

Residents' Satisfaction with Public Housing in Lagos, Nigeria

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ABSTRACT

The study examined residents' satisfaction with public housing in Lagos, Nigeria, with a view of determining residents' satisfaction level with housing units and location; assessing residents' satisfaction level with attributing factors of quality public housing; and identifying problems affecting public housing. Questionnaire survey was used to collect data within five purposively selected public housing estates in Lagos. Systematic sampling technique was employed to administer 300 questionnaire among household representatives. Findings on residents' satisfaction with housing units and location shows that majority were dissatisfied with space allocation (64%); quality of services (64%); and infrastructural facilities (62%). Findings on residents' satisfaction with attributing components revealed that majority of respondents were dissatisfied with most physical, social/behavioural, public facilities/functional, and timing components, while majority were satisfied with most economic and environmental components. Findings also revealed that poor structural design and maintenance policy (71%); unstable power supply and poor parking lot (73%); and poor drainage and sewage systems (78%) are major problems affecting public housing residents. Regression analysis results show significant relationship between overall residents' satisfaction with public housing and attributing factors of quality public housing ($F_{323}^6 = 5.371 = P < 0.05$). Strategies were proposed to improve quality public housing provision within Lagos and cities with similar issues.

Keywords: attributing factors, housing; public housing; residents, satisfaction.

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Introduction

Housing is often viewed as a bedrock for measuring any viable economy, be it developed or developing. Therefore, it serves as an important tool for stimulating growth and ensuring sustainability of inhabitants in the ecosystem, and equally place a shaping role to promote economic prosperity and wellbeing of both inhabitants and the communities they live (Housing Corporation, 2008; Kolawole, 2015). It is a barometer, an important tool for measuring economic development trends, particularly in developed countries including United States of America, Britain, Canada, among the others. It contributes over 30% to Gross Domestic Product (GDP). Again, housing affects all facets of man's life, particularly through provision of shelter and other multiplier effects including socio-economic, cultural and political development (Jiboye, 2010), increased productivity (Kolawole, 2015) and standard of living, as well as alleviating poverty among inhabitants (Lee and Park, 2010; Mohit and Nazyddah, 2011).

Generally, the term 'housing' has its source from the root word 'house', which refers to a building that functions as a home, ranging from a simple dwelling to complex fixed structure of wood, brick, concrete and other related materials containing bedrooms, bathrooms, kitchen, living room, dining room, water and plumbing system, power and electrical system as well as cross ventilation (Lee and Park, 2010; Mohit and Nazyddah 2011). Mohit and Nazyddah (2011) opined that housing reflects socio-cultural and economic values as well as historical evidences of civilization of any society. The type and quality of the housing being offered however have a significant impact on the health and wealth of places, particularly urban areas. Their ability to attract, retain and provide required shelter for inhabitants relies heavily on quality, attractiveness and eco-friendliness of housing infrastructure and facilities, as well as surrounding neighbourhoods (Housing Corporation, 2008). However, the quality and improvement of housing infrastructural facilities is, undoubtedly, an enabler of economic growth, by ensuring new homes of right quality type are delivered in the right place for the right individuals.

Housing operates on three forms, which are public, private and social housing (Jiboye, 2010). Public housing is defined as a form of housing tenure in which the property is provided and owned by government authority (Olatubara and Fatoye, 2006), constructed for the purpose of providing affordable shelter or accommodation for the general public who are willing to pay a substantial amount either as installment or at once, depending on definitions of terms, details, criteria for allocation varying within different contexts (Bardo and Dokmeci, 1992; Mohit and Nazyddah, 2011). Osman and Lemmer (2002) opined that public housing is expected to provide residents with accessible, safe, beautiful and attractive accommodation in a sustainable manner and has been a major concern worldwide since it's a basic requirement for human development and survival. The foregoing is however true, as it directly affects the welfare, health and productivity of individuals and households. Public housing quality is a standard residential structure, built in an environment designed for human's physical and mental health balance as well as social well-being (UN-Habitat, 2006). However, residents' right to public housing is basic to providing security, privacy, neighbourhood and social relations, status, community facilities and services, access to jobs, and control over the environment.

Furthermore, public housing across the world are developed and encouraged for the main purpose of improving the living conditions of residence or citizens; ensure all citizens own or have direct access

to decent, safe and sanitary housing in a healthy environment with adequate infrastructural services at affordable cost, and with secure tenure (Federal Republic of Nigeria, 2012; Ibem, Adeboye and Alagbe, 2015). In pursuant of this goal, governments at the federal, state and local levels in Nigeria have developed large-scale public housing for the citizens towards achieving the overall goal of meeting housing needs, satisfaction and sustainability of the increasing population (Ibem et al., 2015).

Public housing satisfaction is the degree to which the occupants of a dwelling unit feel that their housing facilities help them to achieve their goals. Oliveira and Heineck (1999) define housing satisfaction as a concept with assigned prominent indication used by many researchers and analysts as an evaluation measure of private and public sectors, building performance of resident mobility and occupant perception of their residential environment and improvement in new project. Olatubara and Fatoye (2006) see it as the measure of the degree to which housing (quality) performance is meeting the occupants' expectation in terms of cost benefit and needs.

Unfortunately, public housing in the third world countries, including Nigeria has become a subject of public discourse with regard to quality and quantity of its infrastructural facilities and design standards. It is commonly believed that public housing provision in the urban areas are merely for accommodation purpose without adequate infrastructural facilities, quality design of buildings and environmental requirements of the occupants. However, the bulk of these housing inadequacies are borne by the less privileged in the society. It is pertinent to note that, it was as a result of these housing issues that the National Housing Policy in Nigeria was formulated in 1991, among other efforts put in place to provide sustainable solutions to the quality and quantity of public housing challenges confronting citizens of this country. In spite of these efforts, millions of citizens across cities in Nigeria, including Lagos are living in substandard and unsatisfactory public houses. This suggests that Nigeria is yet to get it right in meeting the public housing needs and satisfaction. Regarding Lagos in particular, there has been attempts by past governments to provide a better public housing schemes with standardized facilities for the populace. Despite these efforts, the public housing within the metropolis are still faced with several challenges, which includes but not limited to poor room and unit space, poor toilet facilities, poor air quality and ventilation issue, noise and environmental pollution, poor proximity of house to market, police station, fire services and work place, absence of quality of public water, unstable power and electricity, poor parking lot, insecurity and high crime rate, dilapidated structures with sudden collapse cases, poor house maintenance with ununiformed house painting, abandoned and dilapidated drainage system and poor regulatory and policy implementation. These issues among others hinders the satisfactory level of occupants of these public facilities, and equally contributed to the alarming urban stress, poverty and poor living standard, high crime rate, traffic congestion and slum development within Lagos and other urban areas in Nigeria. However, these challenges from reviewed literature can be summarized under six attributing factors namely physical, environmental, economical, public facilities/functional, social/behavioural and timing (Mohit and Azim, 2012; Inah, Yaro, Agbor and Ukene, 2014).

More so, many scholars have concentrated their research preferences on housing condition, urban housing provision and neighbourhood environmental quality. Thus, there is an obvious paucity of empirical studies for relating public housing facilities and environmental quality with residents' satisfaction, particularly in the third world countries including Nigeria. Based on the backdrops, this study investigates perception

of residents' satisfaction with public housing in Lagos metropolis, Nigeria. The study also examines socio-economic characteristics and locational attributes of the residents; determines the level of residents' satisfaction with housing unit and location; identifies problems affecting residents' satisfaction with public housing units; determines the level of residents' satisfaction with the attributing factors of quality public housing of selected estates; and equally analyzes relationship between overall residents' satisfaction and the attributing factors of quality public housing. The latter objective is with a view of establishing the attributing factors of quality public housing that statistically influence the residents' overall satisfaction.

Materials and Methods

Lagos (Centre of Excellence) is located in south-western Nigeria. It lies within latitudes 6°23'N and 6°41'N and longitudes 2°42'E and 3°42'E (Figure 1). Metropolitan Lagos constitute less than 2.5% of Nigeria's total land area of 923,768km² and accommodates over 6% of Nigeria's total population of 1991 National Census. Lagos Metropolis accounted for the seventeen out of the twenty local government areas in Lagos State. Basically the state lies on lowlands, with about 17,500 hectares (Ha) of built-up area of which residential areas occupy the single largest proportion of 8,739Ha (51.9%), commercial 821Ha (4.8%), industrial 1,444Ha (8.4%), institutional and special use 2,366Ha (13.7%), open spaces 453Ha (2.6%) and transportation 3,205Ha (18.6%) (<http://www.lagosstate.gov.ng>). In addition, the population characteristics of Lagos is heterogeneous with most parts of the nation being represented.

Despite the relocation of the Federal Capital to Abuja, Lagos State remains the economic nerve centre of the country, harbouring almost all the headquarters of the multinational companies in the country and equally occupies a pre-eminent position based on all urban indicators. Being the industrial as well as commercial centre of the country, the city has a high population density and abundant economic opportunities, which in turn leads to over utilization of available utilities, resources and high rate of construction projects such as housing estates (private and public). Without a doubt, Lagos has a high volume of construction activities as well as a large concentration of residential public housing estates of various categories, particularly of low-cost housing and luxury estates (Ebiaride and Umeh, 2015). Despite the continuous construction, there is increasing high demands for public residential buildings. The existing ones are insufficient to cater for the growing population and are observed to be not well-structurally designed with poor quality infrastructural facilities and poor ecofriendly housing units, etc. within the state. It is against this backdrop Lagos was chosen for the research study area.

Moreover, a cross-sectional survey was conducted in five public housing estates (PHEs) in Lagos State. The study adopted mixed method approach, that is both qualitative and quantitative data were sourced and used. Data were obtained through the use of primary and secondary sources. The study, however, derived its authority majorly from primary data (questionnaire, field observations, and interview), while information including literature review on related studies were sourced from various published and unpublished materials (articles, newspaper, dissertations, reports, etc.).

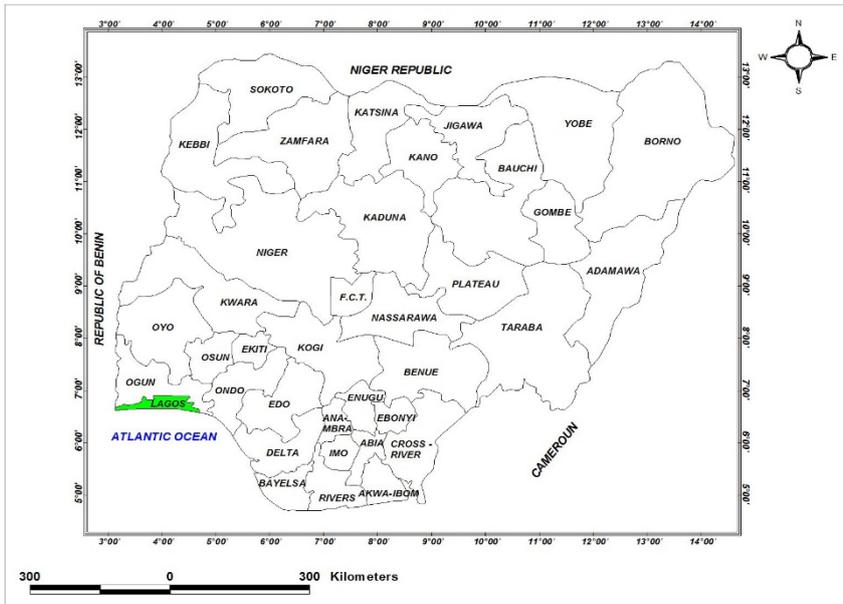


Figure 1: Lagos State within Nigerian Context

Source: Adapted from <http://www.lagosstate.gov.ng> and modified by Authors, 2017

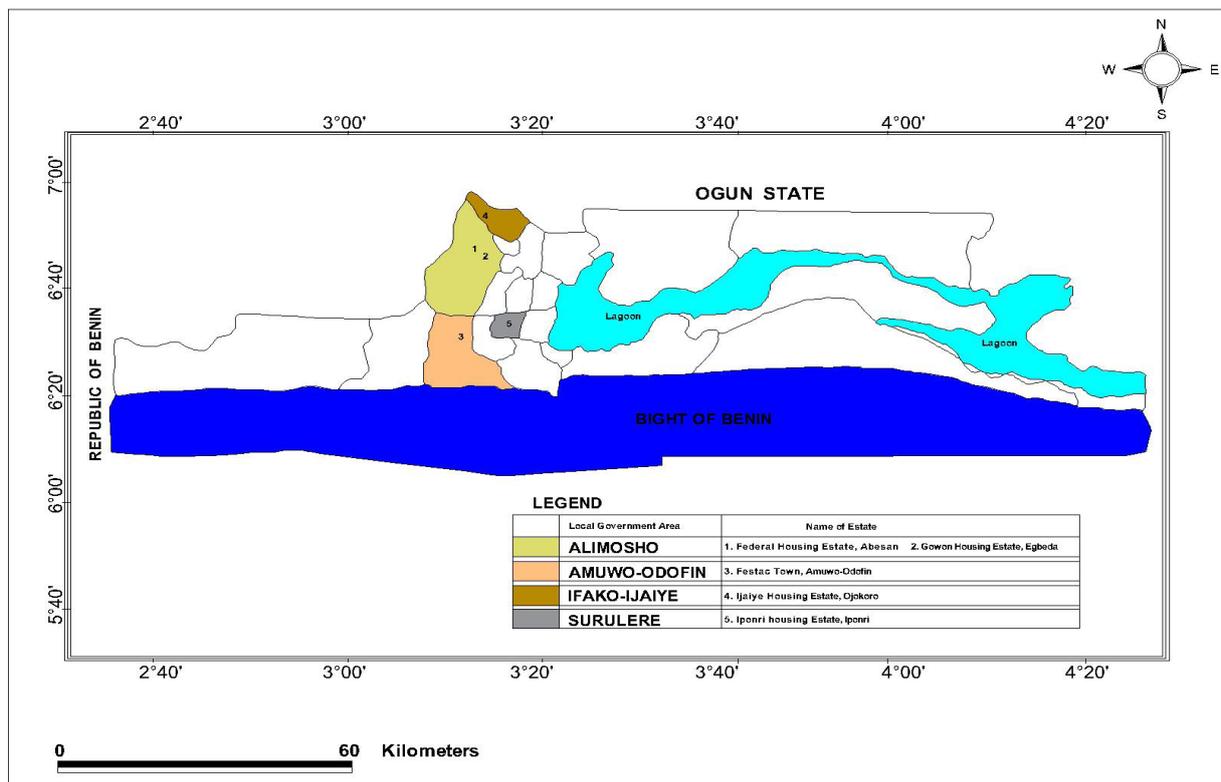


Figure 2: Selected Housing Estates within Lagos State

Source: Adapted from <http://www.lagosstate.gov.ng> and modified by Authors, 2017

The questionnaire was structured into four sections based on study objectives: the first section sought information on socio-economic characteristics of respondents; section two dealt with questions on condition and overall satisfaction with existing facilities and environment of selected PHEs; third section focused on residents' level of satisfaction with attributing factors of physical, environmental, economical, public

facilities/functional, social/behavioural and timing (Table 1); while the last section sought information on problems affecting the selected public housing estates, using both open-ended and close-ended questionnaire format.

Table 1: Attributing Components and variables selected for measuring residential satisfaction of public housing estates

Attributing Components	Variables
Physical	Size of compound; Size of rooms; Electrical fixtures; Number of rooms; Availability of toilet and bathroom; Operation of doors; Quality of building materials; Storage space; Building heights
Environmental	Free ventilation; Noise pollution; Water pollution; Air pollution; Availability of good road; Drainage system; Waste disposal system
Economical	Extent of socio-economic relation among neighbours; Proximity to school for children; Proximity to market; Proximity to workplace; House maintenance
Public Facilities/ Functional	Position of different rooms; Parking space; Functionality in design
Social/Behavioural	Level of privacy within the house; Proximity to place of worship; Building setbacks; Security level of house; Physical appearance; Proximity of house to police station; Proximity of house to hospital; Proximity of house to fire station
Timing	Frequency of house maintenance

Source: Adapted from Inah et al. (2014); Mohit and Azim (2012) and modified by authors

Both non-probability (purposive) and probability (systematic) sampling procedures were used to select locational samples and respondents (residents’) respectively for this study. Purposive sampling was used to select five (5) PHEs within Lagos, Nigeria. The selected PHEs include Federal Housing Estate Abesan, Alimosho; Iponri Housing Estate Iponri, Surulere; Gowon Housing Estate Egbeda, Alimosho; Festac Town, Amuwo Odofin; and Ijaiye Housing Estate, Ojokoro (Figure 2). It is noteworthy that, PHEs are of various housing types such as detached, multiple housing, semi-detached and block of flats housing units. Also, systematic sampling technique was used to sample 60 housing units with household representatives (respondents) at every fifth (5th) housing unit in each selected public housing estate. The sampling technique utilized was based on researchers’ convenience, time and financial constraints, ease of questionnaire administration and total control of research instrument. However, a total of 300 housing units were sampled.

Furthermore, data collected were analysed using descriptive statistics of percentile frequency tables, while inferential statistical technique of regression analysis was used to test the hypothetical statements postulated for the study. Five point Likert scale format ranging from Strongly Dissatisfied [SD], Dissatisfied [D], Undecided [UD], Satisfied [S] and Strongly Satisfied [SS] was adopted. For the analysis, the analytical technique made use of dummy variable of the regression model to calibrate the qualitative variables to quantitative variables in a dichotomous form (0 [dissatisfaction] and 1 [satisfaction]) and used for analysis.

However, the regression analysis was used to determine the relationship between the overall residents' satisfaction (ORS) with public housing in Lagos and the attributing factors of quality public housing, and equally established which predictors are best to predict the dependent variable.

$$ORS = a + b_1Phy + b_2Env + b_3Eco + b_4Sco + b_5Pff + b_6Tim + e$$

where:

ORS [Overall Residents' Satisfaction] = Dependent Variable;

a= Slope/Intercept;

b_1 - b_n = Regression Coefficients;

Phy [Physical components],

Env [Environmental components],

Eco [Economic components],

Sco [Social/behavioural components],

Pff [Public facilities/functional components],

Tim [Timing component] = Independent Variables; and

e = Error Term or Residual.

Results

Socio-Demographic Background of Respondents

In every social and management sciences research, socio-demographic background of respondents is highly significant, as it provides relevant clues and clear understanding to issues under investigation, particularly studies that has to do with human perception on situational and affectual issues. However, the socio-demographic characteristics of the respondents identified relevant to this study were discussed under the following sub-headings location, status, sex, age, marital status, incomes, occupation categories, level of education and household size.

Table 2: Socio-Demographic Characteristics of Respondents

S/N	Category	Classifications	Percentage
1	Respondents Status	Parent	68.0
		Adult Children	27.0
		Grand Parent	5.0
		<i>Total</i>	100.0
2	Gender	Male	36.0
		Female	64.0
		<i>Total</i>	100.0
3	Age Group	Below 30 years	37.0
		30 years and above	63.0
		<i>Total</i>	100.0
4	Marital Status	Single	36.0
		Married	51.0
		Divorced	13.0
		<i>Total</i>	100.0
5	Occupational Status	Civil/Public servant	25.0
		Business	40.0
		Artisan	16.0
		Not employed	18.0
		Others	1.0
		<i>Total</i>	100.0
6	Average Month Income	Below 100,000	36.0
		100,000 - 200,000	56.0
		200,000 - 300,000	8.0
		<i>Total</i>	100.0
7	Educational Qualification	No formal Education	38.0
		Formal Education	62.0
		<i>Total</i>	100.0
8	Household Size	1 - 4 people	43.0
		5 - 8 people	57.0
		<i>Total</i>	100.0

Source: Field work, 2017

Table 2 presents the respondents’ location and socio-demographic characteristics. Three hundred (300) respondents participated in the study with equal representation across the study locations. Majority (68.0%) of the sampled household representative were parents, followed by adult children (27%), while grandparents recorded the least (5.0%). Over 60% of respondents were female while 36% were male. Age distribution shows that 63% of the respondents were aged above 30 years while 37% were aged below 30 years. Over 50% of the respondents were married, 36% were single while 13% were divorcees. Data on occupational status show that 25% were civil servants, majority (40%) were business owners, 16% were artisans, and 18% were unemployed. Average monthly income of respondents showed that, 36% earn below ₵100,000, majority (56%) earn between ₵100,000–₵200,000, while 8% earn between ₵200,000–₵300,000. Also, 38% have no formal education while 62% have formal education. This implies that most respondents were educated, gainfully employed with moderate income earnings. However, results on household size indicated that 43% were of 1-4 persons and 57% were of 4-8 people living in a housing unit.

Residents' Satisfaction with Overall Public Housing Unit and Location

Table 3 presents the degree to which residents are satisfied with quality of public housing units (spaces/space allocation, quality of services, public infrastructural facilities and social environment) provided within their location. Findings on level of satisfaction with spaces within housing unit revealed that 34% of the respondents expressed satisfaction, while majority, representing 64% expressed dissatisfaction. Findings on level of satisfaction with quality of services within housing area revealed that 1% of the respondents were strongly satisfied, 33% were satisfied, 19% were dissatisfied, while majority, thus 45% were strongly dissatisfied.

Also, results on the degree of satisfaction with public infrastructural facilities within housing unit and area revealed that, 34% of the respondent expressed satisfaction, while majority (over 60%) expressed dissatisfaction. More so, findings on level on satisfaction with social environment within housing area shows that majority (75%) expressed satisfaction, while less than 20% were dissatisfied.

Table 3: Residential Satisfaction with Overall Public Housing Unit and Location

S/N	Indices	SS	S	UD	D	SD	Total
1	Satisfaction with spaces/space allocation within housing unit	5.0	29.0	2.0	45.0	19.0	100
2	Satisfaction with quality of services within housing area	1.0	33.0	2.0	19.0	45.0	100
3	Satisfaction with public facilities within housing units or area	9.0	29.0	0.0	40.0	22.0	100
4	Satisfaction with social environment within housing area	36.0	39.0	6.0	13.0	6.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017

Overall, it can be deduced that the degree of residents' satisfaction is marginal using the indices of space allocations within housing unit, quality of services within housing area, and public infrastructural facilities within housing area. On the other hand, residents' expressed satisfaction regarding social environment within housing area.

Residents' Satisfaction with Attributing Factors or Components of Quality Public Housing

Physical Attributes

Physical components of public housing are important aspects of housing unit as it shows the standard of the house, enhances structural durability and degree of residents' attachment to the area. Hence, responses on residents' satisfaction with physical attributes of public housing are presented in Table 4. Results show that 57.8% (mean percentage) of the respondents were either dissatisfied or strongly dissatisfied with the size of compound; size of rooms in housing unit; electrical fixtures; number of rooms available; toilet with bathroom availability and ceiling heights. But 56% (mean percentage) of the respondents were either satisfied or strongly satisfied with operation of doors; quality of building materials and storage space as physical components of sampled public housing units.

Table 4: Residential Satisfaction with Physical Attributes of Public Housing

S/N	Indices	SS	S	UD	D	SD	Total
1	Size of compound	3.0	38.0	2.0	31.0	26.0	100
2	Size of rooms	8.0	35.0	0.0	44.0	13.0	100
3	Electrical fixtures	7.0	33.0	2.0	42.0	16.0	100
4	Number of rooms	4.0	32.0	4.0	42.0	18.0	100
5	Toilet and bathroom available	9.0	27.0	8.0	30.0	26.0	100
6	Operation of doors	9.0	46.0	4.0	23.0	18.0	100
7	Quality of building materials	9.0	46.0	3.0	26.0	16.0	100
8	Storage space	3.0	57.0	2.0	26.0	12.0	100
9	Ceiling heights	8.0	32.0	1.0	40.0	19.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017

Hence, it is worth knowing that majority of the residents were not satisfied with most of the physical components of measuring quality of public housing within the study area.

Environmental Attributes

In a bid to analyze the level of satisfaction derived from environmental attributes of the public housing, questions of environmental concern were asked and responses are presented in Table 5. Findings shows that 75% (mean percentage) of the respondents were either strongly satisfied or satisfied with degree of cross ventilation; control level of noise pollution; control level of water pollution; control level of air pollution and waste disposal system. Also, majority, 58% (mean percentage) of the respondents were not satisfied with quality of available roads; and the drainage system (Plate 1) as environmental components of quality public housing.

Table 5: Residents' Satisfaction with Environmental Attributes

S/N	Indices	SS	S	UD	D	SD	Total
1	Cross ventilation	38.0	33.0	6.0	15.0	8.0	100
2	Noise pollution	42.0	36.0	3.0	15.0	4.0	100
3	Water pollution	34.0	40.0	2.0	18.0	6.0	100
4	Air pollution	16.0	43.0	0.0	33.0	8.0	100
5	Availability of good road	4.0	35.0	3.0	36.0	22.0	100
6	Drainage system	8.0	33.0	0.0	16.0	43.0	100
7	Waste disposal system	26.0	57.0	3.0	12.0	2.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017.



Plate 1: Poor access and drainage at Ijaiye Housing Estate, Ojokoro, Lagos

Source: Field work, 2017

It is noteworthy that higher degree of residents' satisfaction with respect to cross ventilation can be attributed to the fact that, public housing was built by the government agencies who deployed professionals who are aware of planning standards and regulations applicable to such projects. In addition, there are legislations that prohibit noise pollution and water pollution in Lagos State, and more importantly, waste management firms monitored by the government do come around for routine collection.

Economic Attributes

Residents' satisfaction with economic attributes of quality public housing was captured, and results of sampled respondents are presented in Table 6. Results indicated that about 70% of the respondents were either strongly satisfied or satisfied with extent of socio-economic relation among neighbours; proximity of house to school for children; market; and workplace within the estate, while about 30% were either dissatisfied or strongly dissatisfied with these components. Additionally, over 50% of the sampled residents were either dissatisfied or strongly dissatisfied with house maintenance as economic components of quality of public housing units. Though the public housing estates are operated on owner-occupier arrangement, issue of maintenance lies with the government and the owner. Majority of the respondents' dissatisfaction with maintenance is an indication of neglect by the appropriate authorities managing the public housing estates. However, there are constraints on government intervention in terms of maintenances, particularly when it is considered that government institutions spending have to be appropriated before project execution. The implication of this is that, residents would be compelled to effect necessary maintenance if government intervention is not forthcoming and this would in turn impact on the residents' income to cater for immediate family needs.

Table 6: Residents’ Satisfaction with Economic Attributes

S/N	Indices	SS	S	UD	D	SD	Total
1	Extent of socio-economic relation among neighbours	31.0	35.0	9.0	18.0	7.0	100
2	Proximity to school for children	26.0	43.0	2.0	20.0	9.0	100
3	Proximity of house to market	30.0	35.0	8.0	22.0	5.0	100
4	Proximity of house to workplace	29.0	40.0	4.0	17.0	10.0	100
5	House maintenance	5.0	32.0	8.0	20.0	35.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017

Hence, it is noteworthy that majority of the residents were satisfied with most of the economic components of measuring quality of public housing within the study area (Table 6).

Social/Behavioural Attributes

Residents’ satisfaction with social/behavioural attributes of quality public housing was also dealt with, and the findings are presented in Table 7. Results revealed that over 70% of the respondents were either strongly satisfied or satisfied with level of privacy within housing unit; proximity to place of worship and proximity of house to health facilities. Also, over 60% of them were either dissatisfied or strongly dissatisfied with building setbacks; security level of housing unit; physical appearance of housing units; proximity of house to police station and proximity of house to fire station as social/behavioural attributes of quality public housing.

Table 7: Residents’ Satisfaction with Social/Behavioural Attributes

S/N	Indices	SS	S	UD	D	SD	Total
1	Level of privacy in house	44.0	32.0	3.0	16.0	5.0	100
2	Proximity to place of worship	48.0	35.0	2.0	12.0	3.0	100
3	Building set backs	11.0	24.0	3.0	29.0	33.0	100
4	Security level of house	5.0	23.0	6.0	26.0	40.0	100
5	Physical appearance of housing units	7.0	21.0	10.0	39.0	23.0	100
6	Proximity of house to police station	6.0	22.0	6.0	34.0	32.0	100
7	Proximity of house to hospital	22.0	54.0	2.0	14.0	8.0	100
8	Proximity of house to fire station	5.0	25.0	0.0	13.0	57.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017

The satisfaction derived may be connected with increasing land use conversion of residential developments to places of worship and other high yielding uses. However, the dissatisfaction with regard to proximity to police station and fire station seems not far-fetched as these are higher-order facilities serving more than a single neighbourhood. In addition, from experience with public housing, physical appearance has been left to individual households to execute their desired renovation plan, where normally, being a public housing development, it ought to be a collective arrangement for the purpose of unity and harmony in appearance.

Security as a crucial service required in a human settlement scored low with the residents. This is not unlikely as the ratio of a police man to population stands at 1:310, which is far below the UN's recommended ratio of 1:400. Dissatisfaction with security may also be attributed to large number of residents accommodated at the estates, which to a great extent attract great number of visitors, thus, requiring better control and management approach to curtail unsolicited access to the estates.

Public Facilities/Functional Attributes

Analysis of the level of satisfaction derived from public facilities/functional attributes of quality public housing are presented in Table 8. Findings show that 64.5% (mean percentage) of the respondents were either dissatisfied or strongly dissatisfied with position of different rooms and functionality in design, while 58% were either strongly satisfied or satisfied with parking space as public facilities/functional attributes of quality public housing.

Table 8: Resident's Satisfaction with Public Facilities/Functional Attributes

S/N	Indices	SS	S	UD	D	SD	Total
1	Position of different rooms	4.0	29.0	3.0	36.0	28.0	100
2	Parking space	28.0	30.0	4.0	35.0	3.0	100
3	Functionality in design	12.0	14.0	9.0	38.0	27.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017

From observation, the selected public housing estates have ample space for parking, hence supporting satisfaction level among residents. Again, dissatisfaction by residents concerning rooms' positioning and functionality in design, may be linked to lack of citizens' participation in the housing project design.

Timing Attributes

Residents' satisfaction with timing attributes of public housing were also examined as presented in Table 9. Results revealed that 60% of the respondents were either dissatisfied or strongly dissatisfied with frequency of house maintenance. Since most of the residents are not the true owner (thus, tenants) of the housing unit, they believe engaging in major house maintenance that requires huge capital and specified building materials are the responsibility of the house/property owner and government. This is because they pay rent and other governmental charges for used facilities and services. This apathy towards maintenance has impacted negatively on the appearance of the housing estates, that is, paints on the walls are washed-out (Plate 2).

Table 9: Residential Satisfaction with Timing Attributes

S/N	Indices	SS	S	UD	D	SD	Total
1	Frequency of house maintenance	9.0	27.0	4.0	40.0	20.0	100

Note: Strongly Satisfied (SS), Satisfied (S), Undecided (UD), Dissatisfied (D), Strongly Dissatisfied (SD)

Source: Field work, 2017



Plate 2: Poor building appearance at Ijaiye Housing Estate, Ojokoro, Lagos

Source: Field work, 2017

Problems Affecting Residents' Satisfaction with Public Housing Units

The study analyzed residents' perceptions of the problems affecting residents' satisfaction on government-owned public housing, with findings presented in Table 10. Findings on problems affecting sampled public housing estates show that, over 60% of the respondents either strongly agree or agree to physical and space related issues as the major problems affecting satisfaction with public housing units, while less than 30% either disagree or strongly disagree. Also, about 60% of the residents either disagree or strongly disagree with environmental problems like proximity to market, workplace, schools, etc. as major problems confronting them in the estate, while 40% either agree or strongly agree with environment related issues (air, noise and water quality with pollution; proximity of house to market, workplace and schools) as major problem affecting residents' satisfaction with public housing units within the study area.

Additionally, over 70% of the respondents either strongly agree or agree with public facilities and functional related issues as major problems, whereas less than 30% either disagree or strongly disagree with public facilities and functional issues (absence of quality water supply; unstable power supply and unstandardized parking space) as major problem. Meanwhile, over 60% of the respondents either strongly agree or agree to social/behavioural problems affecting residents' satisfaction with public housing units, while 26% either disagree or strongly disagree with the social/behavioural (insecurity; crime, absence of police station and fire services station etc.) as major problems. Regrettably, over 70% of the respondents either strongly agree or agree to house maintenance issues (dilapidated and depleted structures with poor drainage system and sewage/sewerage system), which are also major problems confronting residents of public housing units, while less than 20% either disagree or strongly disagree to this problem as one of the major challenges of residents' satisfaction with public housing units. More so, respondents of the same percentage with the latter, also strongly agree or agree to poor structural design standard and policy issue as one of the major problems residents of public estates face, while less than 20% of residents either disagree or strongly disagree to the fact that poor structural design standard and policy issue is a major problem affecting residents level of satisfaction with government-provided public housing estates.

Table 10: Problems Affecting Residents' Satisfaction with Public Housing Estates

S/N	Indices	SA	A	UD	D	SD	Total
1	Physical and space related issues	21.0	44.0	7.0	26.0	2.0	100
2	Environmental issues (air and noise quality: pollution and proximity of house to market).	6.0	33.0	2.0	41.0	18.0	100
3	Quality of public water and proximity to house to fire services	41.0	18.0	1.0	34.0	6.0	100
4	Public Facilities and Functional related issues (parking space and power supply issues)	34.0	39.0	2.0	25.0	0.0	100
5	Social/Behavioural issues (Security and privacy level of the unit)	26.0	40.0	12.0	16.0	6.0	100
6	House maintenance issues (dilapidated drainage system with poor sewage system)	28.0	50.0	7.0	15.0	0.0	100
7	Structural design and policy issues	33.0	38.0	14.0	13.0	2.0	100

Note: Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D), Strongly Disagree (SD)

Source: Field work, 2017

Hence, it is important to note that majority of the residents agreed to most of the identified problems as affecting residents' satisfaction with public housing within the study area.

Relationship between Overall Satisfaction with Public Housing and the Attributing Factors of Quality Public Housing

Further investigations were conducted to establish statistical significant relationship between the overall residents' satisfaction with public housing and the attributing factors of quality public housing through the use of multiple regression model. This analytical technique makes use of dummy variable of the regression model to calibrate and transform the qualitative variables to quantitative variables in a dichotomous form. It was used to establish relationship between a binary outcome variable (overall residents' satisfaction with public housing) and a group of predictor's variable (attributing factors of quality public housing).

The dependent variable identified as the overall residents' satisfaction with public housing was measured by a mean score of perception questions through Likert scale, which was recalibrated into binary values as Satisfied/Strongly Satisfied (1) and Undecided/ Dissatisfied/Strongly Dissatisfied (0) (Table 11), while the independent variables also known as predictors were measured by the mean scores questions through dichotomous response of Satisfied/Strongly Satisfied (1) and Undecided/ Dissatisfied/Strongly Dissatisfied (0) (Table 11). Multiple regression model through the use of binary variables, is an extension of the regression model that allows the application of the model to run a qualitative variables measured on a nominal scale to establish the effect of two or more independent variables on the dependent variable.

Table 11: Analytical Variable Operational Description

S/N	Variable data source description	Variable label code	Variable operational definition
1	Overall resident satisfaction	ORS Dependent variable	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
2	Physical component	Phy [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
3	Environmental component	Env [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
4	Economic component	Eco [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
5	Social/behavioural component	Soc [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
6	Public facilities/functional component	Pff [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied
7	Timing component	Tim [Independent var.]	Dichotomous (dummy): 0 = Strongly dissatisfied/ Dissatisfied and Undecided; 1 = Satisfied and Strongly satisfied

Source: Field work, 2017

Table 12 shows the summary of multiple regression model. The result of the F-ratio of ANOVA in the multiple regression model shows 5.371 with the observed significant value as 0.000. While comparing the observed significant value with the table level of significance, it is clear that the observed significant value ($p=0.000$) is less than the table significant value (0.05). Hence, we accept the alternative hypothesis (H_1) and reject the null hypothesis (H_0). This implies that there is a relationship between the overall satisfaction with public housing and the attributing factors of residential satisfaction. Furthermore, the model through the adjusted R square results show 74% explained variation. That is the predictors (independent variables) were able to predict and explain the dependent variable of overall level of satisfaction with about 75% explained variation.

Table 12: Multiple Regression Result Showing Overall Residents' Satisfaction with Public Housing in Lagos Metropolis and the Attributing Factors of Quality Public Housing

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.301 ^a	.071	.074	1.24438		
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	49.905	6	8.318	5.371	.000 ^b
	Residual	500.159	323	1.548		
	Total	550.064	329			
a. Dependent Variable: Overall Resident's Satisfaction with Public Housing						
b. Predictors: (Constant), Timing Attributes, Social Behavioural Attributes, Economic Attributes, Physical Attributes, Functional Attributes, Environmental Attributes						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.418	.203		6.986	.000
	Physical Attributes	.059	.034	.104	1.752	.041
	Environmental Attributes	.131	.047	.172	2.798	.005
	Economic Attributes	-.046	.052	-.051	-.882	.378
	Social Behavioural Attribute	-.036	.039	-.049	-.912	.362
	Public facilities /Functional Attributes	.105	.076	.083	1.388	.166
	Timing Attributes	-.552	.141	-.213	-3.910	.000
a. Dependent Variable: Overall Residents' Satisfaction with Public Housing						

Source: Field work, 2017

The model also revealed that three attributing factors of (independent variables) out of the six predictors best predict the dependent variable. That is, physical (sig. p=.041), environmental (sig. p=.005) and timing (sig. p=.000) significantly determine and predict the overall residents' satisfaction (dependent variable). The findings depicts that a unit change or improvement in the attributing factors of quality housing units will definitely bring about overall residents' satisfaction with public housing units. By implication, the more the quality of environmental, social/behavioural, economic, physical, timing attributes of housing units, the higher the level of residents' satisfaction with public housing units.

Discussions

Public housing, no doubt, stimulates socio-economic growth, wellbeing and sustainability of residents and the communities in which they live. For this overall goal to be achieved, the provision, maintenance, and evaluation of public housing infrastructural facilities and services must remain continuously relevant for residents' satisfaction and community sustainability. Regrettably, public housing in Nigeria is continuously witnessing a drawback in achieving its goals, particularly in infrastructural provision of suitable, affordable and equitable shelter due to the systematic withdrawal of governments in the provision of adequate quantity and quality of housing units. Other issues of concern include quality infrastructural facilities; locational accessibility; cost of material acquisition; weak and poor implementation of National Housing Policy; corruption; wrong prioritization of stakeholders' responsibilities; difficult access to public housing incentive; and bureaucratic processes of transfer ownership rights among residents makes public housing a mirage (Galster and Hesser 1981; Galster 1985; Akinola 1997; Olatubara and Fatoye 2006; Jiboye 2010). These observed inadequacies make researchers (Galster and Hesser 1981; Akinola 1997; Oliveira and Heineck 1999; Olatubara and Fatoye 2006; Jiboye 2010; Lee and Park 2010; Mohit and Nazyddah 2011; Inah et al. 2014; Ibem et al. 2015) to continuously show interest in studying housing provision, issues and satisfaction over the years. Yet, poor attention is given to public housing and has led to undesirable conditions, which often triggers abandonment of some public housing units, dilapidated state of structures, sale and conversion of housing units, and sudden collapse of buildings which eventually lead to loss of lives and properties (Jiboye 2010; Inah et al. 2014; Ibem et al. 2015). It is based on these backdrops that assessing residents' satisfaction with public housing in Lagos, Nigeria, becomes important and necessary since there are efforts by past governments in the provision of public housing.

The level of residents' satisfaction with quality of public housing units and condition of space allocation, quality of services, public infrastructural facilities and social environment of sampled public housing are lower than expected, that is, unsatisfactory. These findings, however, negate the previous findings on public housing satisfaction and performance of public housing components, which has either been on marginally or relatively satisfied in studies like Galster and Hesser (1981); Bardo and Dökmeci (1992); Akinola (1997); Olatubara and Fatoye (2006); Jiboye (2010); Lee and Park (2010); Mohit and Nazyddah (2011); Mohit and Azim (2012); Oluwunmi et al. (2012); Inah et al. (2014); Ibem et al. (2015); and Ebiaride and Umeh (2015). This is not surprising as Nigeria government failed to manage adequately the existing public housing units, likewise failed to build large-scale public housing that can adequately accommodate the ever increasing population. Furthermore, the failure of private sector to contribute to housing demands as well as the weak housing policy implementation aggravate the level of satisfaction observed.

More so, the level of residents' satisfaction with attributing components of public housing varies among residents accordingly as residents are unsatisfied with physical, social/behavioural and timing features; but satisfied with economic related features and marginally satisfied with environmental and public facilities/functional components of the sampled public housing units. These findings corroborate the findings of (Oliveira and Heineck, 1999; Mohit and Nazyddah, 2011; Mohit and Azim, 2012; Oluwunmi et al., 2012; Inah et al., 2014; Ebiaride and Umeh, 2015), as they observed that governments, especially that of sub-Saharan African built houses that are of poor physical and timing features and failed to meet the

expectations of residents; but negates the findings of Jiboye (2010) and Ibem et al. (2015), that reveal high levels of satisfaction for physical features and housing environment, but with lower satisfaction level for management of housing unit. However, the overall contribution of the six (6) attributing components of public housing statistically influence overall residents' satisfaction and only three out of the predictors (physical, environmental and timing) best predicts the model. By implication, the more the quality of environmental, social/behavioural, economic, physical, timing attributes of housing units, the higher the level of residents' satisfaction with public housing units.

Conclusion and Recommendations

This study examined degree of residents' satisfaction with public housing provision in Lagos, Nigeria, with the view to determining the level of occupants satisfaction with quality and condition of housing units and space allocation, quality of services, public facilities and social environment; to examine the statistical relationship between overall residents' satisfaction with the quality of public housing and the attributing components of public housing units in order to determine the most important component influencing residential satisfaction; as well as to identify the major challenges of public housing estates in Lagos, Nigeria, with aim of recommending possible ameliorating strategies. It is not an overstatement to argue that the findings of this study reveal that majority of the residents of the sampled public housing estates within Lagos, Nigeria, were absolutely dissatisfied with the provision of space allocation; quality of services and public facilities within selected housing units and area, as well as the physical, social/behavioural, public facilities/functional and timing components of quality public housing. Findings also revealed that poor unit spacing and related issues; poor structural design and maintenance policy; absence of quality water and fire service station; unstable power supply and poor parking lot; insecurity and high crime rate; and poor drainage and sewage systems are major problems affecting residents' satisfaction of public housing in Lagos, Nigeria. However, findings emphasized the need on the part of government to do more in provision of quality housing to achieve the primary and overall aim of providing quality shelter at affordable cost. Furthermore, this study concludes that mere provision of housing does not indicate or guarantee success of housing development and sustainability, but meeting the actual housing needs and preferences of the residents' satisfactions with lower cost and standardized structural quality will determine and assure government and other stakeholders of adequate, affordable and sustainable shelter for all citizens.

Based on the research findings, the study thus recommends that;

- The physical attributes of the public housing such as size of room, electrical fixtures materials, toilet and bathroom spaces and number of habitable rooms should commensurate with standard measurement, and should be improved upon in subsequent public housing estate projects. Also, maintenance scheme for the existing ones is desirable to improve residents' satisfaction.
- The federal and states governments should pay attention to rehabilitation of roads and drainage systems within public housing estates, as these facilities help in meeting the day-to-day activities of the residents. The drainage system as well as sewage disposal and management system of the housing units should be thoroughly looked into, as these contribute to all kinds of pollution within the housing estates. Relevant government agencies saddled with the responsibilities of ensuring well-managed drainage systems should intensify efforts on monitoring. Also, independent agencies

and public participation should be encouraged and engaged for sustainable housing maintenance towards creating a healthy environment for its dwellers.

- The federal and state governments should formulate policy that will see to the adequate maintenance of structures and facilities within the public housing estates. The essence of the policy would be to ensure that all house owners frequently rehabilitate and maintain their house(s). This can be done through annual inspection and penalties or sanction imposed on poorly maintained housing.
- Training should be organized to educate the stakeholders in building construction, comprising allied professionals and artisans on the need to adhere to building codes and standards towards achieving sustainable public housing that bring satisfaction to residents.
- The Federal Housing Authority and the Lagos State Development and Property Corporation should be empowered to prosecute the owner-occupiers that violate the rules that guides residency within the public housing estates. The enforcement of the rules should be devoid of any favouritism.
- Sub-standard building construction products should not be allowed into the market either through local manufacturer or importation. In order to achieve this, the Standard Organization of Nigeria should live up to expectations as enshrined in Nigeria law.
- There should be revitalization of housing finance institutions. And through general infusion of funds into housing finance system, there would be improved lending rather than self-reliant on savings.

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