important mechanisms for ensuring equity in access to and utilization of healthcare services by removing financial barriers associated with seeking treatment in healthcare facilities [19]. Underpinned by the Andersen-Newman behavioral model of healthcare use [24], this study examined the influence of NHIS status on healthcare seeking behavior among rural residents in Ghana. Though our bivariate results demonstrated a significant relationship between health insurance status and healthcare-seeking behavior, this relationship was no longer significant after

introducing eight control variables in a multivariable logistic regression model. In other words, no significant difference in healthcare-seeking behavior existed between the insured and the uninsured rural residents in the multivariable logistic regression model. This implies that the rural residents with health insurance coverage were not more likely than the uninsured to use formal healthcare providers as their most frequent source of treatment for illness conditions.

The outcome of this study contradicts the findings of numerous previous studies [8,10,12,13,36,37] which have reported national health insurance as an independent predictor of healthcare-seeking behavior. The results of this study suggest that the significant relationship between NHIS and healthcare seeking behavior is a reflection of unobserved heterogeneity in individual health and healthcare-seeking behavior. Once this heterogeneity is controlled, NHIS seems to play little or no significant role in explaining healthcare-seeking behavior. Accordingly, when we adjusted for other variables, such as educational level, income status, perceived adequacy of health professionals, distance to a health facility, trust in the formal healthcare system and perceived health status in the logistic regression model, no significant relationship existed between NHIS status and healthcare seeking behavior.

One explanation for the difference in findings between the present and the previous studies could be the difference in the study population. While the previous studies predominantly concentrated on urban residents [13,38], the present study focused on people living in only rural and remote communities. Another explanation could be the difference in the operationalization of the concept of healthcare-seeking behavior. For instance, Dalinjong *et al.* [18] and Asibey & Agyemang [8] operationalized healthcare-seeking behavior as the number of times an individual visited a health facility in a specified period. In the present study, however, healthcare-seeking behavior was operationalized as the type of healthcare frequently utilized by the study respondents in the past three years. What could be deduced from this is that having a valid NHIS card may be associated with increased healthcare use but may not play any significant role in rural dwellers' choice of where to seek care most often in times of illness.

Several factors may account for the outcome of this study. First, it might result from the respondents' perception of the nature and quality of services offered by the formal healthcare providers. Earlier studies have documented the perceived poor quality of healthcare services in NHIS-accredited facilities in Ghana [2,39]. It has been observed that when patients' expectations are not met, they are more likely to seek alternative treatment sources even if they had valid health insurance coverage [40]. In a related study in Burkina Faso, Robyn and colleagues found a weak effect of health insurance on healthcare seeking behavior. The authors attributed this, in part, to the poor quality of services offered by the public health facilities [41]. The limited availability of formal healthcare services in the studied rural communities may also explain the outcome of this study. For instance, 64.3 % of the respondents believed health professionals in their communities were inadequate, while 31.5 % indicated they had to travel more than 5 km to access a formal healthcare facility. The literature suggests that the preference for informal healthcare practices in some remote settings in Africa is a reflection of the absence of trained medical professionals in these areas [42]. Moreover, the health belief systems in many traditional communities in Ghana cannot be ruled out in this discussion. For instance, some indigenous people believe that formally trained doctors are not fully equipped to address their health needs, which have physical and spiritual dimensions [22]. These belief systems might have influenced the respondents' behavior to use the indigenous medical system (traditional healers) as an alternative healthcare service alongside the formal healthcare system. Finally, the persistent inability of the NHIS to reimburse service providers within a reasonable time, thus forcing some NHIS-accredited facilities to revert to out-of-pocket payment for services rendered, might have compelled some of the respondents to consider cheaper treatment alternatives.

### 5.1. Limitations

Although this study was conducted on a national scale, several limitations need to be considered when interpreting the findings. Recall bias constitutes one potential limitation of the study, as the respondents had to recollect where they sought care most often in the past three years. Also, being a cross-sectional study, it does not allow inferences to be made from the results. Again, the data gathering process involved the use of self-reported questionnaire items, which might have a potential inherent bias. For instance, the income levels reported by the respondents might have been either overestimated or underestimated. Moreover, healthcare-seeking behavior has been used more generally in this study, which may not be similar to healthcare-seeking behavior for specific illness or disease episodes. Finally, it is important to note that the results presented in this study are very much specific to the indigenous rural communities in Ghana. Therefore, it should not be generalized that health insurance cannot influence healthcare-seeking behavior. What this study has pointed out is that it is not always the case that health insurance influences people's decision (especially rural dwellers) to choose the formal healthcare system, over other alternative sources of treatment.

## 6. Conclusion and policy implications

We could not conclude in this study that Ghanaian rural residents with health insurance coverage are more likely than the uninsured to use formal healthcare providers as their most frequent source of treatment during illness. The findings, however, provide vital information for policy makers aiming at increasing access to and utilization of facility-based formal care in rural and remote settings. The study has suggested that the continuous increase in the utilization of formal healthcare services observed under the NHIS might not necessarily mean rural folks would usually consider the formal healthcare system as their preferred choice of treatment when sick. This underscores the importance of understanding the underlying factors influencing healthcare utilization patterns in rural areas. Policymakers need to delve deeper into the reasons behind the observed trends to identify barriers or preferences that might be driving rural folks away from the formal healthcare system. This could involve conducting qualitative research to explore cultural, social, and economic factors shaping healthcare decision-making in rural communities. There is also a need for targeted interventions to address the specific challenges that deter rural populations from considering formal healthcare as their preferred choice. This might involve improving the accessibility of healthcare services, addressing cultural beliefs or preferences for traditional healing methods, and ensuring that the services provided under the NHIS align with the actual needs and expectations of the rural population. Additionally, health education and awareness campaigns should be tailored to address the specific concerns and misconceptions prevalent in rural areas. This could help dispel myths, increase awareness about the benefits of formal healthcare, and encourage a more informed decision-making process regarding healthcare choices. Furthermore, healthcare providers in rural areas should be trained to be culturally sensitive and responsive to the unique needs of the communities they serve. Building strong relationships with local communities and involving community leaders in healthcare initiatives can contribute to a more patient-centered and culturally competent healthcare delivery. Moreover, in the realm of healthcare research, it is imperative for investigators to carefully contemplate the operationalization of the term "healthcare-seeking behavior". This necessitates a nuanced understanding of the fact that individuals, when faced with health issues, may resort to various treatment sources within the confines of a single disease episode. It is, thus, crucial to acknowledge that a surge in healthcare utilization does not necessarily signify a predominant inclination towards the formal healthcare sector as the primary recourse for treatment.

In conclusion, this study highlights the complexity of healthcare

utilization in rural areas and calls for a nuanced approach in policy formulation and healthcare practice. By understanding and addressing the specific factors influencing healthcare decision-making in rural communities, policymakers and practitioners can work towards building a more inclusive and effective healthcare system that truly meets the needs of the population.

#### CRediT authorship contribution statement

**Emmanuel Kumah:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Yussif Asana:** Writing – original draft, Resources, Methodology, Investigation, Formal analysis, Conceptualization. **Samuel Kofi Agyei:** Writing – review & editing, Writing – original draft, Software, Methodology, Formal analysis. **Collins Kokuro:** Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Data curation. **Samuel E. Ankomah:** Writing – review & editing, Writing – original draft, Software, Methodology, Formal analysis. **Adam Fusheini:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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