

Determinants of Health Insurance Non-Enrollment in Guinea: Supply Availability, Awareness and Institutional Trust in the Context of Universal Health Coverage

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Abstract *Health insurance coverage remains very limited in Guinea, slowing progress toward Universal Health Coverage (UHC). This study estimated health insurance coverage among Guinean adults and examined the influence of availability, awareness, affordability, and institutional trust on non-enrollment. Methods: Data from the 2024 Afrobarometer Round 10 survey in Guinea (n=1,200; valid insurance status n=1,198) were analyzed using survey weights. Logistic regression identified factors associated with insurance coverage, while multinomial logistic regression, Multiple Correspondence Analysis, and exploratory spatial analysis examined reasons for non-enrollment and regional differences. Results: Only 10.3% of adults reported having health insurance. Among uninsured respondents, the most common reasons for non-enrollment were lack of awareness of existing schemes (30.6%) and absence of available schemes in the area (26.6%). Other barriers included complex enrollment procedures (15.7%), inability to afford membership (7.8%), and distrust of schemes (7.8%). High trust in the Ministry of Health was significantly associated with greater odds of insurance coverage (OR=1.94; 95% CI: 1.26–2.99). Coverage varied substantially across regions, ranging from 2.2% in Faranah to 33.9% in Mamou. Conclusions: Health insurance coverage in Guinea remains very low. Expanding scheme availability, improving public awareness, simplifying enrollment, and strengthening trust in health institutions are essential to accelerate progress toward UHC.*

Keywords *Afrobarometer, Guinea, Health Insurance, Institutional Trust, Universal Health Coverage.*

Introduction

Universal Health Coverage (UHC), defined as access to needed health services without financial hardship, is a central part of Sustainable Development Goal 3 [1, 2]. Health insurance can pool financial risk and reduce catastrophic direct health spending [3, 4]. In sub-Saharan Africa, community-based insurance and mutual health organizations are often promoted as a route toward UHC, particularly where formal employment covers only a small share of the population [5, 6].

Guinea faces severe constraints in this area. Despite commitments to universal healthcare access, the country remains among the lowest in West Africa for health insurance coverage and public health expenditure per capita [7]. The health system is marked by high direct payment by households, fragmented service delivery, recurrent drug shortages, and geographic gaps in service availability [8]. These conditions interact with poverty, limited health information, and weak institutional trust, which together reduce enrollment in health insurance.

Evidence from Guinea and comparable low-income settings suggests that lack of insurance coverage reflects several mechanisms [4, 9, 10]. Some people live in areas where no scheme is available. Others may not know that a scheme exists or may not understand how it works. A third group may know about insurance but distrust the institutions that manage it, because of past experiences, perceived mismanagement, or broader skepticism toward public institutions [11, 12]. These mechanisms need to be separated because they call for different responses.

This study used nationally representative data from Afrobarometer Round 10 (Guinea, 2024) to estimate the prevalence of health insurance coverage, describe the profile of uninsured adults, examine reported reasons for having no coverage, assess the role of institutional trust, and map regional differences. It provides one of the first national quantitative

analyses of health insurance coverage in Guinea based on a large survey instrument.

Methods

Study Design and Data Source

We conducted a cross-sectional analysis of the Afrobarometer Round 10 survey in Guinea in 2024 [13]. Afrobarometer is an independent, non-partisan research network that conducts nationally representative surveys across Africa on citizens' experiences of governance and public services. In Guinea, the sample included 1200 adults aged 18 years and above, selected through a stratified multistage cluster design with allocation across administrative regions and urban/rural strata.

Variables

Primary outcome: Current health insurance coverage was assessed from the survey item asking whether respondents had medical coverage or insurance that would cover expenses in case of illness or injury. Respondents answering, “don’t know” ($n = 2$) were excluded from coverage estimates and models.

Reason for no coverage: Uninsured respondents were asked for the main reason they did not have coverage. Responses were grouped as no scheme available, unaware of schemes, distrust of schemes, enrollment too complex, cannot afford, and other reasons.

Type of coverage: Among insured respondents, coverage type was classified as private insurance, public sector scheme, national government insurance, community-based insurance or mutuelle, or other.

Institutional trust: Trust in the Ministry of Health was measured on a four point scale, from no trust to a lot of trust. Responses of “somewhat” or “a lot” were coded as high trust.

Concern about healthcare access: Concern about being unable to obtain needed healthcare was measured on a four-point scale.

Respondents reporting “a lot” were classified as very concerned.

Government responsibility: Agreement that the government should ensure healthcare access was measured on a five-point scale. Respondents who agreed or strongly agreed were classified as supporting government responsibility for access. Don’t know responses were treated as missing.

Socioeconomic and geographic covariates: The Lived Poverty Index (LPI) was constructed as the means of five deprivation items covering food, water, cooking fuel, cash income, and medical care. The score was grouped as none, low, moderate, or high. Refused and don’t know responses in the component items were treated as missing before the index was computed. Residence, sex, age group, presence of a health facility in the enumeration area, and administrative region were included as covariates.

Statistical Analysis

All analyses incorporated survey weights to account for the sampling design, using the *survey* package in R [14, 15]. Weighted proportions and their standard errors were computed for descriptive statistics.

A weighted binary logistic regression modeled the probability of having health insurance as a function of poverty category, residence, sex, age group, health facility availability, institutional trust, concern about healthcare access, and belief in government responsibility. Complete case analysis was used for this model. Results are presented as odds ratios (OR) with 95% confidence intervals.

Among uninsured respondents with a valid reason response, multinomial logistic regression modeled the main reason for having no coverage, using “No scheme available” as the reference category. Results are presented as relative risk ratios (RRR).

Multiple Correspondence Analysis (MCA) was conducted among uninsured respondents to explore how reasons for no coverage grouped with trust, concern about access, poverty category, and residence type. MCA was performed using the *FactoMineR* package [16]; the first two dimensions are presented as a biplot.

An exploratory spatial analysis projected weighted regional coverage rates onto an official administrative boundary map (OCHA Guinea) using the *sf* package [17]. Global Moran’s I [18] was computed from a queen contiguity spatial weights matrix to assess spatial autocorrelation. Given the small number of regions, spatial results were interpreted as descriptive [19, 20].

Ethical Considerations

Afrobarometer data are publicly available, anonymized, and collected after informed consent from participants. No further ethical approval was required for this secondary analysis.

Results

Sample Characteristics

The full sample included 1200 adults; coverage estimates used 1198 respondents after excluding 2 respondents with missing information on insurance status. The mean age was 43.6 years (SD: 16.5); 50% were male and 35.6% lived in urban areas. Lived poverty was high: 51% had high LPI scores, while 2.1% reported no deprivation. A health facility was present in the enumeration area for 61.2% of respondents. High trust in the Ministry of Health was reported by 52.1%; 58.3% were very concerned about healthcare access, and 86.5% agreed or strongly agreed that government should ensure access to healthcare (Table 1).

Table 1. Sample Characteristics and Valid Denominators

Characteristic	n	Weighted % (95% CI) or Mean (SD)
Sex		
Male	600	50 (47.1 to 52.9)
Female	600	50 (47.1 to 52.9)
Age (years)		
18 to 24	151	12.6 (10.6 to 14.5)
25 to 34	252	21.1 (18.7 to 23.5)
35 to 49	350	29.2 (26.5 to 31.8)
50+	447	37.2 (34.3 to 40)
Residence		
Urban	440	35.6 (32.8 to 38.4)
Rural	760	64.4 (61.6 to 67.2)
Lived Poverty Index		
None	25	2.1 (1.3 to 3)
Low	220	18.6 (16.3 to 20.9)
Moderate	342	28.3 (25.7 to 31)
High	609	51 (48 to 53.9)
Health facility in area		
Yes	744	61.2 (58.3 to 64.1)
No	456	38.8 (35.9 to 41.7)
Health insurance coverage		
Covered	125	10.3 (8.5 to 12)
Not covered	1073	89.7 (88 to 91.5)
High trust in Ministry of Health		
Yes	614	52.1 (49.1 to 55)
No	568	47.9 (45 to 50.9)
Very concerned about healthcare access		
Yes	706	58.3 (55.4 to 61.2)
No	494	41.7 (38.8 to 44.6)
Govt should ensure healthcare access		
Agree/Strongly agree	1039	86.5 (84.4 to 88.5)
Other	159	13.5 (11.5 to 15.6)

n: unweighted count. % and 95% CI estimated with survey weights. Age: weighted mean (SD). Coverage status is estimated among valid responses (n = 1198); LPI categories exclude invalid component responses.

Health Insurance Coverage

Only 10.3% of Guinean adults (n = 125) reported any health insurance coverage. This corresponds to 89.7% without coverage

(n = 1073). Among insured respondents, community based insurance (mutuelles) was the most common type (38.6%), followed by private insurance (28.5%).

Reasons for Having No Coverage

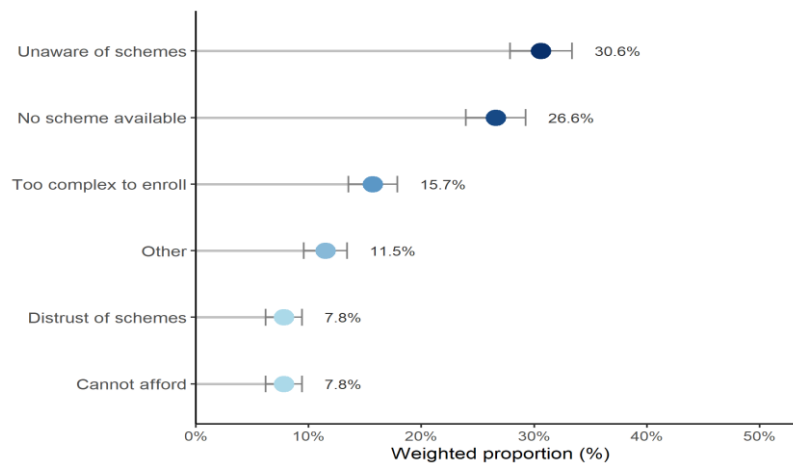


Figure 1. Distribution of Reported Primary Reasons for having no Health Insurance among Uninsured Adults, Guinea 2024 (Weighted Proportions). Error Bars represent 95% Confidence Intervals. Points are Colored by Proportion Magnitude

Among the 1073 uninsured respondents with a valid reason response, Figure 1 shows the reported reasons for having no coverage. Lack of awareness of existing schemes was the most frequent reason (30.6%), followed closely by absence of any scheme in the respondents' area (26.6%). Difficulty navigating enrollment was reported by 15.7%, inability to afford by 7.8%, and distrust of schemes by 7.8%.

These results suggest that information and availability barriers account for much of the lack of coverage. Financial constraints and distrust affect smaller, but still distinct, groups of uninsured adults.

Coverage Rate by Administrative Region

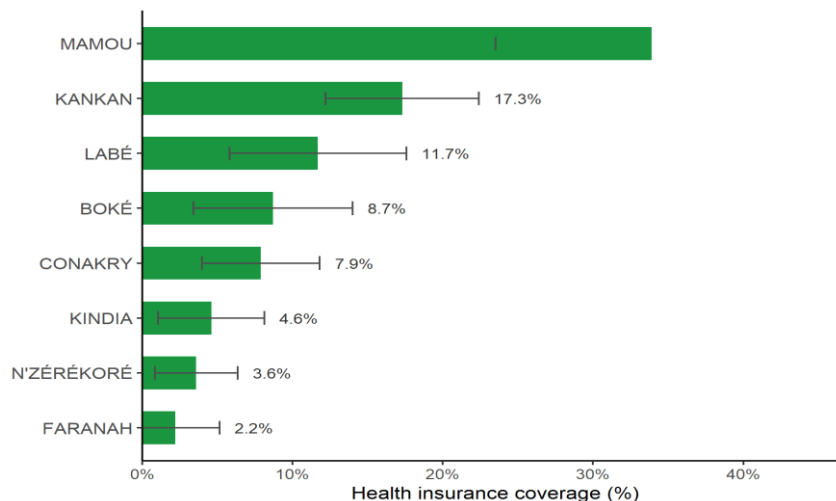


Figure 2. Weighted Health Insurance Coverage Rate by Administrative Region, Guinea 2024. Error Bars represent 95% Confidence Intervals

Coverage rates varied across Guinea's eight administrative regions (Figure 2). MAMOU had the highest coverage rate (33.9%), while FARANAH had the lowest (2.2%).

Determinants of Health Insurance Coverage

Table 2. Adjusted odds ratios for health insurance coverage, Guinea 2024 (weighted logistic regression; complete case n = 1175)

Predictor	OR	95% CI	p value
Poverty: Low (ref = None)	0.27	0.08 to 0.86	= 0.03
Poverty: Moderate	0.31	0.1 to 0.96	= 0.04
Poverty: High	0.36	0.12 to 1.08	= 0.07
Urban residence (ref = Rural)	1.07	0.7 to 1.66	= 0.75
Male sex (ref = Female)	0.50	0.33 to 0.76	= 0.001
Age 25 to 34 (ref = 18 to 24)	1.08	0.51 to 2.25	= 0.84
Age 35 to 49	1.31	0.66 to 2.61	= 0.44
Age 50+	1.74	0.9 to 3.37	= 0.1
Health facility in area	0.70	0.46 to 1.05	= 0.08
High trust in Min. Health	1.94	1.26 to 2.99	= 0.003
Very concerned re: access	0.67	0.45 to 0.99	= 0.05
Gov should ensure healthcare	1.40	0.75 to 2.63	= 0.29

Table 2 shows the weighted logistic regression results. High trust in the Ministry of Health was the strongest predictor of insurance coverage (OR = 1.94; 95% CI: 1.26 to 2.99; $p = 0.003$). Urban residence was not significantly associated with health insurance coverage (OR = 1.07; 95% CI: 0.70 to 1.66; $p = 0.75$). High lived poverty was associated

with lower odds of coverage compared with no deprivation (OR = 0.36; 95% CI: 0.12 to 1.08; $p = 0.07$). The presence of a health facility in the enumeration area showed a non-significant tendency toward lower odds of insurance coverage (OR = 0.70; 95% CI: 0.46 to 1.05; $p = 0.08$). Figure 3 presents these adjusted odds ratios and their 95% confidence intervals graphically.

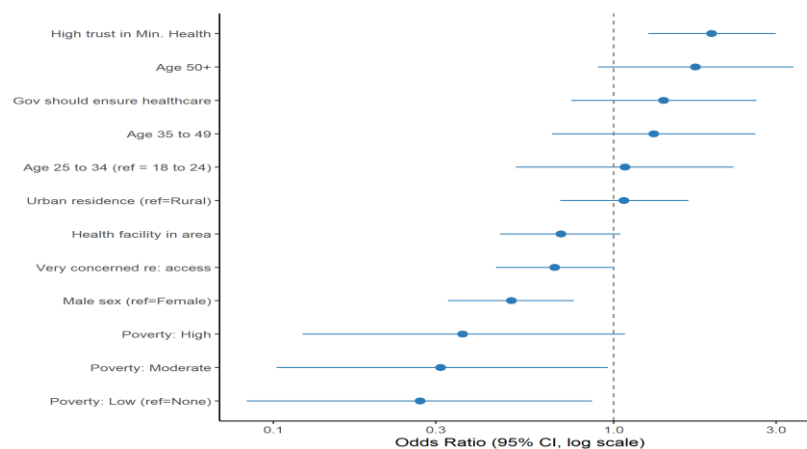


Figure 3. Adjusted odds ratios (95% CI) for health insurance coverage, Guinea 2024. OR > 1 indicates increased odds of coverage. Reference categories: Poverty = None, Age = 18 to 24, Residence = Rural, Sex = Female

Multinomial Analysis of Reasons for No Coverage

Table 3. Relative Risk Ratios (RRR) from Multinomial Logistic Regression of the Main reason for Having no Health Insurance, Guinea 2024. Reference Category: No scheme Available in Area

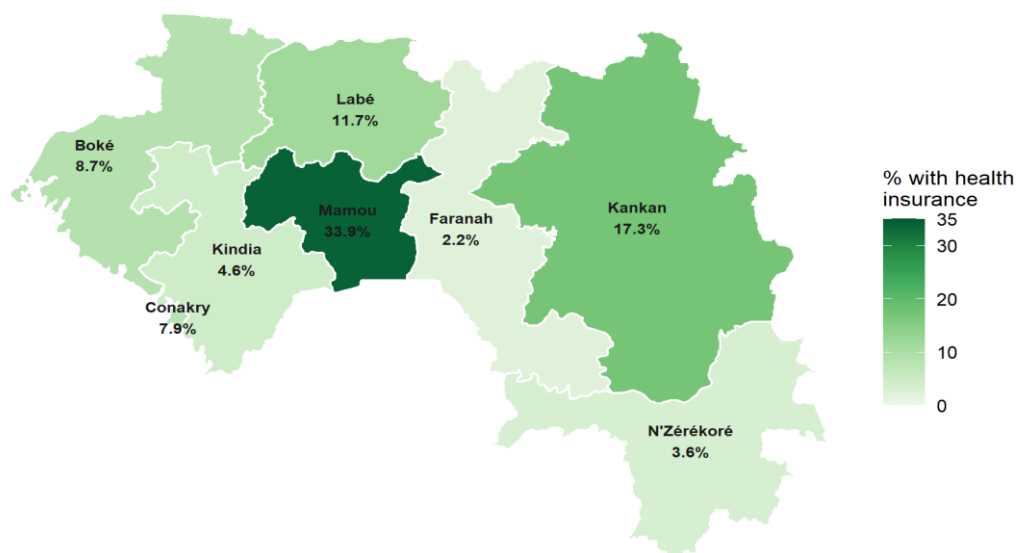
Reason vs No scheme available	Predictor	RRR	95% CI	Sig.
Unaware of schemes	Poverty: Low	0.44	0.08 to 2.43	
	Poverty: Moderate	0.51	0.09 to 2.81	
	Poverty: High	0.54	0.1 to 2.93	
	Urban	1.41	0.98 to 2.03	
	Male	1.00	0.72 to 1.4	
	Age 25 to 34	0.82	0.46 to 1.46	
	Age 35 to 49	0.99	0.57 to 1.72	
	Age 50+	1.09	0.63 to 1.88	
Unaware of schemes	High trust (MoH)	1.58	1.13 to 2.21	**
Distrust of schemes	Poverty: Low	0.10	0.01 to 0.76	*
	Poverty: Moderate	0.26	0.04 to 1.83	
	Poverty: High	0.32	0.05 to 2.17	
	Urban	4.93	2.86 to 8.51	***
	Male	2.11	1.23 to 3.62	**
	Age 25 to 34	0.73	0.29 to 1.84	
	Age 35 to 49	0.97	0.41 to 2.31	
	Age 50+	1.09	0.47 to 2.53	
	High trust (MoH)	1.03	0.6 to 1.76	
Too complex to enroll	Poverty: Low	1.23	0.11 to 13.3	
	Poverty: Moderate	0.95	0.09 to 10.29	
	Poverty: High	1.03	0.1 to 10.95	
	Urban	1.33	0.86 to 2.04	
	Male	1.03	0.69 to 1.54	
	Age 25 to 34	0.60	0.31 to 1.15	
	Age 35 to 49	0.75	0.4 to 1.39	
	Age 50+	0.65	0.35 to 1.21	
	High trust (MoH)	1.36	0.91 to 2.03	
Cannot afford	Poverty: Low	0.21	0.02 to 1.71	
	Poverty: Moderate	0.44	0.06 to 3.52	
	Poverty: High	0.27	0.03 to 2.15	
	Urban	1.39	0.79 to 2.42	
	Male	1.73	1.02 to 2.94	*
	Age 25 to 34	0.86	0.36 to 2.08	
	Age 35 to 49	0.65	0.27 to 1.56	
	Age 50+	0.97	0.43 to 2.22	
	High trust (MoH)	1.49	0.89 to 2.51	
Other	Poverty: Low	0.08	0.01 to 0.47	**
	Poverty: Moderate	0.20	0.04 to 1.04	

	Poverty: High	0.16	0.03 to 0.84	*
	Urban	3.16	1.98 to 5.03	***
	Male	1.21	0.77 to 1.91	
	Age 25 to 34	1.27	0.56 to 2.9	
	Age 35 to 49	1.15	0.51 to 2.59	
	Age 50+	1.56	0.71 to 3.43	
	High trust (MoH)	1.33	0.84 to 2.1	

The multinomial model (Table 3) compared each reported reason with the absence of an available scheme. Urban residents had a higher relative risk of reporting lack of awareness rather than lack of supply (RRR = 1.41; CI: 0.98 to 2.03). This suggests that lack of supply is more concentrated in rural areas, while lack

of awareness is also present in urban settings. Institutional trust was not significantly associated with reporting distrust of schemes rather than lack of scheme availability (RRR = 1.03; 95% CI: 0.60 to 1.76).

Spatial Analysis



Global Moran's I = -0.267 (p = 0.74); exploratory analysis, n = 8 regions

Figure 4. Regional Distribution of Health Insurance Coverage Rate (%) in Guinea, 2024 (Weighted Estimates).
Data Source: Afrobarometer Round 10

The choropleth map (Figure 4) shows geographic variation in coverage, with higher rates in Conakry and nearby regions. The global Moran's I for coverage was negative ($I = -$

0.267; $p = 0.74$), indicating no evidence of positive spatial clustering. The result was not statistically significant and should be interpreted cautiously.

Profiles Among Uninsured Adults

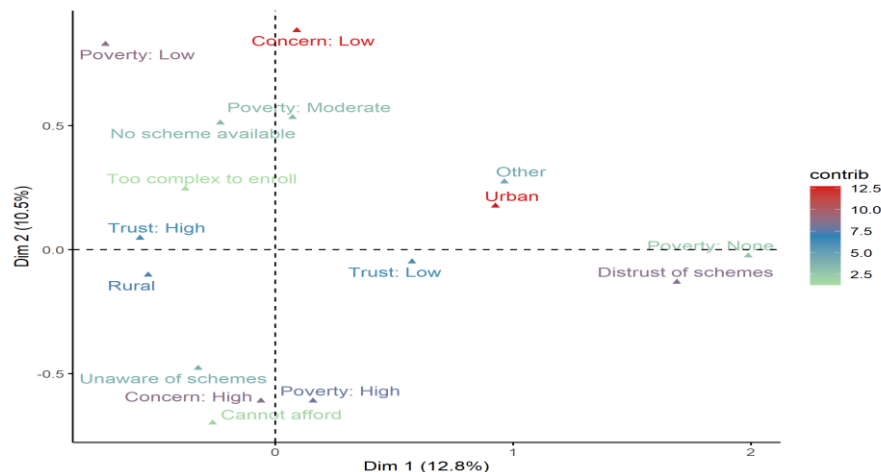


Figure 5. Multiple Correspondence Analysis (MCA) Biplot among Uninsured Adults, Guinea 2024. Active Variables: Main Reason for No Coverage, Institutional Trust, Concern about Access, Poverty Category, and Residence type. Dots represent Variable Categories; Proximity Indicates Co-occurrence

The MCA biplot (Figure 5) illustrates how reported barriers group together. Dimension 1 contrasts absence of schemes, rural setting, and high poverty with lack of awareness and urban setting. Dimension 2 separates distrust from inability to afford coverage. The pattern supports the distinction between availability, information, and trust as separate mechanisms behind lack of insurance.

Discussion

Principal's Findings

This study found that only 10.3% of Guinean adults reported any health insurance coverage. This low level is consistent with Guinea's limited progress toward UHC [3, 7]. The results suggest that the problem is not explained by affordability alone. Availability, information, and trust all matters.

The most frequent reasons for having no coverage were lack of awareness (30.6%) and lack of an available scheme (26.6%). Together, these reasons account for more than half of uninsured respondents. This means that many adults may be reached through a combination of scheme expansion and clearer communication. Similar findings have been reported in other West African settings, where

lack of information reduces enrollment even when affordability is not the only barrier [6, 9].

Institutional trust was the strongest positive predictor of insurance coverage in the multivariable model (OR = 1.94; 95% CI: 1.26 to 2.99). This finding is consistent with evidence showing that trust in health authorities influences voluntary enrollment in insurance schemes linked to government or public institutions [11, 12]. Distrust was the main reason for having no coverage in 7.8% of uninsured respondents. This is a smaller group, but it is unlikely to respond to information campaigns alone.

Although the point estimate suggested slightly higher odds of coverage among urban residents, the association was not statistically significant (OR = 1.07; 95% CI: 0.70 to 1.66). This is likely to reflect the concentration of schemes in Conakry and other urban centers. The spatial analysis revealed substantial regional variation, with Mamou recording the highest coverage rate and Faranah the lowest. The multinomial model also suggested that urban residents were more likely to report lack of awareness than lack of supply, whereas lack of supply was more prominent in rural areas.

A trend toward lower insurance coverage was observed among respondents experiencing high levels of poverty (OR = 0.36; 95% CI: 0.12 to 1.08), although the association did not reach conventional statistical significance ($p = 0.07$) [4, 10]. However, inability to afford ranked fourth among reported reasons for having no coverage (7.8%). For many uninsured adults, enrollment may not yet be perceived as a real option, either because no scheme is available or because existing schemes are not known.

Policy Implications

The findings point to three practical policy directions. First, insurance schemes, including community based mutuelles, need to expand into rural prefectures where many respondents report that no scheme exists. Second, communication efforts should explain what schemes are available, who can join, and what benefits are covered. This is especially relevant in urban and peri urban areas where schemes may exist but remain poorly known. Third, trust should be treated as part of implementation. Transparent management, clear rules, accountability for scheme managers, and community involvement may help convert interest into enrollment.

Strengths and Limitations

The main strength of this study is the use of a nationally representative sample with a standardized questionnaire, allowing inference across all administrative regions. Afrobarometer design also makes future comparisons with other countries possible.

The study also has limitations. Its cross-sectional design does not allow causal interpretation. Reasons for having no coverage were based on respondent report and one survey item, which may simplify more complex decisions. The survey did not independently verify which insurance schemes operated in each region, so lack of supply was measured through respondents' perceptions. The spatial

analysis was exploratory because only eight administrative regions were available. Finally, the small number of insured respondents ($n = 125$) limits precision for analyses within the insured group.

Conclusions

Health insurance coverage in Guinea remains very low at 10.3%. The main barriers are lack of available schemes, limited awareness, affordability, and institutional distrust. Progress toward UHC will require more than asking households to enroll. Schemes need to be available, understandable, affordable, and trusted.

List of Abbreviations

- **CBHI:** Community-Based Health Insurance
- **CI:** Confidence interval
- **LPI:** Lived Poverty Index
- **MCA:** Multiple Correspondence Analysis
- **OR:** Odds ratio
- **RRR:** Relative risk ratio
- **UHC:** Universal Health Coverage
- **WHO:** World Health Organization

Ethical Approval

This study was based on secondary analysis of publicly available Afrobarometer Round 10 data for Guinea. The original survey was conducted in accordance with ethical standards and informed consent was obtained from all participants prior to data collection. The dataset used for this study was fully anonymized and contained no personally identifiable information. Therefore, according to applicable guidelines for secondary analysis of publicly available anonymized data, additional ethical approval was not required for this study.

Data Availability

The Afrobarometer Round 10 dataset for Guinea is publicly available at <https://www.afrobarometer.org>. R analysis code will be made available upon reasonable request.

Competing Interests

The authors declare no competing interests.

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Authors' Contributions

AK (Ansoumane Kourouma) conceptualized the study, conducted all analyses, and drafted the manuscript.

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