Patterns and determinants of Neighborhoods Quality of informal Communities in Metropolitan Lagos using Statistical Techniques

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ABSTRACT: Metropolitan Lagos in Nigeria is renowned for its numerous informal communities, characterized by a lack of official recognition and residents' land ownership rights, leading to substandard housing and inadequate neighborhood services. These areas, though often contested by migrants and indigenous populations, are integral to the city. Despite previous studies focusing on formal city conditions, informal communities in Lagos remain underexplored. This study aimed to describe the socio-demographic characteristics, housing quality, and neighborhood conditions of these communities. Primary data from 1,600 respondents across fifteen informal communities were collected through structured questionnaires. Analysis included descriptive statistics, factor analysis, ANOVA, generalized linear regression, and spatial autocorrelation techniques. Findings revealed one-room apartments with wooden features as predominant housing types. Principal component analysis summarized 21 residential quality indicators into eight components, with low residential and neighborhood quality but high locational quality indexes. ANOVA indicated significant variations in quality indexes across communities, while spatial autocorrelation analysis showed no significant clustering. Regression analysis highlighted the influence of gender, ethnicity, income, occupation, and homeownership on residential and neighborhood quality. The study concluded by advocating for improved dwellings, increased public services, and collaborative efforts for the renewal of Lagos' informal communities.

Keywords: Informal communities, Land ownership, Principal Component Analysis, Residential quality, and Spatial Autocorrelation Analysis.

INTRODUCTION

Informal communities, predominantly found in developing regions, represent urban areas where a considerable portion of the population faces challenges accessing basic services and lives in substandard conditions (Bolay, 2006; Roy, 2011; Aliu *et al*., 2021). While these settlements are a global phenomenon, they are more prevalent in developing countries, particularly in regions like Africa and Asia, reflecting the dynamics of urbanization in these areas (Bolay, 2006 as cited in Aliu *et a*l., 2021). Despite their negative impacts on urban sustainability and public health, informal settlements also contribute to the urban economy in developing regions. Therefore, understanding these communities is essential for their integration into the broader urban landscape.

Informal communities of Urban setting in developing countries face numerous challenges due to socio-economic, cultural, policy, and historical factors, resulting in poor living conditions and social marginalization (Zeng *et al*., 2022; Surya *et al*., 2021; Okeke *et al*., 2020). These informal communities experience various social, economic, and residential hardships, with housing quality being a significant concern. The poor condition of housing and neighborhoods is a defining feature of informal settlements, highlighting the lack of basic services and infrastructure. Adequate housing is vital for human well-being, aligning with Abraham Maslow's hierarchy of needs (UN-Habitat, 2006).

Rapid urbanization and population growth exacerbate the housing crisis in developing regions, particularly in Asia and Africa (UN, 2014). This continuous urban expansion fuels the demand for housing, leading to the proliferation of informal settlements (Owoicho, 2015). Providing adequate housing and infrastructure becomes increasingly challenging with urban population growth, especially in developing nations (Nkonki-Mandleni *et al.*, 2021; Fasakin, 2018; Sattelberger, 2017; Waziri and Roosli, 2013).

The population of urban informal communities continues to rise globally, with approximately 25% of the urban population residing in such settlements, and an additional 213 million residents added since 1990 (UN-Habitat, 2013). These communities face tenure insecurity, environmental hazards, and limited access to services due to factors like rapid population growth, rural-urban migration, weak land governance, and economic vulnerability (Nkonki-Mandleni *et al*., 2021; UN-Habitat, 2015).

In Nigeria, the Land Use Act of 1978 has significantly influenced land accessibility, leading to the emergence of informal land markets and settlements (Olajide, 2013). Factors such as high housing costs, financial constraints, and limited technical skills drive rural-urban migration in cities like Lagos, resulting in the proliferation of informal settlements characterized by overcrowding and inadequate housing (Fasakin, 2018).

Previous studies focusing on formal city conditions and informal settlements in metropolitan Lagos are characterized by poor housing conditions, limited access to basic services, and high population density. Understanding the

patterns and determinants of residential neighborhood quality in these communities is crucial for improving living conditions and informing urban planning efforts; yet informal communities in Lagos remain underexplored. Therefore, the study aims to investigate the factors that influence neighborhood quality in informal settlements in Lagos using statistical techniques to analyze data collected from residents.

The following objectives and research questions were addressed and answered in the course of the study:

Objectives of the study

(1) To identify the major patterns of residential neighborhood quality in informal communities in metropolitan Lagos.
(2) To determine the key determinants influencing the quality of neighborhoods in informal settlements.
(3) To explore the relationships between socio-economic factors and neighborhood quality in informal communities in Lagos.

Research Questions for the study

(1) What are the main patterns of neighborhood quality in informal communities in metropolitan Lagos?
(2) What factors influence the quality of neighborhoods in informal settlements in Lagos?
(3) How do socio-economic variables impact the quality of neighborhoods in informal communities in Lagos?

RESEARCH METHODOLOGY

The study employed the descriptive cross sectional research design using households from different socioeconomic backgrounds in the study area to collect data on housing conditions, access to services, socio-economic characteristics, and residents' perceptions of neighborhood quality. The study sampled 15 communities across four local government areas, with a high retrieval rate of 1,600 questionnaires. The aim is to provide a comprehensive understanding of patterns and determinants of residential neighborhoods quality of these informal communities.

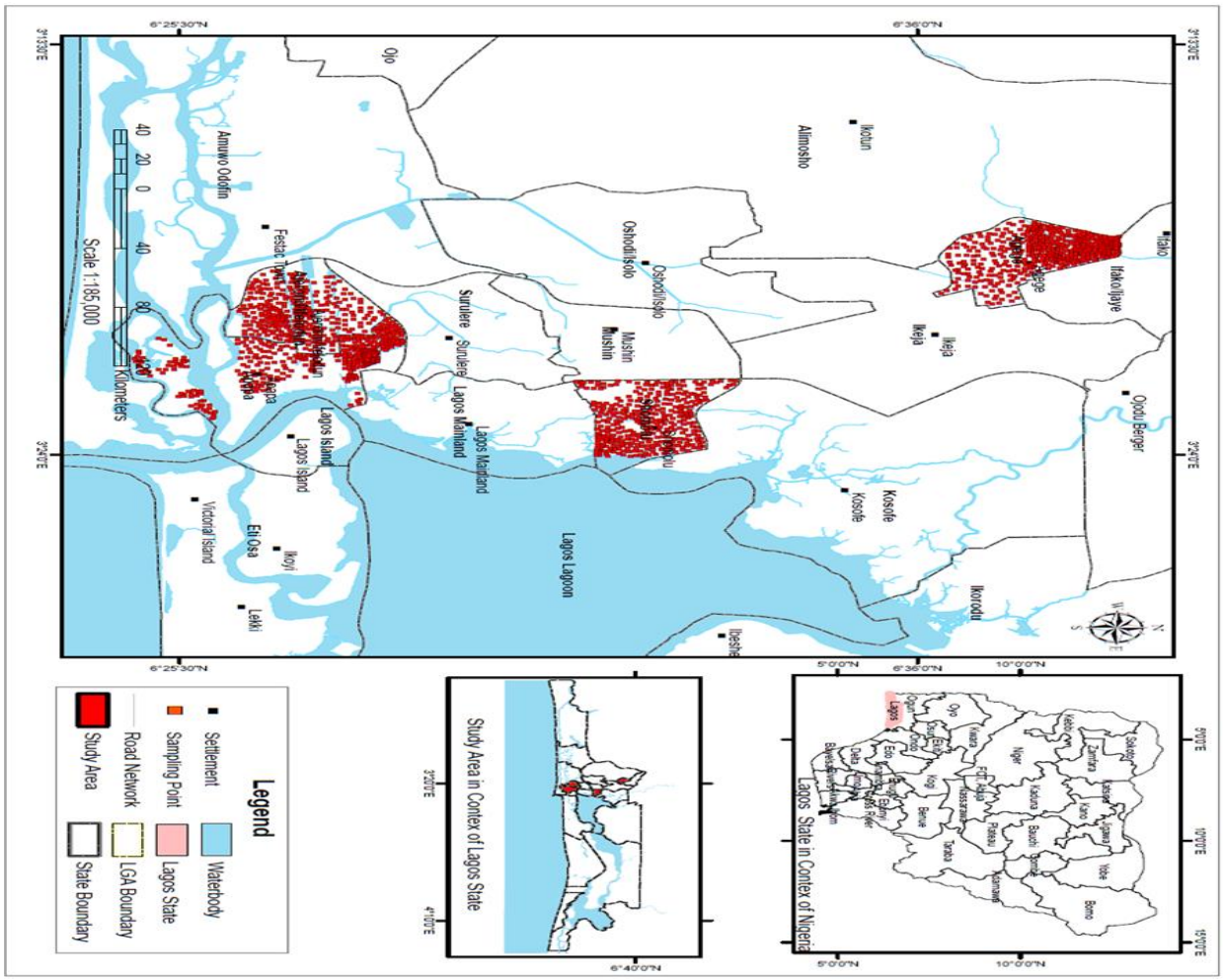

Fig 3: Lagos Metropolitan Area showing the selected informal communities.

Source; LASU CPS

This study employed multi stage sampling technique. The multistage sampling technique was employed which involves three steps. The first step involved the use of stratified sampling technique to sample informal settlements across local government areas. In Lagos State, according to Aliu *et al*., (2021) informal settlements are found in 14 local government areas. The second stage involved the use of simple random sampling technique to select representative numbers of informal settlements across the identified LGAs

Data Analysis

Data obtained from the field were analyzed using descriptive (tables, simple percentage) and inferential statistics, while the inferential tools involve the use of Factor Analysis (Principal Component Analysis). The technique of factor analysis attempts to quantitatively identify the characteristics which the

variables have in common and which result in their inter-correlation. The factor analysis model is given as:

$$y_{ji} = f_{j1}z_{i1} + f_{j2}z_{i2} + \ldots + f_{jm}z_{im} + e_{ij}$$

Where: y is the measured residential neighbourhood quality; f is the factor loading; z is the factor score; e the residual term accounting for errors or other source of variation; i the sample number and m the total number of factors (Koklu et al, 2010). And regression analysis used to determine the key determinants influencing neighborhood quality. However, the findings from the statistical analysis were interpreted to understand the relationships between socio-economic factors and neighborhood quality in informal settlements in Lagos.

RESULTS AND DISCUSSION

RESULTS ON THE PATTERNS OF RESIDENTIAL NEIGHBORHOOD QUALITY IN THE STUDY AREAS

Socio-Demographic and Economic Characteristics of Respondents

Table 1 contains information on three key socio-demographic indicators of residents in the slum communities covered in this study. The first attribute observed was the gender of residents across the fifteen communities. In table 5.1, the gender distribution in each of the 15 informal communities covered in the study was presented, revealing that the total population was almost evenly split between males and females, with a total of 795 males and 805 females. The communities with the highest number of male residents were Ijora (116), Orile-Agege (113), Iju (103), and Ayetoro Village (33), while those with the highest number of female residents were Badia (114), Olodan (45), Mosafejo (41), and Somolu (37)

Table 1: Demographic characteristics of the residents

Community	Gender		Age			Marital Status			
	Male	**Female**	**18-35**	**36-53**	**> 53**	**Single**	**Married**	**Divorced**	**Widowed/ Widower**
Orile-Agege	70(35%)	130(65%)	59(30%)	130(65%)	11(5%)	16(8%)	163(82%)	16(8%)	5(2%)
Iju	65(32.5%)	135(67.5%)	44(22%)	107(54%)	49((24%)	29(15%)	132(66%)	27(14%)	12(5%)
Badia	78(39%)	122(61%)	65(33%)	103(52%)	32(15%)	42(21%)	142(71%)	2(1%)	14(7%)
Ijora	84(42%)	116(58%)	80(40%)	83(42%)	37(18%)	44(22%)	153(77%)	0	3(1%)
Ajegunle	23(29%)	57(71%)	69(86%)	10(13%)	1(1%)	20(25%)	60(75%)	0	0
Ago-Hausa	40(50%)	40(50%)	29(36%)	29(36%)	22(28%)	12(15%)	68(85%)	0	0
Olodan	42(53%)	38(47%)	16(20%)	45(56%)	19(24%)	12(15%)	68(85%)	0	0
Amukoko	30(38%)	50(62%()	35(44%)	36(45%)	9(11%)	16(20%)	64(80%)	0	0
Mosafejo	26(32%)	54(68%)	52(65%)	27(34%)	1(1%)	18(23%)	62(77%)	0	0
Somolu	21(32%)	45(68%)	49(74%)	14(21%)	3(5%)	3(5%)	63(95%)	0	0
Oworonshoki	27(41%)	39(59%)	49(74%)	11(17%)	6(9%)	32(48%)	34(52%)	0	0
Bariga	36(51%)	34(49%)	54(77%)	12(17%)	4(6%)	18(21%)	50(75%)	1(2%)	1(2%)
Abule-Ijesha	25(38%)	41(62%)	44(67%)	8(12%)	14(21%)	34(52%)	24(36%)	4(6%)	4(6%)
Community Town Ilaje	30(45%)	36(55%)	35(53%)	22(33%)	9(14%)	34(52%)	32(48%)	0	0
Ayetoro Village	36(55%)	30(45%)	47(71%)	15(23%)	4(6%)	17(28%)	42(63%)	3(5%)	4(4%)
Total	633(40%)	967(60%)	727(45%)	652(40%)	221(15%)	347(22%)	1157(72%)	53(4%)	43(2%)
	1600		1600			1600			

Source: Author's Field work, 2023

The communities had varying gender ratios, with some having more male residents than female residents and vice versa. For instance, Ijora, Orile-Agege, Iju, and Ayetoro Village had more male residents than female residents, while Badia, Olodan, Mosafejo, and Somolu had more female residents than male residents. The table also presents data on the age distribution of residents in the 15 slum communities covered in the study. The data shows that there were 597 residents aged 18-35, 543 residents aged 36-53, and 460 residents aged above 53. The community with the highest number of residents in the 18-35 age range was Abule Nla with 87 residents, while Olodan had the lowest number of residents in that age range with only 17 residents. For the 36-53 age range, Ijora had the highest number of residents with 79, while Olodan had the lowest with only 19 residents. For the above 53years age range, Oko-Baba had the highest number of residents with 66, while Amukoko had the lowest with only 17 residents

Furthermore, Table .2 shows information on the educational status, occupation, and monthly income of various communities. The communities are Orile-Agege, Iju, Badia, Ijora, Ajegunle, Ago-Hausa, Olodan, Amukoko, Mosafejo, Somolu, Oworonshoki, Bariga, Abule-Ijesha, Community Town Ilaje, and Ayetoro Village. The educational status is categorized into no formal education, primary education, secondary education, and tertiary education. The occupation is classified as civil servant, informal trading, skilled work, public service and others. Monthly Income is divided into four groups namely <N50, 000, N50,000-N100,000, N100,001-N150,000 and >N150,000.

Table 2: Economic Characteristics of the Communities

Community	Occupation				Monthly Income			
	Informal Trading	**Skilled Work**	**Public Service**	**Others**	**<50k**	**50k-100k**	**100k-150k**	**>150k**
Orile-Agege	94(47%)	50(25%)	13(6%)	16(8%)	141(71%)	52(26%)	7(3%)	0
Iju	71(35%)	93(47%)	19(9%)	6(3%)	188(94%)	12(6%)	0	0
Badia	89(45%)	66(33%)	1(1%)	22(11%)	125(63%)	75(37%)	0	0
Ijora	66(33%)	94(47)	3(2%)	11(5%)	105(53%)	87(43%)	8(4%)	0
Ajegunle	6(8%)	74(92%)	0	0	76(95%)	4(5%)	0	0
Ago-Hausa	21(26%)	32(40%)	0	2(3%)	16(20%)	48(60%)	16(20%)	0
Olodan	19(24%)	36(45%)	0	1(1%)	15(18%)	40(50%)	19	6
Amukoko	25 (31%)	32 (40%)	4 (5%)	0	27 (34%)	32 (40%)	20 (25%)	1(1%)
Mosafejo	8 (10%)	69 (86%)	3 (4%)	0	53 (66%)	19 (24%)	8 (10%)	0
Somolu	8 (12%)	54 (82%)	4 (6%)	0	60 (91%)	6 (9%)	0	0
Oworonshoki	7(11%)	47 (71%)	9 (14%)	0	50 (76%)	15 (23%)	1 (1%)	0
Bariga	12 (17%)	50 (71%)	1 (2%)	0	63 (90%)	6(9%)	1 (1%)	0
Abule-Ijesha	14 (21%)	49 (74%)	0	0	57 (87%)	5 (8%)	4 (6%)	0
Community Town Ilaje	10 (15%)	42 (64%)	0	0	45 (68%)	15 (23%)	4(6%)	2 (3%)
Ayetoro Village	13 (20%)	45 (68%)	3 (4%)	0	54 (82%)	7 (11%)	4 (6%)	1 (1%)
TOTAL	463(30%)	833(52%)	60(4%)	58(2%)	1075(67%)	423(26%)	92(6%)	10(0.6%)
	1600				1600			

Source: Author's Field work, 2023

The occupation breakdown for Orile-Agege is 27 civil servants, 94 informal traders, 50 skilled workers, 13 public service workers, and 16 others. The monthly income for Orile-Agege is 141 people earning less than 50k, 52 earning between 50k-100k, 7 earning between 100k-150k, and 0 earning more than 150k. For Iju, 7 people have no education, 48 have primary education, 122 have secondary education, and 23 have tertiary education. The occupation breakdown for Iju is 11 civil servants, 71 informal traders, 93 skilled workers, 19 public service workers, and 16 others. The monthly income for Iju is 188 people earning less than N50k, 12 earning between N50k-N100k, 0 earning between N100k-N150k, and 0 earning more than N150k. Badia has 6 people with no education, 33 with primary education, 98 with secondary education, and 63 with tertiary education. The occupation breakdown for Badia is 22 civil servants, 89 informal traders, 66 skilled workers, 1 public service workers, and 22others. The monthly income for Badia is 125people earning less than N50k, 75earning between N50k-N100k, 0earning between N100K-N150K and 0 earning more than N150K. Ijora has 1 person with no education, 47 with primary education, 72 with secondary education, and 80 with tertiary education. The occupation breakdown for Ijora is 26 civil servants, 66 informal traders, 94 skilled workers, 3public service workers, and 3vothers. The monthly income for Ijora is 105 people earning less than 50k, 87 earning between N50k-N100k, 8 earning between N100k-N150k, and 0 earning more than N150k.

Ajegunle has 2 people with no education, 28 with primary education, 28 with secondary education, and 22 with tertiary education. The occupation breakdown for Ajegunle is 0 civil servants, 6 informal traders, 74 skilled workers, o public service workers, and 0 others. The monthly income for Ajegunle is 76 people earning less than 50k, 4 earning between N50K-N100K, 0 earning between N100K-150K, and 0 earning more than 150k. In Ago-Hausa, the majority of the population has either primary or no education, with 6 individuals having no education and 23 having primary education. Only 29 individuals have tertiary education. The dominant occupation is informal trading, with 17 individuals engaged in it, followed by civil servants with 15 individuals. The majority of the community's monthly income falls within the range of 32 individuals earning less than 50k, while 18 earn 100k-150k, 13 earn 50k-100k, and 5 earn more than 150k. In the Olodan community, the highest percentage of individuals with secondary education was engaged in civil service (15%), while the majority of those with no education were informal traders (55%). Individuals with primary education were mostly engaged in skilled work (41%). The majority of individuals in this community had a monthly income of less than 50k (86%). In the Amukoko community, those with tertiary education were mostly engaged in civil service (36%), while the majority of individuals with no education were informal traders (48%). Those with primary education were mostly skilled workers (27%). The majority of individuals in this community had a monthly income of less than N50K (82%).

In the Mosafejo community, individuals with tertiary education were mostly engaged in civil service (44%), while those with no education were mostly informal traders (50%). Those with primary education were mostly engaged in skilled work (33%). The majority of individuals in this community had a monthly income of less than 50k (87%). In the Somolu community, individuals with tertiary education were mostly engaged in civil service (32%), while those with no education were mostly informal traders (53%). Those with primary education were mostly engaged in skilled work (41%). The majority of individuals in this community had a monthly

income of less than 50k (81%). In the Oworonshoki community, individuals with tertiary education were mostly engaged in civil service (34%), while those with no education were mostly informal traders (50%). Those with primary education were mostly engaged in skilled work (33%). The majority of individuals in this community had a monthly income of less than 50k (84%). In the Bariga community, individuals with tertiary education were mostly engaged in civil service (36%), while those with no education were mostly informal traders (39%). Those with primary education were mostly engaged in skilled work (27%). The majority of individuals in this community had a monthly income of less than 50k (81%).

In the Abule-Ijesha community, individuals with tertiary education were mostly engaged in civil service (42%), while those with no education were mostly informal traders (47%). Those with primary education were mostly engaged in skilled work (29%). The majority of individuals in this community had a monthly income of less than 50k (82%). In the Ilaje community, individuals with tertiary education were mostly engaged in civil service (42%), while those with no education were mostly informal traders (47%). Those with primary education were mostly engaged in skilled work (29%). The majority of individuals in this community had a monthly income of less than 50k (82%). In the Ayetoro Village community, individuals with tertiary education were mostly engaged in public service (20%), while those with no education were mostly informal traders (56%). Those with primary education were mostly engaged in skilled work (31%). The majority of individuals in this community had a monthly income of less than 50k (69%).

RESULTS ON DETERMINANTS INFLUENCING THE QUALITY OF RESIDENTIAL NEIGHBORHOODS IN THE STUDY AREA

Informal settlements in Lagos face numerous challenges related to their neighborhood location quality. Many of these settlements are located in flood-prone areas, which put residents at risk of displacement and loss of property during the rainy season. Additionally, these communities often lack access to basic services such as healthcare, education, and sanitation facilities. The high population density in these settlements also exacerbates issues related to waste management, security, and infrastructure. Table 4 presents data on the Neighborhood Location Quality of Informal Settlements. It includes ten items related to the quality of the respondents' neighborhood location. The first column describes each item, including noise pollution, good drainage system, good waste disposal, environmental security, fire control services, air pollution, and proximity to children's schools, accessibility to transport, and proximity to security post.

Table 3: Neighborhood Quality of the study areas

Community	Noise Pollution	Good Drainage System	Good Waste Disposal	Environmental security	Fire control services	Air pollution	Proximity to children schools	Accessibility to transport	Proximity to security post
Orile-Agege	105 (9.24%)	96 (8.26%)	96 (8.06%)	53 (4.88%)	16 (3.76%)	65 (7.28%)	125 (8.50%)	194 (12.22%)	73 (6.57%)
Iju	163 (14.34%)	127 (10.92%)	66 (5.54%)	42 (3.86%)	143 (33.61%)	120 (13.44%)	150 (10.20%)	199 (12.54%)	51 (4.59%)
Badia	61 (5.37%)	140 (12.04%)	175 (14.70%)	136 (12.51%)	9 (2.12%)	80 (8.96%)	198 (13.46%)	200 (12.60%)	131 (11.79%)
Ijora	34 (2.10%)	131(11.27%)	172 (14.45%)	158 (14.54%)	5 (1.18%)	43 (4.82%)	197 (13.40%)	200 (12.60%)	118 (10.62%)
Ajegunle	78 (6.86%)	68 (5.85%)	70 (5.88%)	60(5.52 %)	9 (2.12%)	72 (8.06%)	80 (5.44%)	80 (5.04%)	63(5.67%)
Ago-Hausa	66(5.81%)	76 (6.54%)	75 (6.30%)	77 (7.08%)	59 (13.87%)	74 (8.29%)	80 (5.44%)	80 (5.04%)	80(7.20%)
Olodan	76 (6.69%)	76 (6.54%)	75 (6.30%)	80 (7.36%)	67(15.75 %)	80 (8.96%)	80 (5.44%)	72 (4.54%)	72 (6.48%)
Amukoko	80 (7.04%)	73 (6.28%)	72 (6.05%)	77 (7.08%)	63 (14.81%)	79 (8.85%)	80 (5.44%)	77 (4.85%)	77(6.93%)
Mosafejo	80 (7.04%)	28 (2.41%)	29 (2.44%)	68 (6.26%)	7 (1.65%)	73 (8.18%)	80 (5.44%)	80 (5.04%)	76 (6.84%)
Somolu	66 (5.81%)	50 (4.30%)	52	65	6	61(6.83%	66	66	66 (5.94%)

Community	Noise Pollution	Good Drainage System	Good Waste Disposal	Environmental security	Fire control services	Air pollution	Proximity to children schools	Accessibility to transport	Proximity to security post
			(4.37%)	(5.98%)	(1.41%)	)	(4.49%)	(4.16%)	
Oworonshoki	66 (5.81%)	50 (4.30%)	60 (5.04%)	55 (5.06%)	10(2.35%)	47 (5.26%)	66 (4.49%)	66 (4.16%)	65(5.85%)
Bariga	70 (6.16%)	45(3.87%)	51 (4.28%)	56 (5.15%)	0	53 (5.94%)	70 (4.76%)	70 (4.41%)	61(5.49%)
Abule-Ijesha	66 (5.81%)	66 (5.68%)	66 (5.54%)	46 (4.23%)	9(2.12%)	11 (1.23%)	66 (4.49%)	66 (4.16%)	62 (5.58%)
Community Town Ilaje	60 (5.28%)	66 (5.68%)	64 (5.38%)	55 (5.06%)	23 (5.41%)	26(2.91%)	66 (4.49%)	66 (4.16%)	61 (5.49%)
Ayetoro Village	66 (5.81%)	66 (5.68%)	66 (5.54%)	54 (4.97%)	0	10 (1.12%)	63 (4.28%)	66 (4.16%)	59 (5.31%)
TOTAL	1137(75.4%)	1158 (73.8%)	1189 (97.9%)	1082 (67.6%)	426 (26.6%)	894 (55.9%)	1467 (91.7%)	1582 (98.9%)	1115 (69.7%)

communities. In terms of noise pollution, the levels range from 28 to 163, with the highest recorded in the Iju community with a score of 163 and the lowest in Mosafejo with a score of 28. Regarding the drainage system, Badia and Ijora stand out with high scores of 140 and 131, respectively, indicating efficient water flow management. Conversely, Mosafejo has the lowest score in this category at 28. For good waste disposal, Badia leads with a score of 175, followed closely by Ijora with 172, suggesting effective waste management systems in these communities. On the other hand, Mosafejo has the lowest score at 29. Environmental security is notably high in Badia (136) and Ijora (158), reflecting safer living conditions, while Orile-Agege records the lowest score in this category at 53.

Fire control services are most robust in Iju (143), whereas Badia scores the lowest at 9, indicating disparities in infrastructure for fire safety. In terms of air pollution, Abule-Ijesha has the lowest score at 11, while Iju has the highest at 120, with lower scores indicating better air quality. Proximity to children's schools is favorable in Badia (198) and Ijora (197), implying better access to educational facilities, whereas Orile-Agege records the lowest score at 125.

Accessibility to transport is highest in Iju (199) and Badia (200), indicating better availability and convenience of transportation options, with other communities also performing well in this category. Most communities show similar scores for proximity to security posts, ranging from 51 to 80, with Orile-Agege having the highest score at 80. Table ( ) provides the frequency of respondents who reported having the specified item in their neighborhood location. For instance, 1137 respondents reported having low noise pollution, 1158 respondents reported having a good drainage system, 1189 respondents reported having good waste disposal, 1082 respondents reported having environmental security, 426 respondents reported having access to fire control services, 894 respondents reported having low air pollution, 1467 respondents reported being close to children's schools, 1582 respondents reported having easy accessibility to transport, and 1115 respondents reported being close to a security post. Overall, the analysis provides insights into the varying levels of community attributes, such as pollution, infrastructure, and proximity essential services. These factors contribute to the overall livability and quality of life in each community.

ANALYSIS OF NEIGHBORHOOD QUALITY INDEXES

The table neighbourhood quality index (NQI) shows that the neighborhood quality measured by NQI

Table 4: Descriptive Statistics of Neighborhood Quality Index across the study area

Informal settlement Community	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Orile Agege	200	46.6400	20.54925	1.45305	43.7746	49.5054	.00	88.00
Iju	200	52.6700	21.96093	1.55287	49.6078	55.7322	.00	100.00
Badia	200	60.7650	21.23616	1.50162	57.8039	63.7261	.00	100.00
Ijora	200	54.8450	22.81983	1.61361	51.6630	58.0270	11.00	100.00
Ajegunle	80	49.6500	21.03228	2.35148	44.9695	54.3305	11.00	100.00
Ago-Hausa	80	87.7375	16.51830	1.84680	84.0615	91.4135	33.00	100.00
Olodan	80	54.8625	21.61325	2.41644	50.0527	59.6723	11.00	88.00
Amukoko	80	78.8125	23.46778	2.62378	73.5900	84.0350	11.00	100.00
Mosafejo	80	76.2000	16.98354	1.89882	72.4205	79.9795	33.00	100.00
Somolu	66	79.0455	14.23369	1.75205	75.5464	82.5445	44.00	100.00
Oworonsoki	66	80.0455	12.50899	1.53975	76.9704	83.1205	44.00	100.00
Bariga	70	69.9286	14.14349	1.69047	66.5562	73.3010	33.00	88.00
Abule-Ijesha	66	71.0606	19.40331	2.38838	66.2907	75.8305	22.00	100.00
Community Town Ilaje	66	51.8485	20.06700	2.47008	46.9154	56.7816	11.00	100.00
Ayetoro Village	66	61.8939	22.91263	2.82035	56.2613	67.5266	11.00	100.00
Total	1600	61.4731	23.65838	.59146	60.3130	62.6332	.00	100.00

Based on the findings from this study regarding the neighbourhood quality of the

RESULTS OF RELATIONSHIPS BETWEEN SOCIO-ECONOMIC FACTORS AND NEIGHBORHOOD QUALITY

Table 5: showing the factor analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.717
Bartlett's Test of Sphericity	Approx. Chi-Square	7989.250
	Df	210
	Sig.	.000
Communalities		
	Initial	Extraction
Neighborhood with Noise pollution are controlled	1.000	.613
Neighborhood with no good drainage system	1.000	.603
Neighborhood Waste disposal system	1.000	.631
Neighborhood have environmental security system	1.000	.657
Neighborhood fire control services	1.000	.690
Neighborhood air pollution control	1.000	.540
Proximity to children school	1.000	.497
Accessibility to transport accessibility	1.000	.897
Proximity to security post	1.000	.652
Proximity to workplace	1.000	.540
Proximity to Central Business District	1.000	.504
Availability of public transportation	1.000	.573
Availability of public schools for children	1.000	.715
Availability of health facilities in the Informal Settlement	1.000	.596
Extraction Method: Principal Component Analysis.		

Three generalized regression model analyses were done in the study to determine the significant factors influencing residential quality and neighborhood quality in the Lagos informal communities. The results of the analyses are as presented from Table through. As for the residential quality index (RQI) which describes the structural quality of dwellings Table 4.25 shows that three personal characteristics of informal settlement residents were responsible its prediction. Out of the 8 personal predictors of RQI only gender, ethnicity and homeownership status had significant effects on the RQI. While gender, age, education, income, years of residence, and homeownership status had negative impacts on the prediction of QRI, occupational status, ethnicity had positive effects on the prediction of QRI in the informal communities. The model Summary parameters in Table 5.13 indicates good regression model with a high predictive power. The GLM model is quite well fitted as the AIC value of 14678.39 was significant at $p<0.05$.

With regards to the predictors of neighborhood quality index, analysis in Table 4.26 indicates that NQI was well predicted by more number of personal variables. For instance, occupations, income, years of residence and homeownership out of all the eight variables are the significant predictors of NQI in Lagos informal communities. However, while gender, age, education, income, years of residence and homeownership status had negative effects on the prediction of NQI, other

variables like occupation and ethnicity had positive effects on the prediction neighborhood quality (NQI) in the study area. The model summary parameters for NQI in Table 4.27 indicate good regression model with a high predictive power. The GLM model is quite well fitted as the AIC value of 14452.44 was significant at $p<0.05$. Table 4.28 contains information on the predictors of location quality index (LQI) across the 15 informal communities. From that table it well established that age, income and ethnicity, years of residence and home ownership are the most significant predictors of LQI. These variables displayed high Wald Chi-square values that were significant at $p<0.05$. The GLM model summary parameters in Table 4.29 indicate a well fitted regression model with a high predictive power. The GLM model is quite well fitted as the AIC value of 13782.59 was significant at $p<0.05$. The findings presented in the study shed light on the residential structural quality of informal communities in Lagos, Nigeria. These settlements, which have emerged due to rapid urbanization and a lack of affordable housing, face numerous challenges, including inadequate access to basic services and infrastructure.

Furthermore, from previous study of Aliu and Adebayo (2010) that evaluated the Influence of Housing Quality on Urban Residents' Wellbeing of Lagos; that there is need to improving living housing conditions of the urban dwellers, because then the residents levels of health and satisfaction negatively impacted due to great number of dwellings are in deplorable conditions, poor waste management, failed drainage systems, resulting to low environmental and housing qualities (Aliu and Adebayo, 2010).

Aliu & Ajala (2013) examined the spatial polarization that characterized the dwellings of Lagos. The authors collected an extensive housing survey involved 1,485 household residences. The spatial dimension of residential density in the city make three unique residential patterns, that are low residential density (LRD), medium residential density (MRD), and high residential density (HRD) areas. The data analysis of the survey results indicated that a clear difference exists in the residential quality within the three residential density areas of Lagos. The results of the survey are in line with the results of present study that the informal communities dwellings have low environmental and residential qualities as the results indicated.

Simiyu et al (2019) results from the study on Understanding Living Conditions and Deprivation in informal communities of Kisumu, Kenya, support the study that the dwellings in informal settlement of the study areas where there is lack of infrastructural services such as water, sanitation and solid waste disposal, and where they are available, these services are shared and there is that deficiency of social services such as schools and health centres which residents can access. Wimalasena et al (2022) identified ventilation issues as one of the housing quality indicators that influence occupants' performance, comfort and wellbeing in their study. Housing Quality Indicators: A Systematic Review. Additionally, some of identified housing and neighborhood qualities parameter and issues viz-a-viz dwelling unit architectural design characteristics, and features; user comfort; housing site location and neighbourhood; building services; construction quality and stability; economic aspect; building maintenance; or 8) sustainability affect the qualities index which support the present results of the Analysis Residential and Neighbourhood Quality Of Informal Communities In Metropolitan Lagos.

The findings from the Neighborhood Location Quality of Informal Settlements data provide valuable insights into the analysis of residential and neighborhood quality in informal communities in Metropolitan Lagos, Nigeria. The study focuses on various aspects of neighborhood location quality, including noise pollution, drainage systems, waste disposal, environmental security, fire control services, air pollution, and proximity to children's schools,

accessibility to transport, and proximity to security posts. By examining these factors, the research aims to understand the living conditions and infrastructure in informal settlements. The data reveals significant variations across communities in terms of neighborhood location quality indicators. For example, some communities experience high levels of noise pollution, while others have relatively lower levels. This information helps identify areas where noise reduction measures or urban planning interventions may be required. Similarly, the quality of drainage systems and waste disposal varies across communities. Communities like "Badia" and "Ijora" have higher scores in these categories, indicating better management of water flow and waste disposal systems. These findings can guide policymakers and urban planners in improving infrastructure and sanitation services in areas with lower scores.

Environmental security and fire control services also exhibit variations among communities. "Badia" and "Ijora" score higher in these categories, suggesting better safety measures and infrastructure. These insights highlight the need for targeted interventions to enhance security and fire safety measures in areas with lower scores.

The analysis of air pollution provides valuable information on the quality of air in different communities. Communities like "Abule-Ijesha" score well in terms of air pollution, indicating potentially better air quality compared to other areas. This information can inform initiatives to address air pollution and promote healthier living environments. Proximity to essential services such as children's schools, transportation, and security posts also varies across communities. Understanding these variations helps identify areas where access to educational facilities, transportation options, and security services may need improvement. Overall, the findings from this analysis contribute to the broader research topic of residential and neighborhood quality in informal communities in Metropolitan Lagos, Nigeria. By examining specific indicators, the study provides a comprehensive understanding of the challenges and opportunities related to neighborhood location quality. The insights can inform policy decisions, urban planning initiatives, and interventions aimed at improving the living conditions and quality of life in informal settlements.

GLM Regression Results for Neighbourhood Quality Index (NQI)

Table 6:

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	76.410	9.5955	57.604	95.217	63.412	1	.000
[Gender of the respondents=1.00]	-1.719	1.2478	-4.165	.727	1.897	1	.168
[Age of the respondents=1.00]	1.667	2.0316	-2.315	5.649	.673	1	.412
[Age of the respondents=2.00]	-1.989	1.9058	-5.724	1.746	1.089	1	.297
[Education Status of the respondents=1.00]	5.615	3.3650	-.980	12.211	2.785	1	.095
[Education Status of the respondents=2.00]	.504	1.9314	-3.281	4.290	.068	1	.794
[Education Status of the respondents=3.00]	2.371	1.5067	-.582	5.324	2.476	1	.116
[Occupation of the respondents=1.00]	9.346	3.8319	1.836	16.857	5.949	1	.015
[Occupation of the respondents=2.00]	3.747	3.7209	-3.545	11.040	1.014	1	.314
[Occupation of the respondents=3.00]	5.601	3.5764	-1.408	12.611	2.453	1	.117
[Occupation of the respondents=4.00]	6.294	4.5159	-2.557	15.145	1.942	1	.163
[Monthly income of the respondents=1.00]	-21.831	7.5866	-36.701	-6.962	8.281	1	.004
[Monthly income of the respondents=2.00]	-18.242	7.4928	-32.928	-3.556	5.927	1	.015
[Monthly income of the respondents=3.00]	-12.140	7.7244	-27.279	3.000	2.470	1	.116
[Ethnicity of the respondents=1.00]	2.792	4.1887	-5.418	11.002	.444	1	.505

[Ethnicity of the respondents=2.00]	5.537	4.2631	-2.818	13.893	1.687	1	.194
[Ethnicity of the respondents=3.00]	8.370	4.4762	-.403	17.143	3.496	1	.062
[Years of residence of the respondents=1.00]	-8.161	1.7735	-11.637	-4.685	21.173	1	.000
[Years of residence of the respondents=2.00]	-4.448	1.6932	-7.767	-1.130	6.902	1	.009
[Years of residence of the respondents=3.00]	-2.605	1.8416	-6.215	1.004	2.002	1	.157
[Housing ownership of the respondents=1.00]	-7.887	1.9061	-11.623	-4.151	17.119	1	.000
(Scale)	522.363[b]	18.5614	487.221	560.039			
Dependent Variable: NQI Model: (Intercept), Gender of the respondents, Age of the respondents, Education Status of the respondents, Occupation of the respondents, Monthly income of the respondents, Ethnicity of the respondents, Years of residence of the respondents, Housing ownership of the respondents							

As shown in the table 6 above, a significant variable is one with a p-value less than 0.05. This suggests that the variable is a significant predictor of the NQI. For instance, years of residence: Longer residence might be associated with higher NQI, suggesting that residents who have lived in the neighborhood for a longer time may be more satisfied with its quality. Housing ownership: Homeowners might report higher NQI compared to renters, possibly due to greater investment in the neighborhood or a sense of ownership. Higher income levels might correlate with higher NQI, suggesting that individuals with higher incomes may be more likely to reside in neighborhoods with better amenities and services.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that from the spatial autocorrelation of the values of NQI using Moran **I** index showed that there was significant clustering of residential quality indicators across the informal settlements. Based on the findings from this study regarding the residential and neighbourhood quality of the informal communities in Lagos, the study therefore recommends that urban stakeholders should consider promoting inclusive urban development strategies that focus on integrating informal settlement communities seamlessly into the broader metropolitan fabric of Lagos. This could involve implementing policies and initiatives that prioritize infrastructure development, access to basic services, and community engagement within these informal settlements.

REFERENCES

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, Vol. 107, 102293. https://www.sciencedirect.com/science/article/abs/pii/S019739752031417X

Bolay, J C. (2006). Informal communities and Urban Development: Questions on Society and Globalisation. European Journal of Development Research 18(2). DOI:10.1080/09578810600709492

Fasakin, T. O. (2018). Informal settlement in Lagos State: a framework for investigating housing quality (Unpublished Master's Thesis). University of Calgary, Calgary.Available at: https://prism.ucalgary.ca/bitstream/handle/1880/109406/ucalgary_2018_fasakin_temitope.pdf?sequence=1

Nkonki-Mandleni, B., Omotayo, A. O., Ighodaro, D. I., &Agbola, S. B. (2021). Analysis of the living conditions at eZakheleni informal settlement of Durban: Implications for community revitalization in South Africa. *Sustainability*, 13(4), 2371

Okeke, F. O., Eziyi, I. O., Udeh, C. A., & Ezema, E. C. (2020). City as Habitat: Assembling the fragile city. *Civil engineering journal*, *6*(6), 1143-1154.

Olajide, O. (2013). Poverty alleviation in Lagos urban informal settlements: a sustainable livelihood approach. In 49th ISOCARP Congress. Available at: http://www.isocarp.net/Data/case_studies/2374.pdf

Roy, A. (2011). The blockade of the world-class city: Dialectic images of Indian urbanism. In A. Roy, & A. Ong (Eds.), Worlding Cities: Asian Experiments and the Art of being Global (pp. 259-278). Malden, MA: Wiley & Blackwell. http://dx.doi.org/10.1002/9781444346800.ch10

Surya, B., Suriani, S., Menne, F., Abubakar, H., Idris, M., Rasyidi, E. S., & Remmang, H. (2021). Community empowerment and utilization of renewable energy: Entrepreneurial perspective for community resilience based on sustainable management of slum settlements in Makassar City, Indonesia. *Sustainability*, *13*(6), 3178.