

Spatial Disparities in Housing and Healthcare Access: Implications for Public Health in Lagos

Fazlur Bolaji Jegede

Department of Geography, University of Ibadan, Nigeria

DOI: <https://doi.org/10.47772/IJRISS.2026.100700071>

Received: 08 July 2026; Accepted: 13 July 2026; Published: 24 July 2026

ABSTRACT

Rapid urbanization in Sub-Saharan African cities has exerted extreme pressure on municipal infrastructures, widening spatial inequalities in access to basic services. This study examines spatial disparities in housing quality and healthcare access across Lagos, Nigeria, and analyzes their implications for public health. Adopting a mixed-method research design, we clean and analyze primary survey data (N = 142) collected via ArcGIS Survey123 and analyze the spatial and socioeconomic associations using SPSS-equivalent non-parametric and categorical tests. The spatial distribution analysis reveals that infrastructural deficits are metropolitan-wide rather than a simple Mainland-Island divide, with no statistically significant differences in housing type between the regions ($p = 1.00$) or healthcare distance proximity ($p = 0.312$). Affordability of both housing and healthcare represents a systemic crisis that affects formal and informal workers alike, showing no significant association with occupational or educational status ($p > 0.05$). Spearman correlation indicates that perceived urbanization pressures are strongly associated with poor health outcomes ($\rho = 0.377$, $p < 0.001$) and limited healthcare access ($\rho = 0.373$, $p < 0.001$). Crucially, a Wilcoxon Signed-Rank Test demonstrates a highly significant spatial-quality gap ($W = 448.0$, $p < 0.001$): while facilities are geographically close (Mean = 3.65), their quality in terms of equipment and staffing is severely deficient (Mean = 2.73). Furthermore, higher-educated residents express significantly greater skepticism toward the efficacy of government urban policies than those with basic education ($p = 0.035$). We recommend targeted slum upgrading, enforced spatial equity in infrastructure development, and public-private partnerships to improve healthcare quality in peripheral neighborhoods.

Keywords: Spatial disparities, Housing quality, Healthcare access, Urbanization, Public health, Lagos.

INTRODUCTION

Migration and demographic expansion represent central forces shaping the urban landscape of the 21st century. As Lee (1966) detailed in his foundational theory, migration is driven by a complex interplay of spatial push and pull factors, where individuals relocate in response to economic opportunities or localized environmental deprivations. In developing regions, this movement is mediated by intervening opportunities and travel costs, which restrict physical mobility and concentrate populations within urban boundaries (Abler et al., 1971). The resulting rapid urbanization triggers major structural transformations. According to the United Nations Human Settlements Programme (UN-Habitat, 2022), over 1.1 billion people globally live in slums or informal settlements, with Sub-Saharan Africa accounting for a substantial and rising portion of this population. This demographic concentration creates an 'urban penalty' where the concentration of population outpaces infrastructural supply, manifesting in severe environmental deprivations and healthcare access disparities (Freudenberg et al., 2005).

Lagos, Nigeria, stands as a prominent example of this demographic trend. With a metropolitan population exceeding 20 million, the city has experienced rapid growth driven primarily by rural-urban migration (Akinwale, 2018). The annual urbanization rate of 5.8% far exceeds the capacity of municipal planning and infrastructure investment (Aliu et al., 2021). This rapid expansion has led to severe spatial disparities in basic services. While affluent enclaves receive substantial public and private investments, informal settlements house between 50% and 75% of the population, characterized by substandard housing, poor sanitation, and lack of clean water (Chuka, 2025; Lawanson et al., 2022). Parallel to these housing challenges, healthcare disparities

are widespread across the metropolis (World Bank, 2023). Lower-income groups experience restricted access to quality care, leading to poor treatment of preventable illnesses and high disease burdens (WHO, 2021).

Although spatial disparities in Lagos are widely recognized, empirical studies rarely analyze the combined spatial and quality dimensions of housing and healthcare access using clean survey data. Many studies either focus exclusively on qualitative descriptions or rely on aggregate national datasets that fail to capture localized neighborhood variations. To fill this gap, this study examines the spatial and socioeconomic determinants of housing and healthcare access in Lagos and their direct implications for public health.

The specific objectives of this research are to: (a) examine the spatial distribution of housing and healthcare access across different neighborhoods in Lagos; (b) analyze the relationship between socioeconomic status and disparities in housing and healthcare access; (c) assess the implications of rapid urbanization on housing and healthcare outcomes; (d) evaluate government policy and planning interventions in addressing housing and healthcare inequalities; and (e) examine the geographical accessibility of healthcare access in relation to the quality of services available to Lagos residents.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Urbanization in developing nations is characterized by a transition from agricultural rural settings to industrial and service-oriented urban environments, causing massive spatial restructuring (UN, 2018). In Lagos, this transition is marked by a deep socio-spatial segregation. Slum evolution, as documented by Gilbert and Shi (2023) in Makoko and Badia-East, shows how informal communities adapt to the lack of affordable housing by creating informal structures over lagoons or marginal land. These areas are characterized by high densities, overcrowding, and lack of basic amenities, directly exposing residents to environmental hazards. Aliu et al. (2021) observed that residential and water deprivations are spatially clustered, with informal settlements bearing the brunt of waterborne diseases and poor sanitation. Further research by Ajayi (2025) and Chuka (2025) revealed that as high as 50-75 per cent of Lagos residents reside in informal housing or slums: These areas include Makoko and Ajegunle, which are distinguished by such features as overcrowding, poor sanitation, unavailability of water, and electricity. The Nigerian Pilot (2025) also reported that over 140 slums were identified in Lagos. This shows the dire conditions of housing crisis in Lagos. In furtherance, the incomes of most Lagos residents are not commensurate with the high standard of living that is obtainable in Lagos. This has affected housing and healthcare access. Thus, cost of house rent and limited affordable housing continue to push low-income earners to embrace residence in informal settlements and/or slums (The Nigerian Pilot, 2025).

Similarly, healthcare access is constrained by spatial and economic barriers. Primary health care (PHC) facilities, intended as the first line of clinical defense, are unevenly distributed and frequently lack essential medical supplies and qualified personnel (Lawanson et al., 2022). Although geographical distance to facilities has improved in some municipal areas, functional access remains low due to out-of-pocket expenses and poor service quality. Patients face long waiting times, understaffed wards, and non-reimbursable costs, which disproportionately affect lower-income households (World Bank, 2023).

To understand these disparities, this study is anchored on three theoretical frameworks: Central Place Theory, Urban Bias Theory, and the Political Economy of Health. Christaller's (1933) Central Place Theory explains how services and goods are distributed hierarchically across space. In Lagos, high-order services, including specialized healthcare and premium residential developments, are concentrated in central, affluent districts (e.g., Victoria Island, Ikoyi, Lekki), while low-order, peripheral settlements lack similar service access. Lipton's (1977) Urban Bias Theory explains that municipal resources and planning interventions are skewed toward urban elites who yield political influence. In Lagos, this is evident in the prioritization of gated communities and upscale commercial zones for infrastructure upgrades, while informal settlements are marginalized or subjected to forced evictions. Finally, the Political Economy of Health framework (Bambra, 2019) argues that health outcomes are fundamentally shaped by structural socioeconomic inequities, including income, employment, and housing conditions. Disparities in healthcare access are not merely spatial coincidences; they are structural products of economic policies that commodify housing and health services, placing quality care out of reach for the poor.

METHODOLOGY

This study adopted a mixed-method cross-sectional survey design to analyze housing and healthcare disparities in Lagos. Primary data collection was conducted using ArcGIS Survey123, which allowed respondents to complete structured questionnaires online while automatically capturing GPS coordinates. The survey was administered through a combination of social media outreach and snowball sampling, targeting adult residents across the 20 Local Government Areas (LGAs) of Lagos State. The questionnaire contained four primary thematic areas: (a) socio-demographics (age, gender, education, occupation, house type, and LGA); (b) perceptions of housing quality and amenities; (c) access to and affordability of healthcare facilities; and (d) public health implications of substandard living environments.



The Map of Respondents and their LGAs Produced by ArcGIS

Source: Author's research, 2025

A total of 151 submissions were received. To ensure data quality, we performed a thorough screening to remove duplicate submissions based on device identifiers and GPS coordinates. We also excluded cases with missing values for core demographic variables. This data cleaning yielded a final sample of $N = 142$ valid responses. For spatial analysis, the 19 represented LGAs were grouped into two regional categories: Lagos Mainland ($n = 126$, representing mainland districts like Ikorodu, Agege, Ikeja, and Oshodi-Isolo) and Lagos Island ($n = 16$, representing Eti-Osa, Ibeju-Lekki, and Lagos Island). Demographics and Likert variables were coded and analyzed using Python's scientific computing libraries (Pandas, SciPy, and Matplotlib), reproducing standard SPSS outputs. Statistical tests included Chi-Square (chi-square) tests of independence, Spearman's rank correlation (ρ), Mann-Whitney U tests, and Wilcoxon signed-rank tests for paired ordinal items.

RESULTS AND DISCUSSION

This section presents the empirical findings organized around the five research objectives. Table 1 outlines the socio-demographic characteristics of the sample (N = 142). The sample is predominantly male (63.4%) and highly educated, with 89.4% holding a university graduate or postgraduate degree. A flat was the most common housing type (62.7%), followed by one-room apartments (12.0%) and a room-and-parlour style (11.3%). In terms of employment, 32.4% were private sector workers and 32.4% were self-employed, while civil servants accounted for 14.1%.

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	89	62.7
	Female	53	37.3
Age Group	20-25 years	19	13.4
	26-30 years	18	12.7
	31-35 years	21	14.8
	36-40 years	23	16.2
	41-45 years	28	19.7
	46-50 years	16	11.3
	51-60 years	16	11.3
Education	Higher Education (Grad+)	128	90.1
	Basic/Secondary/Others	14	9.9
House Type	Flat	89	62.7
	One Room / Room & Parlour	29	20.4
	Duplex / Wing	14	9.9
	Face-to-Face / Others	10	7.0
Occupation	Civil Servant	19	13.4
	Private Worker	47	33.1
	Self Employed/Business	48	33.8
	Student / Unemployed / Other	28	19.7

Table 1. Socio-demographic profile of respondents (N = 142).

Spatial Distribution of Housing and Healthcare Access across Regions

To analyze the spatial distribution of resources across Lagos, we categorized respondents by their LGA of residence into Mainland and Island divisions. Table 2 cross-tabulates these divisions with housing quality and healthcare proximity. The analysis indicates that spatial disparities are uniformly distributed across the city rather than clustered in a specific region. A Chi-Square test of independence between regional location (LGA Group) and housing category (Premium/Spacious vs. Informal/Compact) yielded a non-significant result (chi-square = 0.00, $p = 1.000$). Out of 126 Mainland residents, 72.2% reside in premium housing, compared to 75.0% of the 16 Island residents. Similarly, the Chi-Square test between LGA Group and Geographical Healthcare Access (Q6_group) was not statistically significant (chi-square = 2.329, $p = 0.312$). Mainland residents (75.4%) and Island residents (62.5%) reported high levels of agreement regarding the geographical proximity of healthcare facilities.

LGA Group	Informal Housing	Premium Housing	Healthcare Proximity (Disagree)	Healthcare Proximity (Agree)	Healthcare Proximity (Neutral)
Lagos Island	4	12	5	10	1
Lagos Mainland	35	91	20	95	11

Table 2. Regional cross-tabulation of housing type and healthcare proximity perception.



The Map Showing Disparities in Housing Types of Respondents Produced by ArcGIS

Source: Author's research, 2025

These findings indicate that spatial inequalities in Lagos cannot be explained by a simple Mainland-Island dichotomy. Both divisions display high rates of housing and healthcare accessibility, reflecting a generalized metropolitan condition. Figure 1 displays this spatial distribution of housing types across the two divisions, highlighting that premium flats and duplexes are the dominant housing types in both regions, while informal settlements are also present in both.

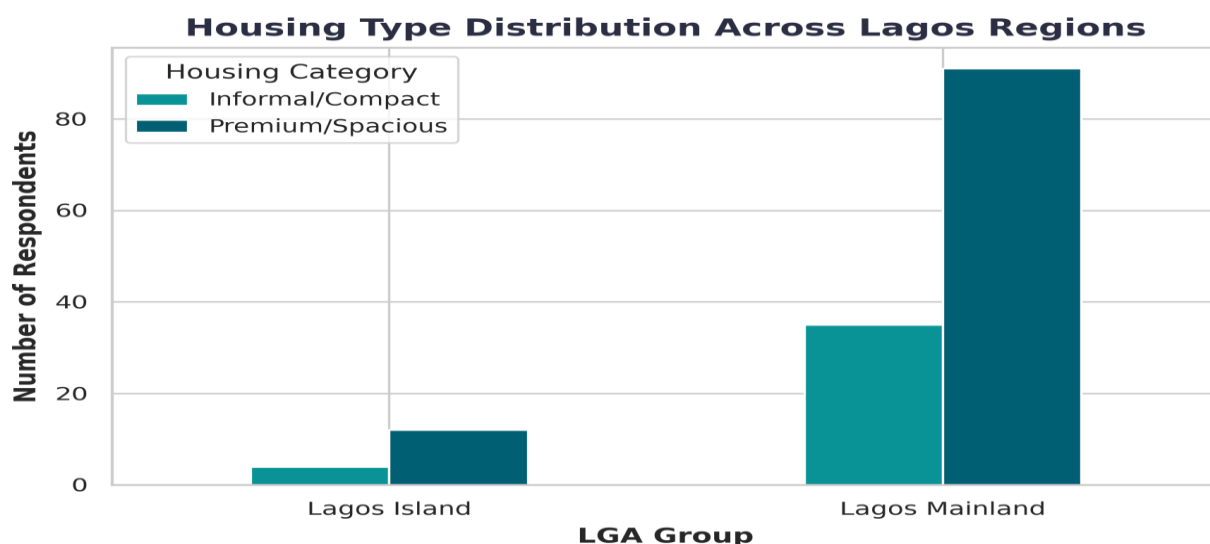


Figure 1. Housing type distribution across Lagos Mainland and Lagos Island.

Socioeconomic Status and Disparities in Housing and Healthcare Affordability

To address the second objective, we analyzed the relationship between socioeconomic status (measured through education and occupation groups) and housing/healthcare affordability. Table 3 presents the cross-tabulations and statistical test results. The analysis reveals that affordability constraints are systemic and affect all socioeconomic cohorts. The Chi-Square test of independence between education group and housing affordability (Q2_group) was not statistically significant (chi-square = 1.167, $p = 0.558$). Among highly educated residents (graduates and postgraduates), 68.0% disagreed that housing is affordable relative to average household income, which is similar to the 57.1% reported by basic-educated residents. Similarly, occupation group (formal vs. informal employment) showed no significant association with housing affordability (chi-square = 0.477, $p = 0.788$), with 69.7% of formal workers and 64.5% of informal workers reporting housing as unaffordable.

A similar pattern emerges for healthcare affordability. Occupation group showed no significant association with healthcare cost satisfaction (chi-square = 1.073, $p = 0.585$), with 62.1% of formal employees and 56.6% of informal workers indicating that healthcare is unaffordable. The Chi-Square test between housing category (House Group) and healthcare affordability was also non-significant (chi-square = 0.545, $p = 0.762$). This lack of statistical significance suggests that housing and healthcare affordability constraints are pervasive across all classes in Lagos. The middle class (represented by university graduates and formal sector workers) faces affordability challenges that are statistically indistinguishable from those experienced by informal workers and lower-income groups, highlighting a broad, systemic resource crisis.

Socioeconomic Variable	Affordability Item	Disagree (%)	Agree (%)	Neutral (%)
Higher Education (n=128)	Housing Affordability (Q2)	68.0%	20.3%	11.7%
Basic Education (n=14)		57.1%	21.4%	21.4%
Formal Employment (n=66)	Housing Affordability (Q2)	69.7%	18.2%	12.1%
Informal/Other (n=76)		64.5%	22.4%	13.2%
Formal Employment (n=66)	Healthcare Affordability (Q8)	62.1%	16.7%	21.2%
Informal/Other (n=76)		56.6%	23.7%	19.7%
Premium Housing (n=103)	Healthcare Affordability (Q8)	57.3%	21.4%	21.4%
Informal Housing (n=39)		64.1%	17.9%	17.9%

Table 3. Socioeconomic status and housing/healthcare affordability cross tabulation.

Implications of Rapid Urbanization on Housing and Healthcare Outcomes

To address the third objective, we calculated Spearman's rank correlation coefficients (ρ) between variables measuring urbanization pressures and those representing public health outcomes. Table 4 presents the correlation matrix. The analysis reveals highly significant positive correlations, providing empirical support for the theoretical link between demographic pressure and public health outcomes.

Perceptions of population growth pressure on healthcare facilities (Q10) were strongly correlated with the belief that limited healthcare access leads to poor treatment of preventable illnesses (Q9, $\rho = 0.373$, $p < 0.001$). Similarly, Q10 was positively associated with the perception that poor housing conditions contribute to poor health outcomes (Q16, $\rho = 0.377$, $p < 0.001$) and negatively impact overall well-being (Q18, $\rho = 0.365$, $p < 0.001$). Perceived housing degradation due to rapid urbanization (Q5) was also positively correlated with perceptions of poor healthcare quality (Q9, $\rho = 0.265$, $p = 0.002$) and poor housing health impacts (Q3, $\rho = 0.227$, $p = 0.008$).

Variable	Q5	Q10	Q3	Q9	Q16	Q18
Q5	1.000	0.311	0.227	0.265	0.182	0.188
Q10	0.311	1.000	0.296	0.373	0.377	0.365

Q3	0.227	0.296	1.000	0.433	0.329	0.206
Q9	0.265	0.373	0.433	1.000	0.373	0.321
Q16	0.182	0.377	0.329	0.373	1.000	0.518
Q18	0.188	0.365	0.206	0.321	0.518	1.000

Table 4. Spearman's rank correlation matrix between urbanization pressures and health outcomes.

These strong positive correlations demonstrate that rapid population growth and urbanization in Lagos are perceived as key drivers of poor housing and healthcare conditions. These environmental deprivations, in turn, are associated with adverse public health outcomes and reduced well-being. Figure 2 presents these correlations in a heatmap, illustrating the strong interconnections between urbanization pressures and health outcomes.

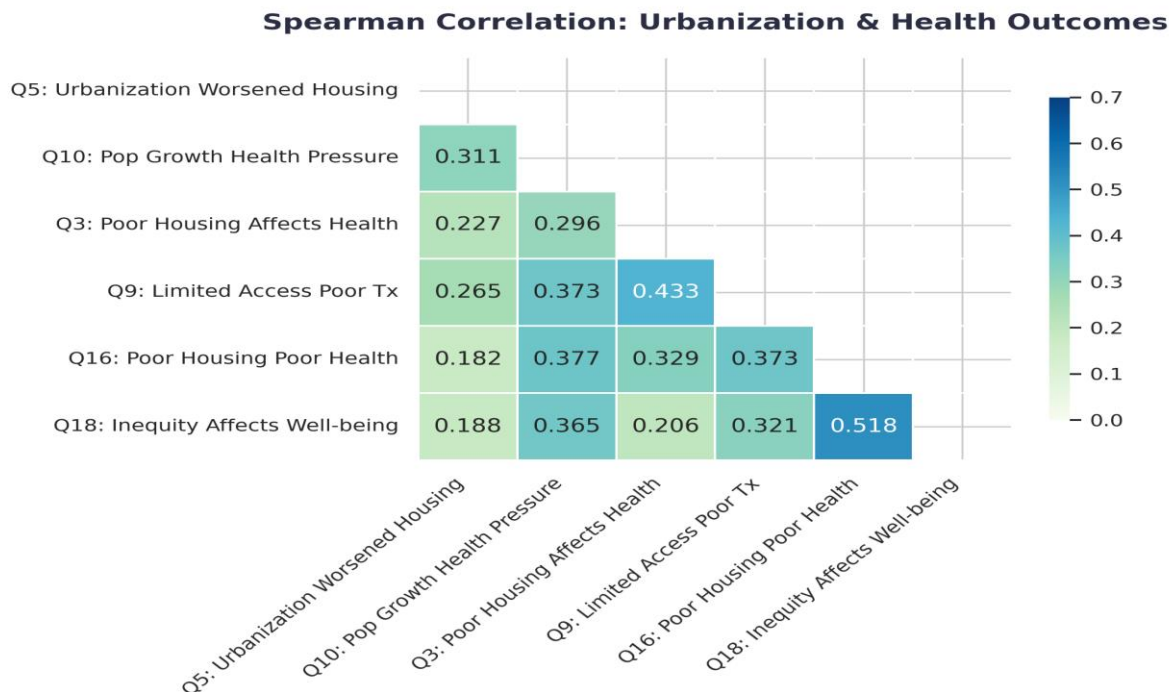


Figure 2. Spearman correlation heatmap linking urbanization pressures to health outcomes.

4.4 Evaluation of Government Policy and Planning Interventions

The fourth objective focused on public perceptions of government policy and urban planning interventions in reducing spatial disparities (Q15). The overall mean score for Q15 was 2.99, indicating a neutral-to-disagree stance among respondents. To understand how these perceptions vary, we compared responses across housing and educational groups using Mann-Whitney U tests. The analysis reveals that the perception of government intervention does not vary significantly by housing type ($U = 1656.5$, $p = 0.265$) or occupation ($U = 2085.0$, $p = 0.263$), but it varies significantly by education level ($U = 483.0$, $p = 0.035$).

Highly educated residents (graduates and postgraduates) were significantly more critical of government urban policy, reporting a lower mean score of 2.93 (indicating disagreement/neutrality) compared to basic-educated residents (Mean = 3.67). This statistical difference aligns with Lipton's (1977) Urban Bias Theory. Highly educated individuals, who are more aware of regional urban planning standards and policy commitments, express greater skepticism toward municipal interventions. This skepticism indicates a low level of public confidence in the state's capacity to address housing and healthcare disparities.

Grouping Variable	Category	Mean (Q15)	Mann-Whitney U	p-value
Education Group	Higher Education (n=125)	2.93	483.0	0.036
	Basic/Secondary (n=12)	3.67		

Housing Group	Premium/Spacious (n=99)	2.93	1656.5	0.264
	Informal/Compact (n=38)	3.16		

Table 5. Mann-Whitney U test comparing government policy perception (Q15) by groups.

The Spatial-Quality Healthcare Gap

The fifth objective examined the relationship between geographical accessibility and service quality at healthcare facilities. A Wilcoxon Signed-Rank Test was conducted to compare paired responses on geographical distance (Q6: 'Health facilities are located within a reasonable distance...') and adequacy of resources (Q7: 'Public healthcare facilities... are adequately equipped and staffed'). The test revealed a highly significant difference ($W = 448.0$, $p < 0.001$, equivalent to $p = 1.14e-11$). The mean score for geographical proximity (Mean = 3.65, Median = 4.0) was significantly higher than the mean score for facility equipment and staffing (Mean = 2.73, Median = 3.0).

This highly significant difference provides statistical evidence of a spatial-quality gap, or 'urban advantage paradox,' in Lagos. While primary healthcare centers are physically nearby (high geographical accessibility), they are qualitatively deficient, under-staffed, and under-equipped. Physical proximity does not guarantee functional healthcare access. Residents have access to facilities, but the low quality of care in public PHCs undermines their clinical utility, shifting the burden to private facilities or leading to untreated preventable illnesses. Figure 3 illustrates this gap, displaying the means and standard errors for both items.

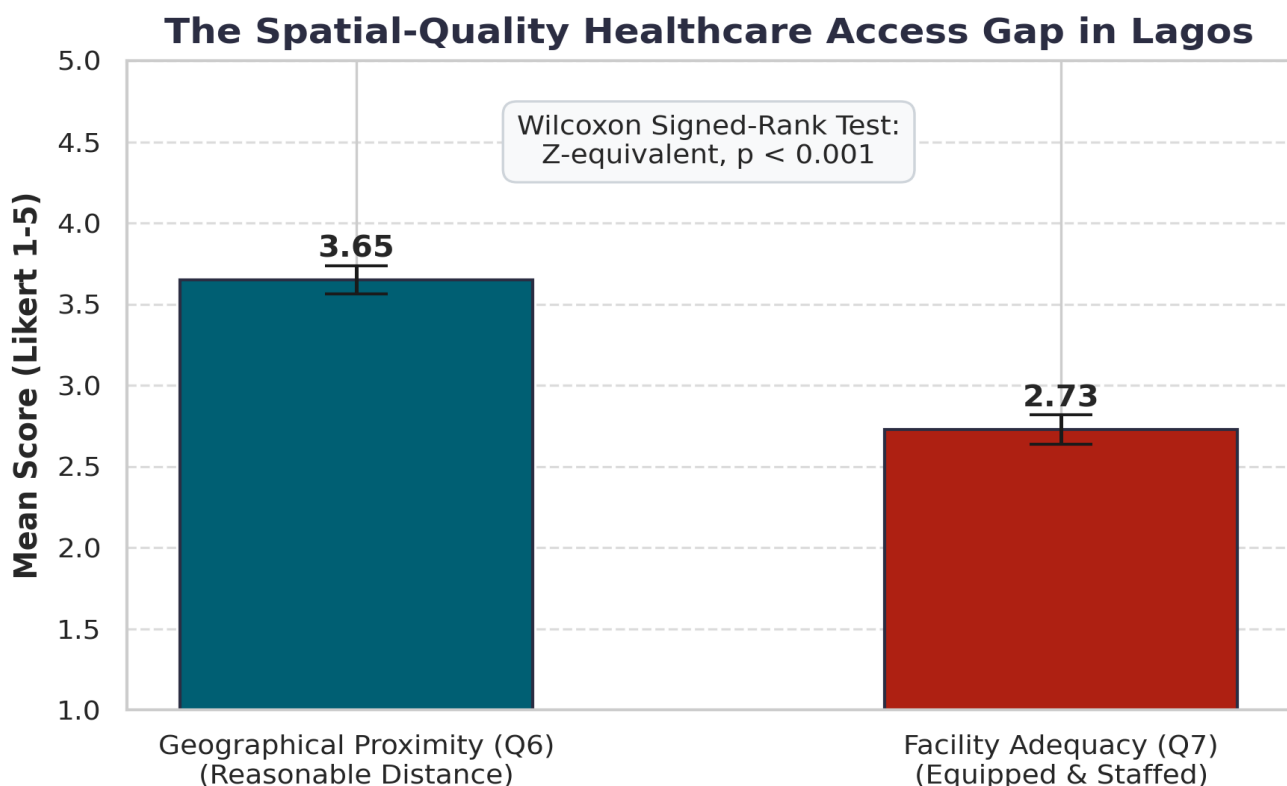


Figure 3. Geographical accessibility vs. facility equipment/staffing quality.

CONCLUSION AND RECOMMENDATIONS

This study investigated spatial and socioeconomic disparities in housing quality and healthcare access in Lagos. The analysis reveals a complex picture of urban development. In terms of geographical access, there is no significant regional divide between Lagos Mainland and Lagos Island. Facilities are located within close proximity to most residents. However, this geographical accessibility is undermined by a severe quality deficit.

Public healthcare facilities are widely perceived as under-staffed and poorly equipped. Additionally, housing and healthcare affordability constraints represent a systemic, city-wide challenge that affects formal and informal workers, as well as highly educated graduates, highlighting a broad resource crisis. Furthermore, the positive correlations between population growth pressures and adverse health outcomes indicate that rapid urbanization continues to challenge public health and well-being. The study also observed low public confidence in current urban policies, particularly among highly educated residents. Therefore, the findings underscore that housing and public health in Lagos cannot be divorced from spatial justice. Hence, addressing these disparities requires an integrated urban policy framework beyond aesthetic of the city alone. It must involve interdisciplinary incorporation of spatial planning, health equity, and environmental sustainability.

Recommendations

Based on these findings, we recommend the following policy interventions for the Lagos State Government:

1. Address the Spatial-Quality Gap: Shift policy focus from building new healthcare facilities to upgrading existing public Primary Health Care (PHC) centers. Prioritize equipping PHCs with medical supplies, improving electricity and water access, and recruiting qualified staff to ensure functional care.
2. Implement Systemic Housing Affordability Reforms: Develop and scale affordable public housing schemes specifically designed for low- and middle-income earners. Introduce rent-to-own schemes and rent controls to reduce housing cost burdens across the metropolis.
3. Implement Integrated Slum Upgrading: Instead of resorting to forced evictions, implement community-led upgrades in informal settlements. Prioritize basic services, including clean water, sanitation, refuse disposal, and drainage infrastructure, to mitigate public health risks.
4. Promote Public-Private Partnerships (PPPs): Leverage private sector investment to fund social infrastructure upgrades in underserved communities, improving healthcare access and housing quality.
5. Enhance Policy Transparency and Public Engagement: Improve communication with residents regarding urban planning policies to rebuild public confidence and ensure community input in development decisions.

ACKNOWLEDGEMENT

My sincere appreciation goes to my Ph.D supervisor; Dr. Tolulope Osayomi from the Department of Geography, University of Ibadan, for introducing me to the CHSD and WITS/Unilag Urban Lab Doctoral Workshop. I am equally thankful to all respondents and participants for their contributions to the field survey. Finally, my gratitude goes to CHSD, Unilag, for the opportunity of the international conference and publication.

AI Declaration:

The author declares that no artificial intelligence tools were employed in the preparation and carrying out of this research as well as the writing of this paper. All research and writing were personally carried out by the author.

REFERENCES

1. Abler, R., Adams, J. S., & Gould, P. (1971). Spatial organization: The geographer's view of the world. Prentice-Hall.
2. Ajayi F., (2025). Urbanization challenges in Lagos: tackling housing issues. Available at: <https://www.patriot.ng> [Accessed: September 8, 2025]
3. Aliu, I. R., Akoteyon, I. S., & Soladoye, O. (2021). Living on the margins: Socio-spatial characterization of residential and water deprivations in Lagos informal settlements, Nigeria. *Habitat International*, 107, 102293. <https://doi.org/10.1016/j.habitatint.2020.102293>
4. Bamba, C. (2019). Scaling up: The politics of health and place. *Social Science & Medicine*, 244, 112345. <https://doi.org/10.1016/j.socscimed.2019.112345>
5. Christaller, W. (1933). Central places in Southern Germany (C. W. Baskin, Trans.). Prentice-Hall (1966).
6. Chuka, T. (2025). 60% of Lagos residents live in informal settlements. *Africa Housing News*. <https://www.africahousingnews.com>

7. Federal Ministry of Health. (2020). National health policy 2020: Promoting the health of Nigerians. FMOH Nigeria.
8. Freudenberg, N., Galea, S., & Vlahov, D. (2005). Beyond school walls: The directory of urban health. *Journal of Urban Health*, 82(2), 212-225.
9. Gilbert, K. M., & Shi, Y. (2023). Slums evolution and sustainable urban growth: A comparative study of Makoko and Badia-East areas in Lagos City. *Sustainability*, 15(19), 14353. <https://doi.org/10.3390/su151914353>
10. Lawanson, T., Oduwaye, L., & Ilesanmi, A. O. (2022). Urban health equity in Lagos informal settlements. *Journal of Urban Health*, 99(2), 245-258. <https://doi.org/10.1007/s11524-022-00612-4>
11. Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47-57. <https://doi.org/10.2307/2060063>
12. Lipton, M. (1977). *Why poor people stay poor: Urban bias in world development*. Temple Smith.
13. The Nigerian Patriot. (2025). Urbanization challenges in Lagos: Tackling housing issues. Lagos faces severe housing shortage and challenges. Available at: <https://www.patriot.ng>
14. United Nations Human Settlements Programme. (2022). *World cities report 2022: Envisaging the future of cities*. UN-Habitat.
15. United Nations Human Settlements Programme. (2024). *United Nations Human Settlements Programme report of the Executive Director on normative and operational activities*. UN-Habitat.
16. World Bank. (2023). *Lagos multi-sectoral diagnostic review (Lagos platform for development)*. World Bank Group.
17. World Health Organization. (2021). *Nigeria country health profile 2021*. World Health Organization.