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Research Article

Evaluation of Residents' Satisfaction with Building Features in Some Public Housing Estates in Benin City, Nigeria

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Abstract

Residential and neighbourhood satisfaction are important indicators of housing quality and conditions which affect individual's quality of life. This study which was conducted in 2018 evaluated the level of satisfaction in terms building features in six completed and occupied housing estates in Benin city, namely the federal owned estate at Ikpoba hill, and state owned housing estates located at Ugbowo, Oregbeni, Oluku, Evboriaria and Iyekogba. Data were collected from 1000 heads of households and analysed using descriptive statistical tools, categorical regression and factor analyses. The findings showed that the building features significantly affect the level of resident's satisfaction. The RSI scores for the relatively old estates; EDPA, Ikpoba hill and Oregbeni and are on the dissatisfied region (RSI: 1.1-2.00) while for the relatively newer ones; Andrew Wilson and Oluku, the RSI scores are on the satisfied level (RSI=. 3.1-4.00) with building features features. The study recommends that the design for future low cost housing should consider the family sizes of average Nigerian family, kitchen design that make use of cooking gas, kerosene and outdoor kitchen possible. The paper concludes that the buildings should maintain an acceptable quality standard in terms of functional spaces, structural stability and aesthetics as this will result to resident's housing satisfaction.

Keywords: *Buildings Features, Residential, Housing, Satisfaction, and Benin City*

1. Introduction

Housing is a strategic asset to mankind irrespective of socio-economic status, colour, or creed (Chukwujeku, 2005). This is because housing is one of the three basic necessities of life; the others are food and clothing. Man needs housing, a key pillar in Marslow's hierarchy of needs, for protection against the elements of weather, human vices, and predators. A house provides the base from which a family life is organized and structured.

The United Nations Centre for Human Settlement UNCHS (2001) notes that access to decent housing is a basic right that should be made available to all individuals. Consequently, the right to decent housing was recognized in 1948 in the Universal Declaration of Human Rights and affirmed at the Vancouver Declaration on Human Settlement in 1976. The National Housing Policy (NHP, 2006), which provides the direction to housing development in Nigeria, emphasizes the human settlement for better quality of life, national integration, and unity. Its ultimate goal is to ensure that all Nigerians own or have access to adequate, safe and healthy housing accommodation at affordable cost particularly for the low-and-medium-income groups in the society.

Globally more than one billion people still lack adequate housing and are living in unacceptable conditions of poverty. The vast majority of the people live in developing countries such as Nigeria with rapidly growing populations. In this vein, research has shown that the realization of the right to decent and adequate housing is difficult to attain; and it is estimated that one-fifth of the population of the world does not have adequate housing and majority of these are found in the developing world (UNCHS, 2001). Cheserek and Opata (2011) argued that it is difficult to have uniform criteria for determining adequate housing throughout the world but some general norms are legal security of tenure, availability of services and infrastructure, affordability, habitability, accessibility, location, and cultural adequacy.

Residential and neighbourhood satisfaction are important indicators of housing quality and condition, which affect the individual's quality of life. In order to enhance the quality of life, promote greater community participation, and social integration of the population, it is necessary to provide adequate, quality housing and well organized urban services (Dimuna, 2017).

Residents' satisfaction with their housing is especially important because of the role that housing plays in the lives of individuals. Many people, particularly wives, children and the elderly spend more time in the home than in any other single space, and so, the nature of the space is a significant determinant of personal and family satisfaction.

Studies have shown that the assessment of housing needs by various government in Nigeria has concentrated on the number of dwelling units needed, rather than on the importance of quality, users' tastes, and satisfaction (Olotuah, 1997; Olotuah & Ajayi 2008; Ajanlekoko, 2001; Mabogunje, 2003). The obvious aftermath is the failure to meet the tastes, and satisfaction of buyers or would-be residents. Therefore, there is the need to evaluate the selected housing estates in Benin City.

Evaluation is a systematic way of learning from experience so as to improve current activities and promote further learning (Egunjobi 2000). It is a process which attempts to determine as systematically and objectively as possible the relevance, effectiveness, and impact of activities. In other words, evaluation establishes criteria for defining success and assessing the extent to which these criteria have been achieved by the project (venture). Evaluation can be quantitative, in which case numerical values are estimated for the net project impacts or it can be qualitative, in which the purpose is to understand the way in which the project has affected and is being affected by the populations who have been exposed to it. A survey of related literature on housing shows that one of the broad areas of its study is housing evaluation (Egunjobi, 2000). Housing evaluation is an ex-post exercise, which deals with how a given society has gone in attaining its housing goals and objectives, how successful set programmes have been in attaining set goals and general assessment of housing and environment quality.

This study examines public housing in Benin City Nigeria. public sector intervention in housing started in Nigeria during the colonial era, where it centred on providing living quarters for expatriates and for institutions like the police, railways and similar bodies (Ndubueze, 2007; Olotuah & Taiwo 2013). Active and direct participation in providing housing by the Federal Government started in the 1970s. Consequently, the following public housing estates were provided by both the State and Federal Governments in Benin City. They are:

(i) FHA Housing Estate, Ikpoba Hill
(ii) Oluku Housing Estate
(iii) Oregbeni Housing Estate
(iv) EDPA Housing Estate
(v) Andrew Wilson Housing Estate, Evboriaria, and
(vi) Iyekogba Housing Estate.

The adequacy and quality of building features in these housing estates and the perception of residents in terms of housing satisfaction are examined and evaluated in this paper.

2. The Study Area

The study area is Benin City, the capital of Edo State of Nigeria. The city comprises three local government areas, namely Oredo, Egor, and Ikpoba Okha, which make up the Benin Metropolis. Benin City is one of the major urban centres in Nigeria. It is a pre-colonial city and its urban history

dates back to the 7th century B.C. Urbanization has stretched the city towards Oluku in Ovia North East and Eyaen in Uhumwunde Local Government Areas. This study is concerned with some public housing estates such as Ikpoba Hill, Ugbowo, Oregbeni, Iguosa, Andrew Wilson (Evboriaria) and Iyekogba Housing Estates.

Geographically, Benin City lies within the latitude $6^{o}20^{1}$ and $6^{o}31^{1}$ North and longitude $5^{o}32^{1}$ and $5^{o}41^{1}$ East of the Greenwich Meridian. Benin City has grown in landmass from an area size of 949 hectares in 1952, to 2217.6 hectares in 1963 census, to 16800.0 hectares in 1991 census and 19,794 hectares in 2006 census (National Population Census, NPC, 2006.)

The population of Benin City was given as 53,753 in 1952 census and 100,693 by 1963 census. However, the population of the city in the 1991 census was given as 780,976 persons. But using a population growth of 3.1%; the population of Benin City in 2005 was estimated at 1,161,117.9; but the 2006 census recorded the population of the city to be 1,346,703. Using a population growth of 3.1%; the population of Benin City in 2015 was estimated at 1,719,258.4. This population growth, no doubt reflects a dynamic urban centre with lots of pressure on housing provisions and invariably housing quality and standard.

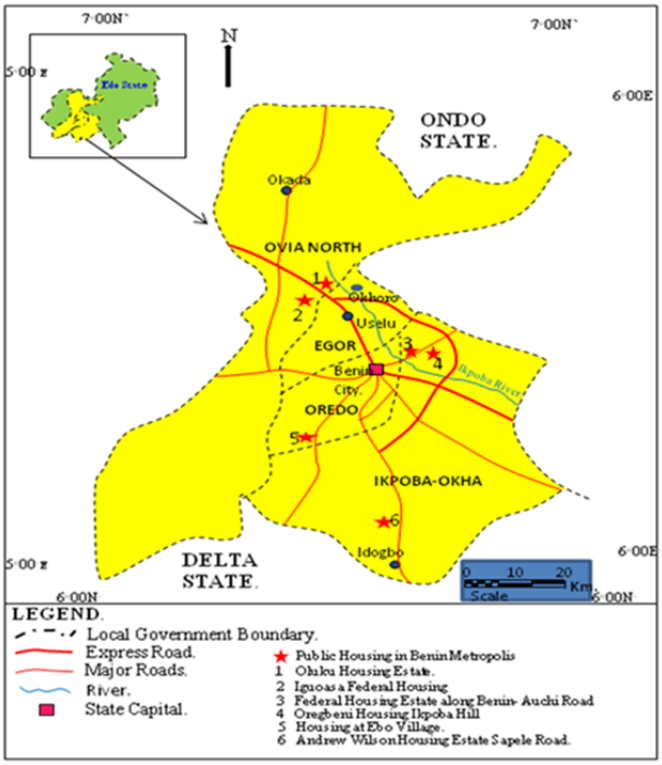

Figure: Location of Public Housing in Benin City
Source: Cartography Studio, A. A. U. Ekpoma, 2014

3. Conceptual Framework

Housing satisfaction is a concept with assigned prominent indicators used by many researchers and analysts as an evaluation measure of private and public sector building performance (Olivera & Heineek 1991). It is also an indicator of residential mobility and an evaluation of occupants' (residents) perception of their residential environment and improvement in a new project.

Hashim (2003) asserted that residential satisfaction include both housing satisfaction and

neighbourhood satisfaction. From the above, two ideas are clear. While housing satisfaction is concerned with residents/dwellers satisfaction with a particular dwelling (housing) unit as a distinct physical entity, residential satisfaction is concerned with residents' satisfaction with both the dwelling (housing) unit as well as satisfaction with the surrounding environment or neighbourhood. It means that housing satisfaction is of concern at a micro level of individual dwelling units while residential satisfaction is of concern at macro level. Therefore, residential satisfaction includes satisfaction with physical, spatial, and social aspects of residential environment. Despite the variation in meaning, Ogu (2002) used the two ideas interchangeably as to mean the same, suggesting that practically, both convey the same meaning. This study is in tandem with this understanding.

Ukoha and Beamish (1997) identified five (5) specific features of housing norms. These are: satisfaction towards structural types e.g single family, multi family, satisfaction towards building features such as functional spaces e.g living room, bedrooms, satisfaction towards housing conditions e.g quality of walls, quality of construction, and satisfaction towards neighbourhood facilities e.g schools, hospitals, commercial centres, satisfaction towards public housing management e.g garbage collection, system enforcement of rules. Ukoha & Beamish (1997) assert that satisfaction with the above listed building norms gives overall housing satisfaction. The relative satisfaction index is used as a barometer for measuring satisfaction. It is an index for determining the level of contentment with housing.

Kaitilla (1993) has shown that owner-occupiers have higher satisfaction than renters even when their housing units were built of similar quality. This could be attributed to the sense of "self gratification" which the owner-occupier derives from homeownership. This "self gratification" invariably gives the residents some psychological pride and hence satisfaction with their house units. Similarly, Elsinga and Hockstra (2005) studied eight European countries and showed that "homeowners in seven out of the eight countries were more satisfied with their housing conditions than tenants, and in one country homeowners and tenants were in agreement with the level of residential satisfaction.

Home owners have high satisfaction level towards housing compared to tenants, and ownership gives a higher satisfaction to owners. Hence, it is important to investigate housing satisfaction among occupants. It is understood that satisfied tenancy can lead to full occupancy with less or low cost of tenant procurement, reduction in complaints against the management, and a decrease in rent arrears. These factors which determine residents' satisfaction are essential inputs in monitoring the success of housing policies.

4. Methodology

Data was obtained from both primary and secondary sources. The primary sources of data were from observations, focus group discussions, and oral interviews, administration of structured questionnaires made during visits to the residents of Public Housing Estates. The study adopted the multiple case studies strategy in developing an understanding of the differences among the housing estates in the study areas as suggested by Yin (2008). The study examined six completed and occupied housing estates in Benin City, namely the Federal Housing Estates at Ikpoba Hill and Iguosa, and state owned housing estates located at Ugbowo, Oregbeni, Oluku, Andrew Wilson-Evboriaria, and Iyekogba. The fieldwork data were generated from structured and semi-structured questionnaires administered to the residents and other stakeholders. For this study, comprehensive data on residents' levels of satisfaction with public housing estate was required. Consequently, a field survey was carried out to obtain primary data. The data was obtained from visits to the six estates used as case study for the research. Basically, data collection was done using the random sampling technique. A total of 1200 copies of a questionnaire were administered across the six (6) estates covered. However, the administration of the questionnaire was based on the number of housing units in each estate. All housing units in the estates covered were numbered and the housing units falling on the odd numbers were selected. A combination of statistical tools was used in the analysis of the data. A regression analysis was used to examine the determinant of residents' housing satisfaction and test the research hypothesis

5. Presentation and Analysis of Result

Table 1 shows the breakdown of the demographic information of respondents. The gender distribution shows the number of males and females in the estates. Specifically, for Iyekogba (Male=66%, Female=34%), Ikpoba hill (Male=60%, female=40%), for Andrew Wilson (male=69%, female=31%, for EDPA (male=72%, female=28%), for Oregbeni (male=55.50%, female=44.50%) and for Oluku (male=69%, female=31%). The table 1 also shows the age distribution for residents in the estates. As observed, the number of resident less than 30 years have the lowest representation across the following estates, Iyekogba (11%), Ikpoba hill (13%), Andrew Wilson (3%), for EDPA (15.50%), Oregbeni (8%) and for Oluku (3%). Those between 31 and 45 years are more in Oluku estate (46%) and Andrew Wilson (46%). Residents between ages 60 and above appear to be more in Oregbeni (42%) and followed by Ugbowo (24%). The educational qualification of resident in the estates reveals that residents with 1st degree are highest for EDPA (38%). Residents with SSCE appear to be highest for Oregbeni (52%), followed by Ikpoba-hill (50%) incidentally, these estates are also part of the oldest. Residents with post-graduate degree appear to be highest for EDPA (32%). Also, data on the type of occupancy of residents showed that owner-occupier for Iyekogba (61%), Ikpoba hill (78%), Andrew Wilson (68%), for EDPA (66%), Oregbeni (73%) and for Oluku (68%) while for tenant-occupier the statistics are; Iyekogba (39%), Ikpoba hill (22%), Andrew Wilson (32%), for EDPA (34%), Oregbeni (27%) and for Oluku (32%). It is important to note however that though most of the housing units were allotted on an owner-occupier basis, most of the original owners have rented or leased these units to other individuals.

Table 1: Respondents' socio-economic characteristics

Estate	Iyekogba	Ikpoba hill	Andrew Wilson	EDPA Ugbowo	Oregbeni	Oluku
	n = 100	n = 200	n = 100	n = 200	n = 200	n=200
(a). Gender						
Male	66	120	69	144	111	138
	66%	60%	69%	72%	55.50%	69%
Female	34	80	31	56	89	62
	34%	40%	31%	28%	44.50%	31%
(b). Age						
<30	11	26	3	31	16	6
	11%	13%	3%	15.50%	8%	3%
31-45	30	54	46	49	50	92
	30%	27%	46%	24.50%	25%	46%
46-59	40	84	39	72	50	78
	40%	42%	39%	36%	25%	39%
60 –above	19	36	12	48	84	24
	19%	18%	12%	24%	42%	12%
(c) Education						
SSCE	24	100	19	28	104	38
	24%	50%	19%	14%	52%	19%
OND/NCE	36	61	31	32	69	62
	36%	30.50%	31%	16%	34.50%	31%
1st degree	33	30	36.5	76	18	73
	33%	15%	36.5%	38%	9%	36.5
Post-graduate	7	9	13.5	64	9	27
	7%	4.50%	13.5%	32%	4.50%	13.50%
(f). Type of occupancy						
Owner occupier	61	156	68	132	146	136
	61%	78%	68%	66%	73%	68%
Tenant Occupier	39	44	32	68	54	64
	39%	22%	32%	34%	27%	32%

Source: Field work (2018)

In evaluating the level of satisfaction of residents using the six distinct estates, the relative satisfaction index scores are observed as shown in table 2. For building features dimension the result showed that the RSI scores for the relatively old estates; Iyekogba, Ikpoba hill and Oregbeni and are on the fairly satisfied region while for the relatively newer ones; Andrew Wilson and Oluku, the RSI scores are on the satisfied level. Specifically, RSI scores for Toilet condition are 3.351, 3.171 and 3.481 for Ikpoba hill, EDPA, Ugbowo and Oregbeni respectively while for Iyekogba, Andrew Wilson and Oluku the RSI scores are 4.442, 4.031 and 4.011 respectively. For Ventilation (VT), the RSI scores are 3.392, 3.459 and 3.281 for Iyekogba, Ikpoba hill and Oregbeni respectively while for Iyekogba, Andrew Wilson and Oluku the RSI scores are 4.291, 4.621 and 4.192. For Bathroom size (BS) the RSI scores are 3.617, 3.783 and 3.381 for Ikpoba hill, EDPA and Oregbeni respectively while for Iyekogba, Andrew Wilson and Oluku the RSI scores are 4.391, 4.117 and 4.405. For Adequacy of room (AR), the RSI scores are 3.431, 3.291 and 3.092 respectively while for Iyekogba, Andrew Wilson and Oluku the RSI scores are 4.029, 4.282 and 4.271. The relatively higher satisfaction by residents of the newer estates on the basis of the architectural components examined above may suggest that the architectural design is an improvement on those done for the older ones and hence progressively better. However, for Room size (RM), the RSI scores are all on the satisfied region as the room size as depicted by the scores of 4.381, 4.291 and 4.678 for Ikpoba hill, EDPA and Oregbeni respectively while for Iyekogba, Andrew Wilson and Oluku the RSI scores are 4.391, 4..301 and 4.090.

Table 2: Satisfaction index scores of housing variables across the different categories

	Iyekogba n = 100	Ikpoba hill n = 200	Andrew wilson n = 100	EDPA Ugbowo n = 200	Oregbeni n = 200	Oluku n = 200
Estate Architectural Design						
Toilet condition (TC)	4.442	3.351	4.031	3.171	3..481	4.011
Ventilation (VT)	4.291	3.392	4.621	3.459	3.281	4.192
Bathroom size (BS)	4.391	3.617	4.117	3.783	3.381	4.405
Kitchen Size (KS)	4.111	3.412	4.282	3.114	3.291	4.27
Adequacy of room (AR)	4.029	3.431	4.197	3.291	3.092	4.301
Room size (RM)	4.391	4.381	4.301	4.291	4.678	4.090
Suitability of foundation (SF)	4.835	4.930	4.023	4.038	4.367	4.029
Size of the living room (SLR)	4.116	3.202	4.166	3.536	3.821	4.028

Source: Field work (2018)

Table 3 shows the Kruskal-Wallis test used to test for differences between more than two independent groups. This test is the non-parametric alternative of the Analysis of Variance (ANOVA) for ordinal variables and it converts the scores on the continuous variable to ranks across the groups. The statistics is used to examine if significant differences exist in satisfaction levels across the estates. The result shows that significant differences do not exist across the estates.

Table 3: Kruskal-Wallis Test of Differences in Resident's Satisfaction

Kruskal Wallis Test	6.123
Df	4
Asymp. Sig.	0.256

Source: SPSS 20.0

Table 4 shows the relative satisfaction index (RSI) and descriptive statistics for the items. As observed, the relative satisfaction index (RSI) for "Estate Design" indicates the following; Toilet condition (TC) is 2.8621, Ventilation (VT) is 1.835, Bathroom size (BS) is 2.4164, Kitchen Size (KS) is 2.657, Adequacy of room (AR) is 2.81, Room size (RM) is 2.817, Suitability of foundation (SF) is 2.9257, Size of the living room and (SLR) is 2.8515. Again from the statistics, the RSI index for

the variables under estate design all fall between the unsatisfied regions [2-2.99] except for VT which falls under the very unsatisfied region. Thus RSI average suggests that the estate occupants are unsatisfied with the Estate design. The MAS values for the variables are as follows; Toilet condition (TC) =1.832, Ventilation (VT) is 3.451, Bathroom size (BS) is 0.03859, Adequacy of room (AR) = 3.85 and Room size (RM) is 1.75. The value gives an indication of the average clustering of the responses to each statement and as observed, none of the responses suggest that respondents are satisfied with the design of the estates.

Table 4. Aggregate Relative satisfaction index scores and Descriptive statistics

	RSI	MS Mean Score	Standard Error	Standard deviaton	Normality Test	Cronbach Alpha
Satisfaction with Estate Building Features						0.970
Toilet condition (TC)	2.8621	1.832	0.03116	0.98526	36.63	
Ventilation (VT)	1.8355	3.451	0.03073	0.97188	57.564	
Bathroom size (BS)	2.4164	2.15	0.03859	1.22024	73.324	
Kitchen Size (KS)	2.6578	1.992	0.03402	1.07568	88.306	
Adequacy of room (AR)	2.817	3.85	0.01969	0.62281	100	
Room size (RM)	2.817	1.75	0.03238	1.02399	100	
Suitability of foundation (SF)	2.9257	1.806	0.03349	1.059	25.779	
Size of the living room (SLR)	2.8515	1.924	0.03129	0.98955	55.876	

Source: Field survey (2018)

Table 5 shows the factor analysis results. Factor analysis is a key multi-variate analytical technique when dealing with data especially of this sort. The technique provides a basis for investigation if the variables properly define the underlying construct. The technique is important as dimension reduction is one of the major tasks for multivariate analysis (Maitra and Yan, 2008). Factor loadings and % variance of each item under Estate Building Feature are as follows; Toilet condition (TC) is {.966, 0.321}, Ventilation (VT) is {.969, 9.169}, Bathroom size (BS) is {.958, 2.183}, Kitchen Size (KS) is {.967, 1.458}, Adequacy of room (AR) is {.601, .769}, Room size (RM) is {.970, .672}, Suitability of foundation (SF) is {.959, 85.229 }, Size of the living room{.934,.198). From the analysis of the statistics, all items load significantly into the factor as their loading values are greater than 0.5 and this suggest that all items describe quite strongly. However, suitability of foundation appears to account for the highest % variance and this suggest that this factor is considered very highly in terms of the building features.

Table 5: Factor Analysis

	Factor loading	Eigen value	% variance	Cum%	KMO	Bartlett Sphericity
Estate Building Features					0.985	0.843
Suitability of foundation (SF)	.959	6.818	85.229	85.229		
Ventilation (VT)	.969	.734	9.169	94.398		
Bathroom size (BS)	.958	.175	2.183	96.581		
Kitchen Size (KS)	.967	.117	1.458	98.039		
Adequacy of room (AR)	.601	.062	.769	98.808		
Room size (RM)	.970	.054	.672	99.481		
Toilet condition (TC)	.966	.026	.321	99.802		
Size of the living room	.934	.016	.198	100.000		
Quality of water (QW)	2.6578	0.458	0.505	5.616		

Source: Field survey (2018)

The Categorical Regression Analysis (CATREG) shown in table 6 was used to investigate if significant relationship exists between the building features of the estate and residents' satisfaction

levels. As observed, the coefficient of determination (R^2) is 0.510 %, Adj R^2 is 0.508%. These values suggest that the regression model explains about 51.1% of residual variations in Resident satisfaction with an adjusted value of 50.8% after controlling for degrees of freedom. The coefficient of estate building features is 0.893 which shows that estate building features has a positive effect on residents satisfaction and this is significant at 5% (p=0.003) which implies that the building features of the estate has a strong influence on satisfaction levels. Thus better designed estates results in higher level of residents' satisfaction, here the study reject (H_{01}) that there is no significant relationship between building features of the estates and Residents' satisfaction. This finding is in tandem with Ukoha and Beamish (1997).

Table 6. Categorical Regression between RSI and Estate Building features

Multiple R		R Square	Adjusted R Square	
0.715		0.511	0.508	
Independent variable	Coefficient	Standard error	Df	Sig
Estate building features	0.893	0.356	2	0.002

Source: Field study, 2018. Dependent Variable: RSI, Predictor: Estate building features.

6. Conclusion and Recommendations

The study showed that building features in the estates were found to be a significant factor. Components such as size of rooms, adequacy of lighting and ventilation, circulation and functionality of spaces influence residents' housing satisfaction. These are very important components; as the resultant effect of dissatisfaction on residents could be stress, poor health, delinquency, and pathological conditions. Government policy should specify space standards and ensure that they are complied with. Also, building features were very significant in determining residents' housing satisfaction. Government policy should specify standard building features of dwelling units. The architectural designs and planning processes of many public housing estates seem not to take into cognisance the need for adequate spaces, proper ventilation, and number of rooms that would adequately meet residents' socio-economic status and family sizes that are in tandem with their cultural characteristics.

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