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Nature and Predictors of Dwelling Quality of Selected Informal Communities in Metropolitan Lagos Nigeria

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Abstract

Informal settlements are a pervasive feature of metropolitan Lagos, home to millions of urban poor residents living in substandard housing and environmental conditions. Improving the residential quality of these communities is a critical challenge for sustainable urban development in the region. This research is therefore aimed at analysing the nature and predictor of dwelling quality of selected in metropolitan Lagos. To achieve the aim, the researchers assessed the physical and spatial characteristics of sampled communities, identified the socio-economic factors influencing dwelling quality and examined the relationship between spatial patterns and dwelling quality within the sampled informal communities. The study employed the descriptive cross-sectional research design to assess the nature and predictors of dwelling quality among selected fifteen (15) informal communities across four (4) local government areas of Lagos State. Dwelling quality data were collected from 15 communities, totalling 1800 respondents, while 1600 were considered valid for the research. Descriptive Statistics and spatial Clustering Analysis were adopted to explore the spatial relationships between dwelling quality indicators and spatial patterns within the informal communities. Spatial autocorrelation analysis was used to identify clustering and spatial trends of dwelling quality indicators and assess their relationship with spatial characteristics. The research established that a holistic, participatory approach is essential for achieving lasting improvements in residential quality. Community-based upgrading initiatives involving residents in the planning and implementation process demonstrate greater success in meeting local needs and securing long-term ownership. Integrating the development of water, sanitation, electricity, and transportation infrastructure also emerges as a critical strategy for enhancing overall living conditions. Therefore, a set of policy recommendations and a

conceptual framework for guiding future interventions aimed at improving the residential quality of informal communities in metropolitan Lagos should be put in place. Urban practitioners, policymakers, and community stakeholders seeking to deliver sustainable and equitable improvements in the living conditions of the urban poor should be engaged in a sustainable informal dwelling upgrade.

Keywords: Dwelling Quality, Informal Settlements, Metropolitan, Residence, Residents, Urban.

1.1 Introduction

Lagos is one of the metropolitans of the world, and an established economic hub of Nigeria attracting daily human influx with urbanization and population increase implications (Koko et al., 2023); creating urban informality and informal communities' development that are being referred to as slum which is a global phenomenon (Akinde & Olasokan, 2019). Informal communities determine the living conditions of dwellers; and indicators of multiple factors of socio-economic, availability of basic functional infrastructures and services, and environmental conditions and qualities. In essence, the residential housing system in informal communities is always been challenging and requires attention (Olasokan et al., 2023).

Housing provision and maintenance have been a serious problem for urban informal communities' residents and urban residents generally in the developing economies; where the problem is known to be extremely compromised by rapid urbanization and constant population growth (Nzau & Trillo, 2020). Lagos; Lagos is the largest city in Africa with about 20 million residents in its metropolitan area (Fasakin, 2018; World Atlas, 2017). The city's dense population is attributed to its attractive location and rich history. The geographical location of Lagos along the Atlantic Ocean coast ensures the city's economic viability as a Centre for trading (Kazeem, 2016). The likelihood of gainful employment among other opportunities has attracted people from Nigeria and other locations to settle in Lagos. The large influx of people into the state has vastly affected the quality of life for residents in the city.

The scattered concentration of informal settlements is of great concern to Lagos stakeholders because these structures are of substandard quality which can negatively impact residents in both the short and long term (Fasakin, 2018). Informal settlements negatively impact established or planned settlements in Lagos. The rise in informal settlements in Lagos has contributed to the deterioration of housing quality with factors such as overpopulation and inadequate basic amenities being noticeable. In Lagos State, over two-thirds of the population lives in informal settlements. Available statistics indicate that many families live in overcrowded conditions, with an average density of 3 persons per room (Morka, 2007).

In Lagos State, there are approximately 200 informal community neighbourhoods which range from clusters of shacks formed underneath highways to entire housing districts such as Ajegunle, Maroko, and Mushin among others (Fasakin, 2018). Informal housing characterized by overcrowding has not only led to poor quality of life conditions, but the neighbourhoods where they exist are also susceptible to high levels of crime, poor health conditions, and other societal scourges (UN-Habitat, 2016). There is a rapidly increasing literature on the

neighbourhood/housing quality in informal settlements and their challenge to the environment and human wellbeing.

Studies have been carried out to examine neighbourhood quality indicators in informal settlements (Nkonki-Mandleni et al., 2021; Fasakin, 2018; Adedire and Adegbile, 2018; Izobo-Martins et al, 2018). These studies among several others showed that informal settlements have limited access to improved water; improved sanitation facilities; sufficient living space; adequate structural quality or durability; and security. They also showed that residents reported negative ratings of neighbourhood quality indicators and reported a significant positive correlation between household income and housing quality. These communities typically lack proper infrastructure and basic amenities, like sustainable water supply, and sanitation facilities leading to poor dwelling quality. Understanding the nature and predictors of dwelling quality in these informal settlements is crucial for informing policy and interventions aimed at improving living conditions for residents.

Furthermore, understanding the nature and predictors of dwelling quality in informal communities is critical for addressing the challenges faced by residents. By conducting a spatial assessment, this research aims to provide valuable insights that can guide urban planning and development strategies aimed at improving living conditions and overall quality of life in informal settlements in Metropolitan Lagos. This research is to conduct a spatial assessment to understand the nature and predictors of dwelling quality in informal communities in Metropolitan Lagos. This assessment will help in identifying the key factors influencing dwelling quality and inform targeted interventions for improvement. The following objectives were addressed in the course of study:

1. To assess the physical and spatial characteristics of informal communities in Metropolitan Lagos.
2. To identify the socio-economic factors influencing dwelling quality in these informal communities.
3. To examine the relationship between spatial patterns and dwelling quality within informal communities.

1.2 The Study Area

Lagos State, known for its high population and dynamism in Nigeria, houses informal communities marked by deficient infrastructure, substandard living conditions, and limited amenities. The study area is densely populated and it exhibits distinct physical traits reflecting challenging living conditions. The climate in Lagos informal communities is tropical, with a mean daily temperature of 30°C and an annual rainfall of 1,532 mm, featuring dry and wet seasons. The major vegetation includes tropical swamp forests, and the drainage system consists of lagoons and creeks covering 22% of Lagos's landmass.

The socio-demographic characteristics of these communities are highlighted by high population density, makeshift structures, and poorly constructed buildings. As of 2006, Lagos had 9,684,105 people, which was contested as an undercount. The current estimate is around 15,087,520, with 40% in lagoon areas. Limited land and rural migration contribute to the high density, resulting in cramped living conditions. Informal communities emerge when there is poor planning to cater for the teeming population, lacking urban regulations and infrastructure,

which are often characterized by haphazard structures and poor layout, narrow pathways, and absence of basic amenities.

The geographic region for the study consisted of the informal communities that are located within the Lagos Metropolitan region in Nigeria. Figure 1.1 represents the Lagos metropolis stretching from longitude 2o42`E–3o42`E to 6o23`N–6o41`N. Lagos is located in the southwestern part of Africa sharing boundaries on the eastern flank with Ogun State, on the western flank with Republic of Benin and the northern part with Ogun State in Nigeria. Lagos, the largest city in Africa, is a megacity with an estimated population of over 15 million people. It is the economic and commercial hub of Nigeria, and it is home to a diverse population of people from all over the country and the world.

Lagos is a rapidly growing city, and it is facing several challenges, including poverty, crime, and infrastructure problems. Lagos is a city of informal communities as the megacity consists of about 50 informal communities that are majorly concentrated in the city core areas (Aliu et al., 2021; Agboola & Agunbiade, 2009). Out of the 50 informal communities in Lagos, 15 communities were the focus of this study. The 15 communities are Orile-Agege, Iju, Badia, Ijora, Ajegunle, Ago-Hausa, Olodan, Amukoko, Mosafejo, Somolu, Oworonsoki, Bariga, Abule-Ijesha, Community Town (Ilaje) and Ayetoro village. The 15 informal communities selected for the study were picked from four local government areas (LGAs): Agege, Apapa, Ajeromi, and Somolu.

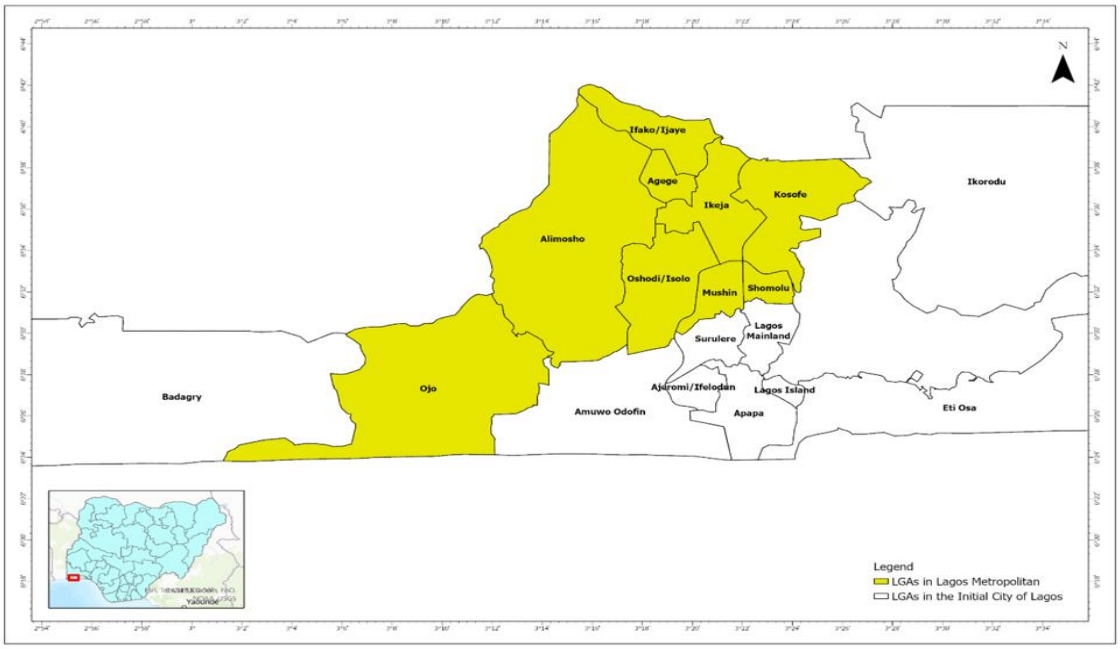

Figure 1: Map of the Study Area
Source: Researchers Output (2023)

2.1 Literature Review

Akinde and Olasokan (2019) conducted a case study on Ajegunle Lagos to examine how urban growth affects slum development in the megacity of Lagos. Reiterating that rapid urbanization

which is drawing migrants from rural areas to industrialised centres and main cities is the cause of informal settlements in developing nations, they said that this has had a significant negative impact on urban infrastructure, especially in poorly planned urban slums. Slum development has resulted from this adversely affecting urban expansion globally. The government's frantic efforts have paid off handsomely, as the Lagos Metropolitan Governance Development and Project (LMGDP), which aimed to increase sustainable access to basic urban services, has greatly contributed to the eradication of this slum settlement.

The programme produced positive results, as areas that had previously experienced water logs due to inadequate drainage systems are now applauding the government for their enormous step towards the amelioration of the people's plight. The research also reveals a poor sanitary system in some of the residences, and the water corporation, which was tasked with providing water to the residences, is now a shadow of its former self because there is no potable water in the area. Flooding is the main environmental challenge plaguing the study area, and it is attributed to the blocked drainage system caused by poor waste disposal systems, which lead to drain and culvert blockage in the area.

Olasokan et al. (2023) conducted a comparative analysis of the differences in housing quality between Lagos' public and private estates. According to the research, privately held estates manage waste more effectively than their publicly owned counterparts. The study also shows that although publicly owned grounds have been clumped together by temporary structures used for commercial activity, the ventilation on privately held estates is better. Both of the examined estates rely on individual pipe-borne water, therefore neither has access to a general water supply. The two estates have rather adequate power supplies, but since each resident relies on their own generator for electricity, there isn't a backup energy source in the estate.

The research makes it clear that, in contrast to private housing estates, which are adequately maintained with the assistance of facility managers who oversee the estate, public housing estates lack frequent facility maintenance. The study also shows that privately held estates have superior security setups than estates controlled by the government. The study also shows that there is a notable difference in the two estates' infrastructure, including the roads and electricity supplies. In comparison to the government-run estate, the privately held estate has superior infrastructure and a stronger infrastructure maintenance culture.

2.1.1 Nature of Dwelling Quality in Informal Communities in Lagos:

Scholarly journals such as Akinde and Olasokan, 2019; Olasokan et al., 2023 established that the dwelling quality in informal settlements in metropolitan Lagos is generally poor. In addition, the informal dwellings have peculiar issues, which are:

1. **Substandard construction materials:** The majority of the houses in informal settlements are makeshift, hence, they are constructed using temporary materials such as mud, thatch, or corrugated iron sheets.
2. **Lack of access to piped water, sanitation, and electricity:** Residents of informal settlements in Lagos often lack access to piped water supply from the public utility. They rely on alternative water sources, such as communal standpipes, boreholes, wells, and water vendors, which can be irregular, expensive, and of poor quality. Therefore, this lack of reliable access to safe drinking water poses significant health risks, such as the case of

cholera outbreak reported in Lagos, as of 18th of June, 2024, the Lagos State Ministry of Health reported 17 confirmed cases of cholera in the state, where majority of the reported cases were in informal settlement, and it creates an additional burden, especially for women and children tasked with fetching water.

It is important to mention that most of the health-related challenges are connected to poor sanitation. Proper sanitation facilities are severely lacking in Lagos' informal communities. There is prevalent open defecation, use of communal pit latrines, and poorly maintained septic tanks are common. Inadequate sewerage and waste management systems lead to the contamination of the living environment and increased incidence of waterborne diseases. Electricity access is limited in informal settlements, with many households relying on illegal connections or candles/kerosene lamps for lighting. Frequent power outages and the high cost of electricity further exacerbate the lack of reliable access. Overcrowding, with multiple families sharing a single dwelling unit. Poor ventilation and natural lighting Vulnerability to environmental hazards, such as flooding and fire outbreaks

2.1.2 Predictors of Dwelling Quality:

Some factors influence the quality of dwellings in informal communities in Lagos, such factors include but are not limited to the following:

1. **Socioeconomic Status:** The socio-economic status of households is considered a basic parameter that determines their access to quality dwellings. Households with higher incomes and educational levels tend to have better dwelling quality. Access to formal employment and stable sources of income are associated with improved housing conditions.
2. **Tenure Security:** Residents with secure land tenure, either through formal titles or informal arrangements, are more likely to invest in improving their dwellings. Insecure tenure and the risk of eviction discourage long-term investment in housing.
3. **Access to Infrastructure and Services:** Proximity to and availability of basic infrastructure, such as water, sanitation, and electricity, are linked to better dwelling quality. Lack of access to these services is a significant contributor to poor housing conditions.
4. **Demographic Factors:** Household size and composition, such as the number of children and elderly residents, can influence the quality of dwellings. Households with more dependents may face greater challenges in maintaining and improving their living conditions.
5. **Community-level Factors:** The overall level of community organization and collective action can impact the quality of dwellings. Stronger community networks and engagement with local authorities can facilitate access to resources and services.

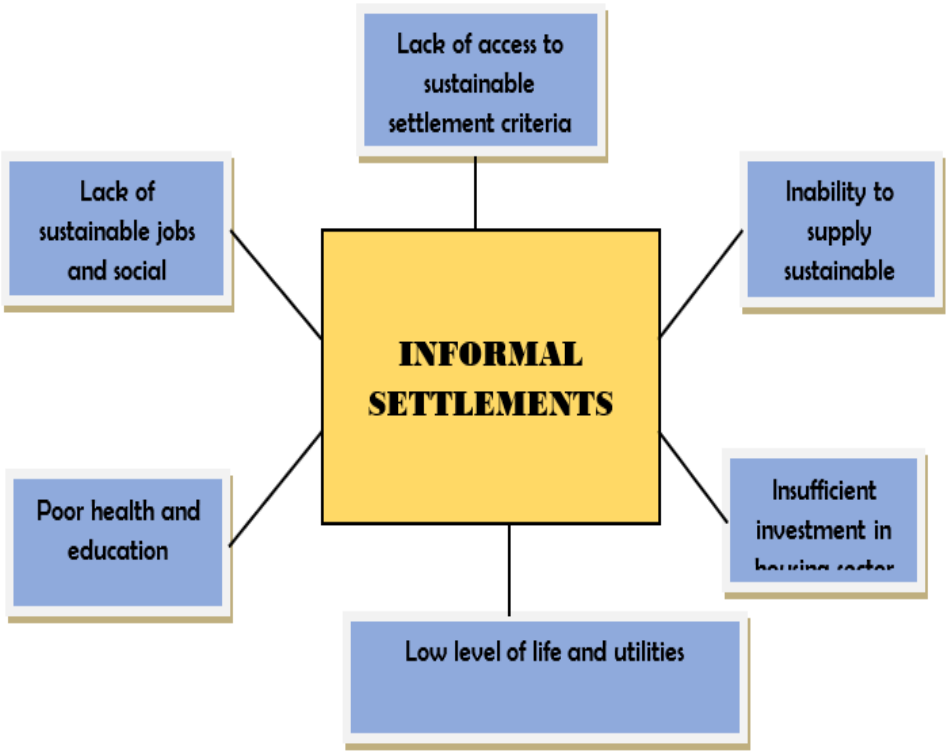

Figure 2: The causes of Informal Settlements/Communities.

3.1 Research Methodology

The study employed the descriptive cross-sectional research design to assess the nature and predictors of dwelling quality among selected fifteen (15) informal communities across four (4) local government areas of Lagos State, selecting households from different socioeconomic backgrounds. This approach was used to measure neighbourhood qualities across informal communities, to determine the residents' socio-economic characteristics and to identify the water sources, waste bins, and toilets through the use of a structured research questionnaire and observational checklists. The methodology employed spatial analysis techniques to investigate the relationship between spatial patterns and dwelling quality indicators within the informal settlements and utilized geospatial tools to overlay spatial data with dwelling quality metrics for spatial correlation analysis. Dwelling quality data were collected from 15 communities, which amount to 1600 respondents. The research instrument captures housing conditions, access to basic services, and environmental quality indicators within the informal communities. Then, spatial data on land use, infrastructure, and environmental factors within the informal settlements were collected for spatial analysis. Descriptive Statistics and spatial Clustering Analysis were adopted to explore the spatial relationships between dwelling quality indicators and spatial patterns within the informal communities. Spatial autocorrelation analysis was used to identify clustering and spatial trends of dwelling quality indicators and assess their relationship with spatial characteristics. The analysis provided valuable insights into the physical, socio-economic, and spatial aspects of dwelling quality in informal communities in Metropolitan Lagos.

4.1 Research Findings and Discussion

A total of One Thousand Eight Hundred (1800) research instruments were distributed to fifteen (15) informal communities across four (4) local government areas of Lagos State, selecting households from different socioeconomic backgrounds. The research instrument was

segmented to capture the physical and spatial characteristics of informal communities, in Metropolitan Lagos, socio-economic factors influencing dwelling quality in these informal communities and the relationship between spatial patterns and dwelling quality within informal communities. The data retrieved was scrutinized to filter those that were not properly filled which may result in spurious data, hence, a total number of One thousand Six Hundred (1600) was considered valid for the research. The table presented in 4.1 below reveals the demographic characteristics of the sampled respondents.

Table 4.1: Demographic characteristics of the residents

Community	Gender		Age			Marital Status			
	Male	Female	18-35	36-53	Above 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

4.1.1 Physical and spatial characteristics of informal communities in Metropolitan Lagos.

Table 4.2 presents the data on seven items related to the housing conditions of respondents. The first row includes the description of each item, including good ventilation, burglary installation, number of rooms more than one, aluminium windows, tiled bathroom/toilet, tiled kitchen, and electricity.

Table 4.2: Residential Structural Quality of Informal Settlements

Community	Good ventilation	Burglary Installation	Number of Rooms More Than One	Aluminum Windows	Tiled Bathroom/Toilet	Tiled Kitchen	Electricity
Orile-Agege	156 (12.53%)	134 (11.39%)	193 (12.35%)	95 (12.92%)	98 (19.11%)	75 (17.10%)	102 (8.47%)

Community	Good ventilation	Burglary Installation	Number of Rooms More Than One	Aluminum Windows	Tiled Bathroom/Toilet	Tiled Kitchen	Electricity
Iju	137 (11.00%)	137 (11.65%)	182 (11.65%)	50 (6.80%)	87 (16.97%)	32 (7.30%)	129 (10.71%)
Badia	165 (13.25%)	67 (5.70%)	199 (12.74%)	168 (22.85%)	50 (9.75%)	47 (10.72%)	106 (8.80%)
Ijora	179 (14.37%)	95 (8.08%)	200 (12.80%)	194 (26.38%)	74 (14.43%)	73 (16.64%)	165(13.70 %)
Ajegunle	65 (5.21%)	78 (6.63%)	80(5.12%)	3(0.41%)	7 (1.37%)	9 (2.05%)	80(6.64%
Ago-Hausa	69(5.54%)	78 (6.63%)	80(5.12%)	13(1.77 %)	10 (1.95%)	15(3.42 %)	80 (6.64%
Olodan	80 (6.42%)	69 (5.87%)	78 (4.99%)	60 (8.16%)	52 (10.14%)	52 (11.86%)	80 (6.64%
Amukoko	80 (6.42%)	63 (5.36%)	80(5.12%)	53 (7.21%)	40 (7.80%)	43 (9.80%)	80 (6.64%
Mosafejo	65 (5.22%)	78 (6.63%)	80 (5.12%)	0	1 (0.20%)	1(0.23%)	79 (6.56%)
Somolu	36 (3.0%)	63 (5.36%)	63 (4.03%)	3 (0.41%)	2 (0.39%)	2 (0.46%)	66 (5.48%)
Oworonshoki	56 (4.50%	66 (5.61%)	63(4.03%)	8 (1.09%)	21(4.10%)	21 (4.79%)	61 (5.06%)
Bariga	47 (3.77%)	70 (5.95%)	70 (4.48%)	15 (2.04%)	15 (2.93%)	15 (3.42%)	67 (5.56%)
Abule-Ijesha	35 (2.81%)	64 (5.44%)	66(4.22%)	11(1.50 %)	7 (1.37%)	7 (1.60%)	34 (2.82%)
Community Town Ilaje	56 (4.50%)	52 (4.42%)	66(4.22%)	46 (6.26%)	36(7.02%)	33 (7.52%)	28 (2.32%)
Ayetoro Village	18 (1.45%)	66 (5.61%)	66 (4.22%)	14 (1.90%)	14 (2.73%)	14 (3.19%)	49 (4.07%)
TOTAL	1244(75.4 %)	1180 (73.8%)	1566(97. 9)	733 (45.8%)	514 (32%)	439 (27.4%)	1206 (75.4%)

The research reveals the homes and structures with balanced ventilation systems, the study revealed that the percentage of respondents in Orile-Agege, Badia, Ijora, and Iju is relatively high indicating the existence of good ventilation in their homes. Ijora has the highest which is put at 179. Burglary installation Badia is the lowest, indicating few installations of burglary. It is however revealed that Ijora has the highest at 95. Badia and Ijora have the lowest percentage of respondents with more than one room in their homes. Ijora has the highest which is put at 200.

Badia and Ijora have the highest percentage of respondents with aluminium windows, with Ijora having the highest at 194. Ijora and Badia have the highest percentage of respondents whose bathrooms/toilets are either completely or partially tiled. Ijora has the highest which is put at 74. The findings also revealed that Ijora and Badia have the highest percentage of respondents with tiled kitchens. While Ijora has the highest at 73. Orile-Agege has the highest percentage of respondents indicating constant access to electricity, with 102. In total, 1244 respondents had good ventilation, 1180 respondents had burglary installation, 1566 respondents had more than one room, 733 respondents had aluminium windows, 514 respondents had tiled bathrooms/toilets, 439 respondents had tiled kitchens, and 1206 respondents had electricity.

4.1.2 Socio-economic factors influencing dwelling quality in these informal communities.

Table 4.3 presents the data on three items related socioeconomic status of respondents. The table that elucidates the findings is presented in Table 4.3 below.

Table 4.3: Socio-Economic Characteristics of the Communities

Community	Educational Status				Occupation					Monthly Income			
	No Formal Education	Primary Education	Secondary Education	Tertiary Education	Civil Service	Informal Trading	Skilled Work	Public Service	Others	<50k	50k-100k	100k-150k	>150k
Orile-Agege	10(5%)	27(14%)	90(45%)	73(36%)	27(14%)	94(47%)	50(25%)	13(6%)	16(8%)	141(71%)	52(26%)	7(3%)	0
Iju	7(4%)	48(24%)	122(61%)	23(11%)	11(6%)	71(35%)	93(47%)	19(9%)	6(3%)	188(94%)	12(6%)	0	0
Badia	6(3%)	33(17%)	98(49%)	63(31%)	22(11%)	89(45%)	66(33%)	1(1%)	22(11%)	125(63%)	75(37%)	0	0
Ijora	1(1%)	47(23%)	72(36%)	80(40%)	26(13%)	66(33%)	94(47)	3(2%)	11(5%)	105(53%)	87(43%)	8(4%)	0
Ajegunle	2(3%)	28(35%)	28(35%)	22(27%)	0	6(8%)	74(92%)	0	0	76(95%)	4(5%)	0	0
Ago-Hausa	6(8%)	23(29%)	29(35%)	22(28%)	25(31%)	21(26%)	32(40%)	0	2(3%)	16(20%)	48(60%)	16(20%)	0
Olodan	0	6(37%)	34(43%)	40(20%)	24(30%)	19(24%)	36(45%)	0	1(1%)	15(18%)	40(50%)	19	6
Amukoko	3(4%)	2(2%)	39(49%)	36(45%)	19 (24%)	25 (31%)	32 (40%)	4 (5%)	0	27 (34%)	32 (40%)	20 (25%)	1(1%)
Mosafejo	12(15%)	22(28%)	34(43%)	12(14%)	0	8 (10%)	69 (86%)	3 (4%)	0	53 (66%)	19 (24%)	8 (10%)	0
Somolu	5(7%)	19(29%)	42(64%)	0	0	8 (12%)	54 (82%)	4 (6%)	0	60 (91%)	6 (9%)	0	0
Oworonshoki	2(3%)	2(3%)	43(65%)	19(29%)	3 (5%)	7(11%)	47 (71%)	9 (14%)	0	50 (76%)	15 (23%)	1 (1%)	0
Bariga	1(2%)	9(12%)	46(66%)	14(20%)	7 (10%)	12 (17%)	50 (71%)	1 (2%)	0	63 (90%)	6(9%)	1 (1%)	0
Abule-Ijesha	4(7%)	9(13%)	39(59%)	14(21%)	3 (5%)	14 (21%)	49 (74%)	0	0	57 (87%)	5 (8%)	4 (6%)	0
Community Town Ilaje	0	11(17%)	29(44%)	26(39%)	14 (21%)	10 (15%)	42 (64%)	0	0	45 (68%)	15 (23%)	4(6%)	2 (3%)
Ayetoro Village	0	16(24%)	31(47%)	19(29%)	5 (8%)	13 (20%)	45 (68%)	3 (4%)	0	54 (82%)	7 (11%)	4 (6%)	1 (1%)

TOTAL	59(4%)	302(19%)	776(49%)	463(28%)	186(12%)	463(30%)	833(52%)	60(4%)	58(2%)	1075(67%)	423(26%)	92(6%)	10(0.6%)
	1600				1600					1600			

Source: Author's Field work, 2023

Orile-Agege has 10 people with no education, 27 with primary education, 90 with secondary education, and 73 with tertiary education. 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 worker, and 22 others. The monthly income for Badia is 125 people earning less than N50K, 75earning between N50k-N100k, 0earning between N100K-N150K and 0 earning more than N150K. Ijora has 1people 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, 3 public service workers, and 3 others. 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%).

4.1.3 Relationship between Spatial patterns and dwelling quality within informal communities.

Table 4.4 shows that the residential quality index displayed wide variations across the 15 informal communities. With the F-test = 11.145 $p<0.001$ it showed that there was a significant variation in the residential quality. In the same vein, the neighbourhood quality index was also found to display significant variation across the informal settlement communities. With the F-test 41.484 $p<0.001$ it indicates that NQI was varied significantly across the 15 informal communities of Lagos. The locational quality of dwellings was also examined for variation. Findings in Table 4.19 showed that the locational quality index varied significantly across the 15 communities. Results of the analysis

indicates that there is a significant variation in the location quality index given the F-Test for LQI as 33.697, $p<0.001$. Hence, the residential quality indexes are not the same in all informal communities. These results strengthen the hypotheses set in the study on the variation across the communities based on residential quality indicators.

Table 4.4: Residential Quality Index

ANOVA						
Residential Quality		Sum of Squares	df	Mean Square	F	Sig.
SQI	Between Groups	88060.376	14	6290.027	11.148	.000
	Within Groups	894301.614	1585	564.228		
	Total	982361.990	1599			
NQI	Between Groups	239999.362	14	17142.812	41.484	.000
	Within Groups	654991.483	1585	413.244		
	Total	894990.844	1599			
LQI	Between Groups	137180.332	14	9798.595	33.697	.000
	Within Groups	460895.668	1585	290.786		
	Total	598076.000	1599			

5.1 Recommendations

recommendations for improving the residential quality of informal communities in metropolitan Lagos:

1. **Upgrading Informal Settlements through Community-Based Participatory Approaches:** The majority of similar attempts in the past were met with stiff resistance from the residents, hence, a community-based participatory approach in the upgrade of the informal settlement will be important in ensuring a successful settlement upgrade, which will requires the involvement of residents of informal settlements in the planning and implementation of upgrading projects which will lead to more sustainable and effective improvements in residential quality.
2. **Integrated Infrastructure Development in Informal Communities:** Investigate strategies for simultaneously improving water, sanitation, electricity, and transportation infrastructure in informal settlements to enhance overall residential conditions.
3. **Affordable and Accessible Housing Solutions for the Urban Poor:** Explore innovative models of public-private partnerships or community-led initiatives that can deliver quality, low-cost housing options for residents of informal communities.
4. **Mainstreaming Informal Settlements in Urban Planning Frameworks:** Analyze how urban planning policies and processes can be reformed to better integrate informal settlements and their needs into the broader vision for sustainable urban development.
5. **Leveraging Socio-Cultural Assets in Informal Communities:** Examine how the social capital, organizational structures, and cultural practices within informal settlements can be harnessed to drive residential improvements and community empowerment.
6. **Environmental Upgrading and Climate Resilience in Informal Areas:** Investigate approaches to enhancing the ecological sustainability and climate change resilience of

informal settlements through sustainable construction, waste management, and disaster risk reduction measures.

7. **Informal Tenure Security and Its Impact on Residential Investment:** Analyze how different models of land tenure and property rights in informal communities affect residents' willingness and ability to invest in improving their homes and living environments.

5.2 Conclusion:

The research highlights the multifaceted nature of dwelling quality in informal communities in metropolitan Lagos. Socioeconomic status, tenure security, access to infrastructure and services, demographic factors, and community-level dynamics all play a significant role in shaping the quality of housing in these settlements. Addressing these complex issues requires a comprehensive, multi-stakeholder approach to improve the living conditions of residents in informal communities. The government and its stakeholders need to involve the residents of informal settlements in the planning and implementation of upgrading projects, which empower residents, leverage local knowledge, and foster a sense of ownership that increases the likelihood of long-term success. To address the widespread challenge of inadequate and unaffordable housing, innovative models of public-private partnerships and community-led initiatives hold promise. These should be coupled with reforms to urban planning policies that better integrate informal settlements into the broader vision for sustainable urban development. In addition, the research highlights the value of leveraging the socio-cultural assets inherent within informal settlements. Harnessing the social capital, organizational structures, and cultural practices of these communities can drive residential improvements and community empowerment from within. Complementing this with environmentally sustainable upgrading and climate resilience measures is crucial for long-term livability. Finally, the issue of informal tenure security emerged as a key determinant of residents' willingness and ability to invest in improving their homes and living environments. Addressing this through appropriate land tenure reforms and property rights mechanisms is an essential component of a holistic improvement strategy.

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