

Perceived Difficulty Accessing Healthcare in Guinea: A Population-Based Analysis of Financial, Organizational and Geographic Barriers

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Abstract *Background:* In Guinea, access to healthcare remains constrained despite facility availability. *Objective:* to estimate the prevalence and determinants of perceived difficulty obtaining care. *Methods:* We analyzed 2024 Afrobarometer Round 10 survey data from Guinea (n=1,200; n=948 with facility contact) using survey-weighted statistics and multivariable logistic regression. *Results:* 59.2% of respondents reported difficulty obtaining care. The most frequent barriers were high costs and informal payment requests (36.1% each), followed by long waiting times (22%) and drug shortages (16.2%). After adjustment, perceived difficulty was associated with informal payment demands (OR=2.11; 95% CI:1.54–2.87), high costs (OR=1.89; 1.35–2.63), long waiting times (OR=1.56; 1.03–2.35), and urban residence (OR=1.49; 1.10–2.03). *Conclusion:* Financial and organizational barriers are the main drivers of perceived access difficulty in Guinea; addressing fees, informal payments, and waiting times is essential to improve access.

Keywords Afrobarometer, Guinea, Healthcare Access, Health Barriers, Lived Poverty, Survey Analysis, West Africa.

Background

Universal health coverage is often discussed in terms of service availability [17]. Yet availability is only part of access. From a patient's point of view, the practical issue is whether they can obtain care without excessive waiting, unexpected payments, or a failed search for essential medicines. These everyday constraints continue to limit effective healthcare use in many low-income settings [1, 2, 22, 23].

This distinction matters in Guinea. Health infrastructure, workforce availability, and pharmaceutical supply remain constrained, while direct household payments and poverty continue to shape whether households can start and complete a care episode [3, 4]. For patients, these conditions are not separate problems. A nearby clinic may still be hard to use if medicines are unavailable, fees are uncertain, or wait times are too long.

Facility statistics are useful for monitoring service delivery [18], but they rarely show how patients experience the care-seeking process. Population-based surveys can fill part of this gap by documenting barriers as reported by citizens themselves. Respondent-reported access barriers therefore provide a practical way to examine how supply constraints, affordability, and service organization come together during care seeking [5]. Afrobarometer is one of the few nationally representative data sources through which these perceptions can be studied in Guinea.

The Andersen and Newman behavioral model of healthcare utilization [5] links service use to predisposing factors such as age and sex, enabling factors such as income and geographic access, and need factors related to health status. This framework guided predictor selection in the present analysis.

Studies from West Africa have linked poverty and rural residence with reduced healthcare use [6, 7]. In Guinea, however, national evidence remains limited on how different barriers co-occur and which are most

closely related to perceived difficulty in obtaining care [28, 29].

Against this background, we estimated the weighted prevalence of perceived barriers to healthcare use among Guinean adults, described regional differences in access difficulty, and examined the social and geographic factors associated with reported difficulty in obtaining care.

Methods

Study Design and Data Source

We conducted a cross-sectional analysis of the Afrobarometer Round 10 survey, carried out in Guinea between 23 May and 9 June 2024. Afrobarometer is an independent, nonpartisan research network that conducts nationally representative surveys on governance, democracy, and public services in Africa [8].

Sample

The Guinean Round 10 sample included 1,200 adults aged 18 years or older. The survey used a probabilistic, stratified, multistage design. Enumeration areas were selected with probability proportional to size; households and individual respondents were then randomly selected. The final sample is nationally representative and stratified by urban/rural residence and administrative region.

Variables

Outcome Variable

The primary outcome was perceived difficulty obtaining needed medical care. We coded responses of “difficult” or “very difficult” as access difficulty. Responses of “easy” and “very easy” formed the reference category. We excluded respondents who reported no contact with public health services from this outcome denominator because the question was not substantively applicable to them.

Barrier Dimensions

We derived five barrier dimensions from respondents' reported experience during contact with public health facilities. Respondents with no contact with public health services were excluded from the denominator for these indicators:

We defined drug shortages as the absence of medicines or supplies reported "often" rather than never, once or twice, or several times. Absent healthcare staff, when referring to the absence of needed providers, was reported "often". We defined long waiting times as prolonged waiting times reported "often". Poor facility maintenance, referred to as facilities not kept clean or in disrepair, was reported "often". We defined high costs as the inability to afford costs, reported "often".

We constructed a composite barrier index, ranging from 0 to 5, by summing the five binary indicators among respondents with complete, valid responses to all five barrier items.

Two additional indicators were included: informal payment demand, defined as at least one request for a bribe, gift, or favor among respondents with public facility contact, and recent inability to obtain medicines or medical treatment. The corresponding Afrobarometer item codes and response scales are listed in Table 2.

Independent Variables

Sociodemographic covariates included sex (male/female), age group (18 to 24, 25 to 34, 35 to 49, 50+ years), and place of residence (urban/rural). Socioeconomic status was measured with the Lived Poverty Index (LPI), a validated composite measure based on the frequency of deprivation in food, water, medical care, cooking fuel, and income [9]. The LPI was categorized as none (mean = 0), low ($0 < \text{mean} \leq 1$), moderate ($1 < \text{mean} \leq 2$), and high (mean > 2). Its construction is described in the Lived Poverty Index (LPI) section in the Methods.

Geographic access to healthcare infrastructure was represented by the presence of a health facility in the enumeration area. We retained administrative region for descriptive analyses.

Statistical Analysis

Analyses were conducted with the *survey* package in R [10]. The Afrobarometer design weight was applied to all estimates.

For each barrier dimension, weighted proportions and 95% confidence intervals (CIs) were calculated using the valid item denominator. Values indicating no contact with public health services, refusal, or don't know were treated as missing for contact based indicators. Recent inability to obtain medicines or medical treatment was estimated in the full sample because that item was not restricted to public facility contact. Regional variation in access difficulty was described with weighted percentages by administrative region among respondents with valid access difficulty responses.

Multivariable logistic regression was used to estimate adjusted ORs for perceived access difficulty. Covariates were selected before analysis, guided by the Andersen model and by substantive relevance to healthcare access in Guinea. Complete case analysis was used for the adjusted model. Results are presented as adjusted ORs with 95% CIs. Statistical significance was set at $p < 0.05$. All analyses were conducted in R version 4.3 [11].

Spatial Analysis

An exploratory spatial analysis was conducted at the administrative region level ($n = 8$). Survey-weighted regional prevalences were calculated for perceived access difficulty, high costs, and informal payment demands, then mapped using official administrative boundary files (OCHA Guinea, 2023) and the *sf* package [12].

Spatial autocorrelation was assessed with the global Moran's I statistic, computed from a

queen contiguity spatial weights matrix, using first-order adjacency, with row standardization [13]. Global Moran's I was assessed with 999 Monte Carlo permutations. Local indicators of spatial association (LISA) were computed using local Moran's I with 999 conditional permutations to identify possible spatial clusters and outliers at the regional level [14]. Regions were classified into four quadrants, high high, low low, high low, and low high, at a significance threshold of $p < 0.05$. Spatial analyses were conducted with the *spdep* package [15]. Because only eight regions were available, the spatial findings were interpreted as descriptive and exploratory rather than as firm evidence of clustering.

Ethical Considerations

Afrobarometer data are publicly available, anonymized, and collected under informed

consent procedures approved by national ethics committees. No additional ethical approval was required for this secondary analysis.

Results

Sample Characteristics

The weighted analytic sample included 1,200 adults. About 35.6% of respondents lived in urban areas, and the sex distribution was nearly balanced (50% male). Mean age was 43.6 years (SD: 16.5). A health facility was reported in the enumeration area by 61.2% of respondents. High lived poverty (LPI > 2) was observed in 51% of respondents (Table 1). Perceived access difficulty was estimated among 948 respondents with valid public facility contact responses; 252 respondents reported no contact and were excluded from this denominator.

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)		43.6 (SD: 16.5)
Age group		
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)
Perceived access difficulty among respondents with public facility contact		

Difficult / Very difficult	560	59.2 (56 to 62.5)
Easy / Very easy	388	40.8 (37.5 to 44)

n: unweighted count. Percentages and 95% CIs use Afrobarometer survey weights. The full sample includes 1200 adults; perceived access difficulty is estimated among valid public facility contact responses (*n* = 948), excluding respondents with no contact. Age is reported as weighted means (SD).

As shown in Figure 1, high costs and informal payment requests were the most frequently reported barriers to healthcare access.

Prevalence of Perceived Barriers

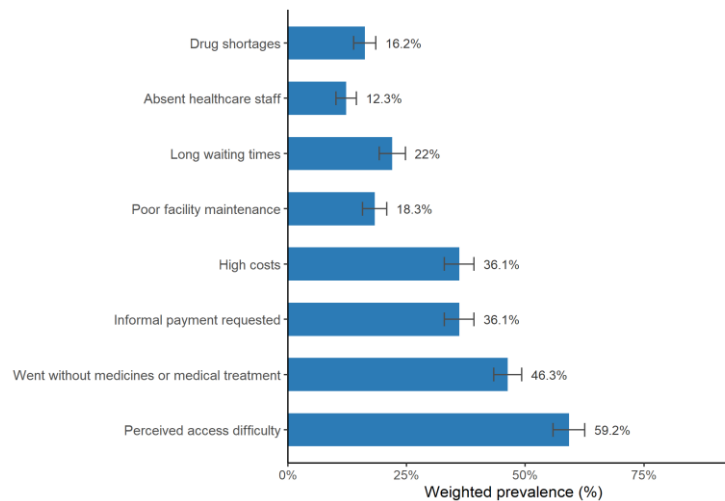


Figure 1. Weighted Prevalence of Perceived Barriers to Healthcare Among Guinean Adults (Afrobarometer R10, 2024)

Source: Authors' analysis based on Afrobarometer Round 10 Guinea dataset (2024) [8].

Regional Distribution of Access Difficulty

Regional variation in perceived healthcare access is presented in Figure 2.

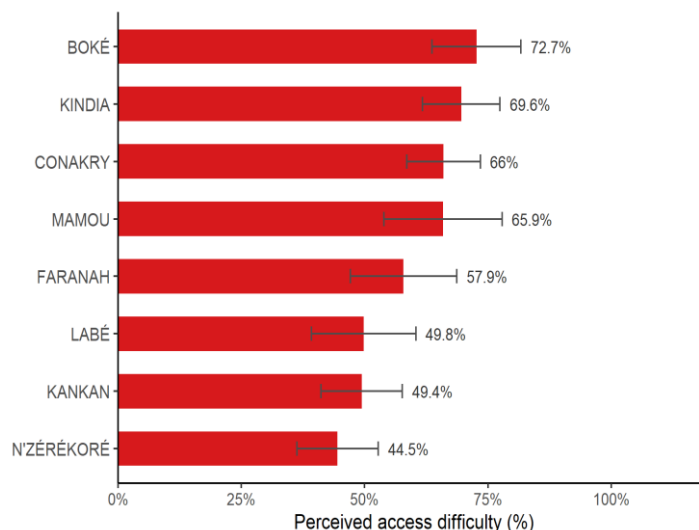


Figure 2. Proportion of Respondents Reporting Perceived Access Difficulty by Administrative Region, Guinea 2024

Source: Authors' analysis based on Afrobarometer Round 10 Guinea dataset (2024) [8].

Determinants of Perceived Access Difficulty

Table 2 reports the adjusted ORs from multivariable logistic regression. The model

used complete cases for the outcome and covariates (n = 942). Figure 3 displays the same estimates on a logarithmic scale.

Table2. Adjusted Odds Ratios for Predictors of Perceived Healthcare Access Difficulty (multivariable logistic regression, survey weighted, Guinea 2024; complete case n = 942). OR = Odds Ratio; CI = Confidence Interval. *p < 0.05; **p < 0.01. Reference categories: Poverty = None; Residence = Rural; Sex = Female; Age = 18 to 24

Variable	Adjusted OR	95% CI	p value
Lived poverty: Low (ref = None)	0.81	0.24 to 2.77	0.743
Lived poverty: Moderate	1.13	0.34 to 3.77	0.848
Lived poverty: High	1.17	0.35 to 3.88	0.795
Urban residence (ref = Rural)	1.49	1.1 to 2.03	0.011*
Male sex (ref = Female)	1.16	0.87 to 1.55	0.317
Age 25 to 34 (ref = 18 to 24)	1.08	0.66 to 1.77	0.761
Age 35 to 49	1.34	0.84 to 2.16	0.222
Age 50+	0.97	0.61 to 1.54	0.89
Health facility present in area	0.78	0.58 to 1.05	0.102
Drug shortages (often)	1.33	0.81 to 2.18	0.262
Absent staff (often)	1.51	0.82 to 2.8	0.188
Long waiting time (often)	1.56	1.03 to 2.35	0.035*
High costs (often)	1.89	1.35 to 2.63	<0.001
Informal payment requested	2.11	1.54 to 2.87	<0.001

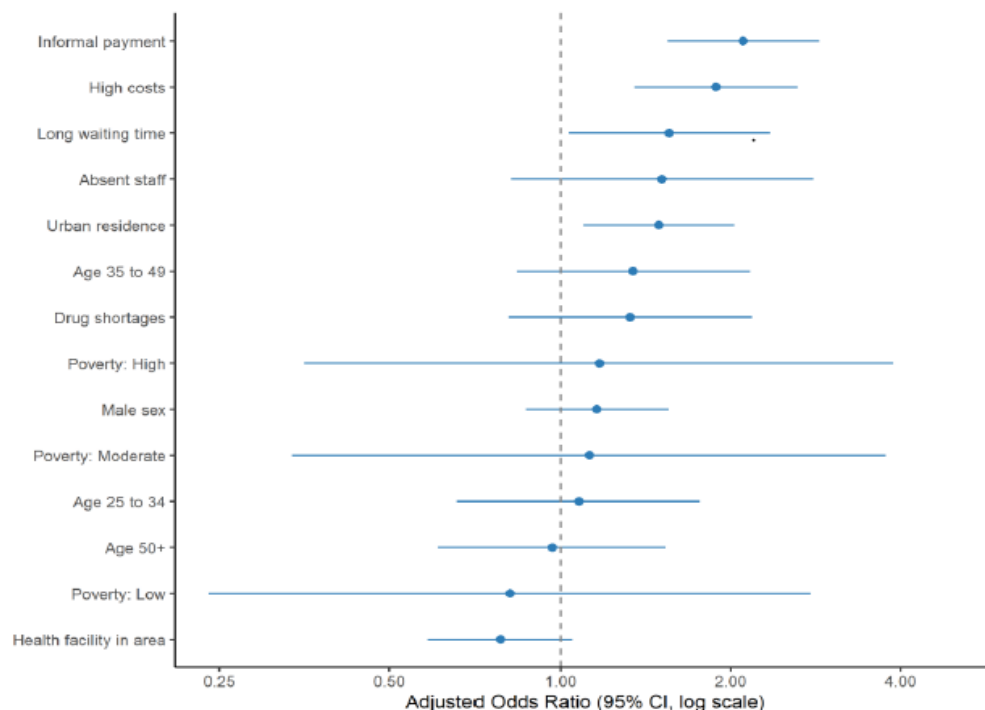


Figure 3. Adjusted Odds Ratios for Predictors of Perceived Healthcare Access Difficulty, Guinea 2024

Source: Authors' analysis based on Afrobarometer Round 10 Guinea dataset (2024) [8].

The results of the multivariable logistic regression are presented in Figure 3.

In the adjusted model, three facility level barriers had p values below 0.05: informal payment demands (OR = 2.11; 95% CI: 1.54 to 2.87), high costs (OR = 1.89; 95% CI: 1.35 to 2.63), and long waiting times (OR = 1.56; 95% CI: 1.03 to 2.35). Urban residence was also

positively associated with perceived access difficulty (OR = 1.49; 95% CI: 1.1 to 2.03). The lived poverty index, drug shortages, and absent staff did not reach statistical significance in the multivariable model. [22-24, 28]

Spatial Analysis

Regional Distribution of Key Indicators

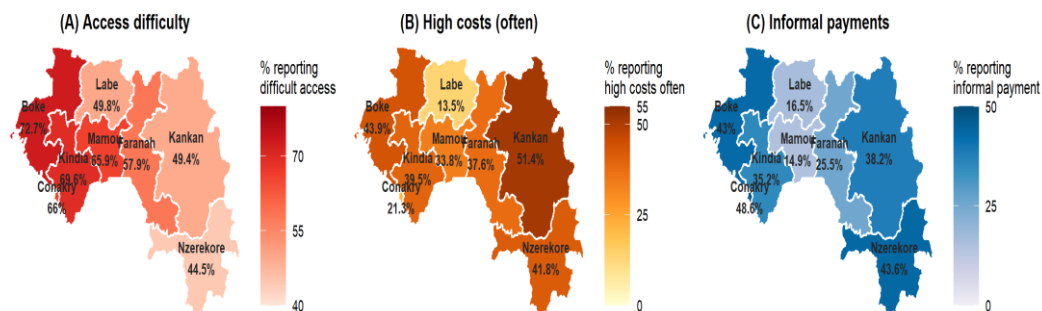


Figure 4. Regional Distribution of Perceived Access Difficulty, High Costs, and Informal Payment Demands, Guinea 2024

Spatial Autocorrelation (Moran's I)

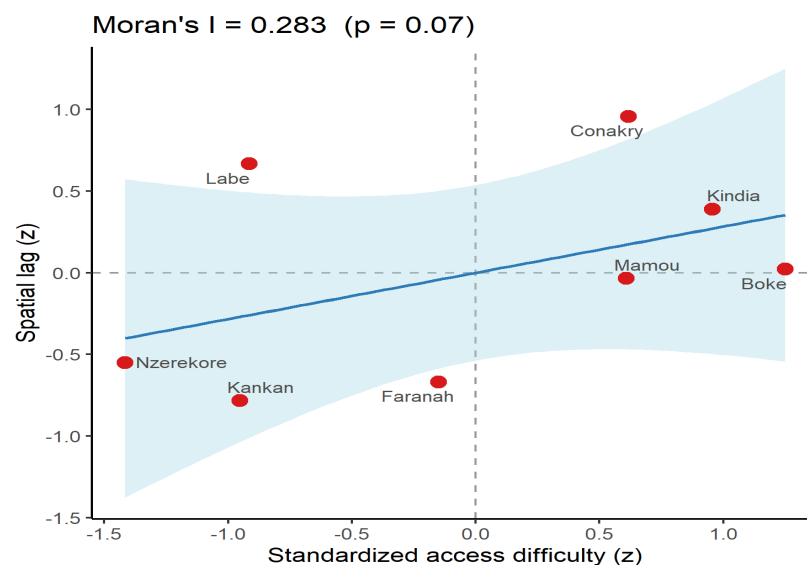


Figure 5. Moran Scatter Plot of Perceived Access Difficulty by Administrative Region, Guinea 2024



Figure 6. LISA Cluster Map of Perceived Access Difficulty by Region, Guinea 2024 (no significant clusters)

Discussion

Principal's Findings

In this nationally representative sample, 59.2% of Guinean adults with valid public facility contact responses described care as difficult or very difficult to obtain. High costs (36.1%) and informal payment demand (36.1%) were the most frequently reported contact-related problems. The adjusted model pointed most strongly to barriers experienced during the care episode itself: informal payment demands (OR = 2.11; 95% CI: 1.54 to 2.87; $p < 0.001$), high costs (OR = 1.89; 95% CI: 1.35 to 2.63; $p < 0.001$), and long waiting times (OR = 1.56; 95% CI: 1.03 to 2.35; $p = 0.035$). The findings suggest that the mere presence of a health facility is not sufficient to ensure effective access [20]. Financial constraints and organizational barriers may continue to hinder access to care even when services are geographically available.

We observed pronounced regional differences (Figures 4 to 6). BOKÉ recorded the highest proportion of perceived access difficulty (72.7%), whereas N'ZÉRÉKORÉ

recorded 44.5%, a difference of 28.2 percentage points. The spatial analysis showed positive but not significant Moran's I value for access difficulty, high costs, and informal payments. Given the small number of regions, these findings should be interpreted as descriptive spatial patterns, not as statistically confirmed clustering.

Interpretation

The strongest association observed in the adjusted model concerned informal payment requests (OR = 2.11; 95% CI: 1.54 to 2.87). For the 36.1% of respondents with public facility contact who reported such demands, the problem is not limited to the additional amount paid. Informal payment requests make the cost of care uncertain and may weaken trust in the facility before treatment is completed [16]. Their persistence alongside formal fee structures suggests weak tariff enforcement and limited accountability within public facilities.

High costs were also strongly related to perceived difficulty (OR = 1.89; 95% CI: 1.35 to 2.63), consistent with Guinea's high direct household payment share in total health

spending [3, 21]. In practice, formal and informal charges may combine into a single financial barrier for households [25, 26, 31].

Long waiting times (OR = 1.56; 95% CI: 1.03 to 2.35) represent a different kind of constraint. They do not necessarily involve a direct financial charge, but they impose a time cost that can be substantial for people whose care seeking depends on daily work, transport availability, or family support. This finding is consistent with evidence linking wait times to congestion within public facilities [2].

The positive association between urban residence and perceived access difficulty (OR = 1.49; 95% CI: 1.1 to 2.03) may appear counterintuitive, but it is consistent with a utilization paradox reported elsewhere in sub-Saharan Africa. Urban residents may interact more often with health facilities and therefore have greater exposure to service failures [4]. Expectations may also differ in urban settings, lowering the threshold for reporting access difficulty independently of objective service quality.

Lived poverty did not remain associated with perceived access difficulty after the barrier variables were included. This should not be read as evidence that poverty is irrelevant to healthcare access. A more plausible interpretation is that poverty is partly expressed through concrete experiences at the point of care, especially unaffordable costs and informal payments. This pattern is compatible with mediation frameworks in health services research [5, 25, 30].

Strengths and Limitations

The main strength of this study is its national probability sample, which allowed us to move beyond facility records and examine barriers as reported by citizens. Survey weighting further supports the representativeness of the estimates.

Several limitations should be considered. The analysis relied on respondent reported barrier measures, which may be influenced by recall, expectations, or willingness to report

negative experiences. Because the design was cross sectional, causal claims cannot be made. Important need factors, including chronic illness or recent acute disease, were not available for inclusion in the model. Regional estimates were based on relatively small subsamples; therefore, interpret comparisons between regions with attention to precision.

Policy Implications

From a policy perspective, the findings highlight several actionable priorities consistent with global commitments to universal health coverage [19]. Control of informal payment practices needs to be visible to patients through clear fee schedules, complaint mechanisms, and enforcement within facilities. Waiting time should also be treated as an access problem, since better triage, patient flow, appointment organization, and staff deployment may reduce the time cost of care. Medicine availability remains central: drug shortages were common even though their adjusted association with perceived difficulty was weaker than that of financial barriers and waiting time. [22, 24].

Financial protection for poor households also remains important, particularly where formal and informal payments overlap. The regional variation observed in this analysis supports targeted action in the regions with the highest burden rather than a strictly uniform national response [25-27, 30, 31].

Conclusions

More than half of respondents who had recent contact with public health facilities reported difficulties in obtaining healthcare. High costs and informal payment demands were the most frequently reported barriers, followed by long waiting times. In adjusted analyses, perceived access difficulty was most strongly associated with informal payment requests, high costs, long waiting times, and urban residence. Improving access in Guinea will require not only expanding service

availability but also addressing the financial and organizational barriers encountered during care seeking.

Ethics Approval and Consent to Participate

This work is a secondary analysis of publicly available, anonymized data collected by the Afrobarometer network. The Afrobarometer Round 10 survey in Guinea was conducted in accordance with local ethical requirements, and researchers obtained informed consent from all participants before data collection. The public dataset contains no personal identifying information. Consistent with principles governing secondary analyses of anonymized survey data, no additional institutional ethics approval was required for the present study.

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Consent for Publication

Not applicable. The dataset contains no identifying information at the individual level, images, or personal data requiring specific consent for publication.

Data Availability

The Afrobarometer Round 10 dataset for Guinea (2024) used in this study is publicly available from the Afrobarometer website: <https://www.afrobarometer.org/data/>. The R analysis scripts are available from the corresponding author upon reasonable request.

Competing Interests

The author declares no financial or non financial competing interests that could have

influenced the design, conduct, analysis, interpretation, or reporting of this study.

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Authors' Contributions

- **AK (Ansoumane KOUROUMA):** Conceptualized and designed the study; identified and selected variables; conducted the statistical analyses, including survey-weighted descriptive statistics, composite index construction, multivariable logistic regression, and spatial analyses; interpreted the results; drafted and revised the manuscript; and approved the final version for submission.
- **AS(Aboubacar Sidiki MAGASSOUBA):** Contributed to the interpretation of results; critically reviewed the manuscript for intellectual content; and approved the final version for submission.
- **ID (Ibrahima DOUMBOUYA):** Contributed to the study design and contextual framing; critically reviewed the manuscript for intellectual content; and approved the final version for submission.
- **MM (Mory MAGASSOUBA):** Contributed to the interpretation of findings in the Guinean health system context; critically reviewed the manuscript; and approved the final version for submission.
- **MFK (Mory Filany KEITA):** Contributed to the interpretation of findings and policy implications; critically reviewed the manuscript; and approved the final version for submission.
- **JYC (Joseph Yalir CAMARA):** Contributed to data access and contextual validation; critically reviewed the manuscript; and approved the final version for submission.

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