

*Full Length Research Paper*

# The correlates of public housing satisfaction in Lagos, Nigeria

Adesoji David Jiboye

Department of Architecture, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.  
E-mail: [adconsul@yahoo.com](mailto:adconsul@yahoo.com). Tel: 2348032323637.

Accepted 12 October, 2019

This study examined the correlates of public housing satisfaction in Lagos, Nigeria, specifically to identify relevant factors which are external to the dwelling but combine with those of the dwelling to provide satisfactory housing in Nigeria. For this purpose, the study employed a conceptual model which identified three housing components consisting of the environment, dwelling and management subsystems. For the survey, 1,232 (10%) households out of a total of 12,323 households in six randomly selected public housing estates in Lagos were systematically sampled. The information obtained from 1,022 questionnaires retrieved from the respondents - indicating their levels of satisfaction with their housing were analyzed using correlation, multiple regression and analysis of variance (ANOVA). The significant levels of association were determined at either 0.01 or 0.05 probability level. The results indicated that tenants' satisfaction level with both the environment and dwelling components of housing was above average, while the satisfaction level with the management component was below average. The results showed significant correlations between tenants' satisfaction levels and the environmental, dwelling and management components of housing ( $p < 0.01$ ). The need to consider relevant factors of the environment, dwelling and management in housing design and development is highlighted.

**Key words:** Evaluation, correlates, public housing, satisfaction, Nigeria.

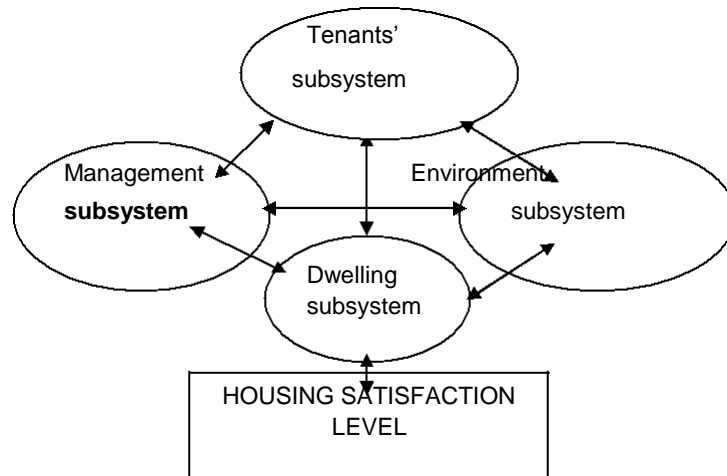
## INTRODUCTION

Housing has been universally acknowledged as one of the most essential necessities of human life and is a major economic asset in every nation. Adequate housing provides the foundation for stable communities and social inclusion (Oladapo, 2006). Konadu-Agyemanyg et al. (1994) have established a strong correlation between housing, good health, productivity and socio-economic development. Also, Gilbertson et al. (2008) have observed that there is a significant association between housing conditions and physical and mental health of an individual. People's right to shelter is thus a basic one and the provision of decent housing to all requiring them should be the hallmark of every civilized society and one of the criteria for gauging development.

Furthermore, So and Leung (2004) have also established a significant correlation between the quality of life and the comfort, convenience and visual acceptability of the house. Therefore the significance of adequate housing to the social well-being of the people in any society cannot

be overemphasized. However, the provision of adequate housing in Nigeria and other developing nations alike still remains one of the most intractable challenges facing human and national development. Pre-vious attempts by all stakeholders, including government agencies, planners and developers to provide necessary recipe for solving the housing problem have yielded little or no success. Thus, for the past few decades, access to adequate housing has remained one of the most unattainable expectations of the majority of urban dwellers in Nigeria.

Since housing is no doubt an important national investment and a right of every individual, the ultimate aim of any housing program is to improve its adequacy in order to satisfy the needs of its occupants. Nevertheless, the housing situation in Nigeria is characterized by some inadequacies, which are qualitative and quantitative in nature (NHP, 1991; Oladapo, 2006). While the quantitative housing problem could be solved by increasing the number of existing stock, the qualitative inadequacies are enormous and complex. In fact, Ozdemir (2002) cited in



**Figure 1:** Systems approach to user's housing satisfaction  
Source: Jiboye (2008).

Oladapo, (2006) considered the qualitative problem as the major challenge of urban housing in Nigeria. Past researches have observed that the failure of many public and private housing projects was due to the lack of adequate thought and consideration given to adequate housing, as relevant factors or parameters which combine to determine tenants housing satisfaction were ignored (Onibokun, 1973; Ebong, 1983). The criteria guiding design and development have been based on developers' standard rather than users' preferences and needs. Therefore, the tasks confronting architects, planners, policy makers and all those concerned with providing housing, are to be able to identify the factors which determine adequate and satisfactory housing, and use them as inputs to housing design and development.

However, most of the previous studies in this direction have been cursory and unrelated in scope and application. Therefore, by focusing on public housing system in Lagos, Nigeria, this study attempts to bridge existing gap thus created. The objective of the study is to identify and examine interrelated factors which influence tenants' satisfaction with their dwellings. This study is of significance to planners and housing authorities in housing program design and development.

### Theoretical issues

Housing is more than shelter; simply providing housing units does not measure the success of any housing projects (Ukoha and Beamish, 1997). The assumption that the physical and structural efficiency of a dwelling is a good measure of its adequacy and habitability is narrow and misleading. However, the issue of housing or residential satisfaction has long been viewed from several

perspectives and essentially has been the subject of a number of researches (Fleury-Bahi et al., 2008). Conceptually, housing satisfaction according to Djebarni and Al-Abed (2000), refers to the degree of contentment experienced by an individual or family with regard to the current housing situation. It is an index for determining the level of contentment with housing and refers to an entire continuum of satisfaction.

Onibokun (1973) and Oladapo (2006) have observed that a dwelling that is adequate from the physical or design point of view may not necessarily be adequate or satisfactory from the users' point of view. Therefore, the concept of habitable and satisfactory house is related to the physical, architectural and engineering components of the house, as well as to the social, behavioral, cultural and personal characteristics of the inhabitants, the components of the environment of which the house is a part; and the nature of the institutional arrangements under which the house is managed. On this premise, Onibokun, referred to the concept as the tenant - dwelling - environment and management interaction system. In other words, assessing housing satisfaction would mean evaluating the level of satisfaction of the tenant, living at a particular housing unit located in the particular community or environment, and managed under a type of institutional management. It is based on this conceptual framework that a satisfaction model would be developed (Figure 1).

The model depicts a system which consists of four 'interacting subsystem or components of the tenant, dwelling, environment and management which produces a housing situation which the tenant's component judges as adequate and satisfactory according to his housing needs and expectations. In explaining this relationship, the tenants' subsystem is at the heart of the model, and

acts as the recipient of all the feedback from the other subsystem. The dwelling subsystem is the housing unit which forms part of an environment where the unit is located. There is also the management subsystem or component of the satisfaction model. This subsystem comprises of the entire institutional arrangement under which public housing is administered.

However, studies on human perception and behaviors have shown that the interaction and interdependence of the components of a subsystem act as a stimulus to an individual who forms a cognitive image or a mental picture of oneself and each of the other components in the system (Lynch, 1960). Such a cognitive image formed by the tenant through the perception process becomes the basis of one's attitude and feelings towards each of the components and the totality of these feelings is the basis on which one's housing satisfaction depends (Onibokun, cited in Jiboye, 2008). Measuring housing satisfaction therefore, is very important because an understanding of the factors that determine tenants' satisfaction levels is fundamental to the formulation of any successful housing policy (Lu, 1999).

Several approaches and criteria which are socio-economic, cultural and physical in nature have been identified and adopted to evaluate housing development programs. However, there are two general approaches to empirical research in residential satisfaction. One is to view residential satisfaction as a criterion of quality of life, while the other is to view it as a predictor of a variety of behaviours (Galster and Hesser, 1981; Amerigo and Aragones, 1990; Potter and Cantarero, 2006). An assessment of the socio-economic and cultural criteria in housing does not fall within the scope of this study; as the present research emphasizes the former approach which focuses on factors that are external to the dwellings but combine with those of the dwellings to determine housing satisfaction. A summary of criteria identified in the studies by Onibokun (1974), Western et al. (1974), KelleKcD and Bekkoz (2005), Oladapo (2006) and others shows that tenants satisfaction could be measured by housing attributes such as the function and physical adequacy of the dwelling, quality and adequacy of social and commu-nity facilities, the nature and effectiveness of official policies and personnel attitudes, convenience for living, the condition and maintenance of the home environment, maintenance of the dwelling facilities, privacy, territoriality and neighborhood security among many others. These criteria and such others are considered for evaluation in this study.

However, Anantharajan (1983) had observed that the grouping pattern of these variables and housing attributes could be modified as the case may be to suit the peculiarities of evaluation. Therefore, evaluating housing satisfaction using these criteria which are related to the factors of the environment, dwelling and management components permits a comprehensive survey of the satisfaction of tenants with the housing components.

While evaluating housing programs, reliance on perfor-

mance of its various components should be of greater importance than for their mere physical existence. In this direction, users' satisfaction could be a useful indicator to measure the performance of housing development by relevant stakeholders in housing development.

## THE STUDY AREA

Lagos is located on the south-western coast of Nigeria, between latitude 6° and 7° North of the equator, and longitude 3° and 4° east of the Greenwich Meridian (Figure 2). The city has a total area of 1,090 km<sup>2</sup> where about 208 km<sup>2</sup> are covered by water and mangrove swamps. It became the first federal capital following the attainment of Nigeria's independence in 1960. The metropolitan area is an urban complex consisting of people from different ethnic, socio-cultural and economic backgrounds.

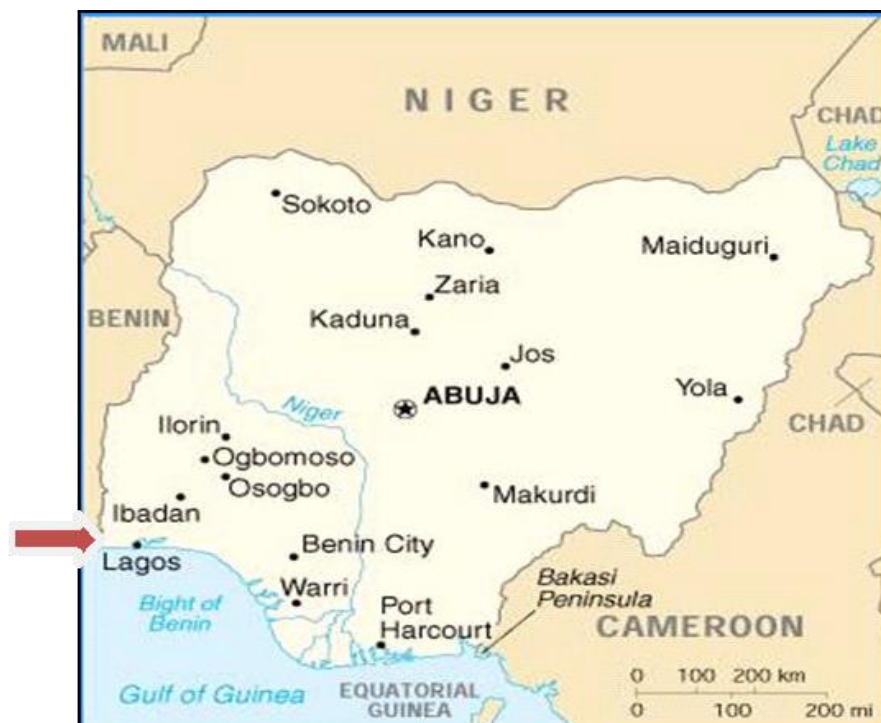
Since the shift of administrative seat to Abuja, Lagos has remained the major seaport and commercial nerve center of Nigeria, thus necessitating considerable expansion (both spatially and demographically) over the years. Up to the end of 18<sup>th</sup> century, the city had a very sizeable population of about 5,000 people. However, this has multiplied exceedingly over the years (Mabogunje, 1968). The current official population figure released by the national population commission of Nigeria is 9 million (NPC, 2006).

Official intervention in housing provision in Nigeria began when the Lagos Executive Development Board (LEDB) was created in 1928 to tackle the housing-related bubonic plague at the time. This was done to get rid of the filth as well as the unhealthy living and housing condition that existed in Lagos. Since then government's direct involvement in housing development and delivery has been on the increase (Diogun, 1989; Mbali and Okoli, 2002).

As part of their efforts to reduce the problem of housing shortage in Lagos, the Federal and Lagos state governments, also embarked on housing development for different categories of Nigerians residing within the Metropolitan Area. However, the direct impact of the Federal government was not felt in housing provision for the masses in Lagos until 1973 when it established the Federal Housing Authority. This was subsequently followed by the creation of the Federal Ministry of Housing, Urban Development and Environment. Today, quite a good number of public housing schemes developed by both the Federal and State governments exist in virtually every major location within the Lagos Metropolis.

## METHOD OF DATA COLLECTION

A questionnaire survey of six (6) housing estates from the forty (40) in the Metropolitan area of Lagos, Nigeria was carried out between January and March 2008. Three different categories of public housing representing three income levels - low, medium and high incomes exist in Lagos. Among these categories of housing, there are 23 estates in the low-income, 11 in the medium - income, and 6 in the high - income. Out of these numbers, 3 estates - namely, Abesan, Festival town and Ijaye Dairy farm from the low-income; 2 estates - namely, Omole and Ijaye from the medium- income; and 1 estate - namely, M. K. O. Abiola Garden from the high- income estate categories were randomly selected for the survey. These figures represent one in every ten estates (that is 1/10<sup>th</sup>) for each category. The selected estates had a combined total of 12,323 housing units. Using systematic sampling technique, 10% (that is 1,232) of the total units, representing 1100, 90, and 35 units were selected from the low, medium and high income housing categories, respectively. Out of the 1,232 questionnaires administered to household-heads who were the respondents, only 1,022 - indicating 82.95% response rate of the total samples were



**Figure 2.** The location of Lagos, Nigeria.  
Source: Microsoft Encarta (2007).

**Table 1.** Housing samples for questionnaire administration.

	Total no. of Estates	No. of estates selected	Total no. of housing units	No. of selected housing units/households (10% of total)	Copies of questionnaire retrieved (82.95% response)
Total	40	6	12,323	1,232	1,022

Source: Author's field survey, 2008.

subsequently retrieved for data analysis (Table 1).

A review of available literature suggests that certain variables or parameters are relevant for public housing evaluation. By adopting the concept of residential satisfaction earlier discussed through literature, Users' housing satisfaction was examined based on the interacting variables or factors of the dwelling (D), the environment (E), and the management (M) components of public housing. (See Table 2). The questionnaire was designed to elicit information on housing characteristics and relevant indicators of housing satisfaction. Respondents' satisfaction levels with these variables were obtained using a five-point Likert scale ranging from very dissatisfied (rated as 1), to very satisfied (rated as 5). (See, Kearney, 2006; Potter and Cantarero, 2006; and Hur and Morrow-Jones, 2008). The significant agreement or level of satisfaction being tested was determined by adopting the mid-point value, which is three (that is, average or fairly satisfactory) as the acceptable mean (Coakes and Steed (2001), cited in Oladapo, 2006). This implies that any result significantly different from this mean value was assumed to be either positive or negative (Pulling and Haidar, also cited in Oladapo, 2006). The data were analyzed with the SPSS software using both descriptive and multivariate statistics such as analysis of variance (ANOVA), correlation and regression analytical methods.

## DATA ANALYSES AND DISCUSSION

Although an assessment of tenants' personal characteristics does not fall within the scope of this study, a brief description of the socio-economic composition of respondents in the study area reveals that 51.3% were males, while 48.7% were females. This explains the extent to which men traditionally dominate most households in Nigeria. The age range indicates that 27.3 and 49.3% of the respondents were either 40 years old or less than 40 years old, respectively. Thus, suggesting the predominance of middle-aged tenants over older adults' tenants occupying most public housing in Nigeria. From the survey, 53.9% were married, while 39.7, 2.8, 2.4 and 1.2% were single, widowed, divorced, and separated, respectively.

Considering tenants' ethnic origin, 66.6% of the respondents were from the southwestern part of Nigeria. As much as 20.7% were from the southeast, while the rest came from other regions in Nigeria. In spite of the high

**Table 2.** Socio-economic composition of respondents.

	Frequency	percentage
<b>(a) Sex</b>		
Male	524	51.27
Female	498	48.73
Total	1022	100.00
<b>(b) Age (years)</b>		
Below 20	74	7.24
21-30	348	34.05
31-40	279	27.30
41-50	188	18.40
51-60	104	10.18
Above 61	29	2.84
Total	1022	100.00
<b>(c) Marital status</b>		
Single 406	39.70	
Married 551	53.91	
Divorced 24	2.35	
Widowed 29	2.84	
Separated 12	1.17	
Total 1022	100.00	
<b>(d) Ethnicity</b>		
Southwest	681	66.63
Southeast	211	20.65
South-south	27	2.64
Middle belt	9	0.88
North	94	9.20
Total	1022	100.0
<b>(e) Occupation</b>		
Self employed	365	35.71
Civil/public service	310	30.33
Unemployed and other categories	347	33.96
Total	1022	100.00
<b>(f) Educational status</b>		
primary	40	3.91
Post primary	247	24.17
Tertiary	621	60.76
Vocational	114	11.15
Total	1022	100.0
<b>(g) Average monthly income</b>		
Below \$66	136	13.30
\$136	729	71.33
\$268	85	8.32
\$500	53	5.19
\$662	19	1.86
Total	1022	100.00

Source: Field survey, 2008.

**Table 3.** Variables of housing satisfaction in the study area.

---

<b>Environment component (E)</b>
Satisfaction with Estate Facilities and Amenities (SEFA)
Satisfaction with overall appearance of housing estate environment(SOHEE)
<b>Dwelling component (D)</b>
Satisfaction with dwelling spaces (SAWDS)
Satisfaction with dwelling interior design (SAWDID)
Satisfaction with overall appearance of dwelling (SAWOD)
Satisfaction with dwelling ventilation (SAWDV)
Satisfaction with lighting in dwelling (SALID)
Satisfaction with privacy in dwelling (SAWPID)
<b>Management component (M)</b>
Satisfaction with management involvement and response rate (SAMIR)
Satisfaction with management's attitude on rules and regulation (SAMAR)

---

Source: Author's Field survey, 2008.

concentration of respondents from the south-west residing within the study area, other ethnic groups were fairly represented. This finding supports those of Ilesanmi (2005), Osasona et al. (2007) and Jiboye (2008), indicating that the city of Lagos is no man's preserve; as a commercial nerve center of Nigeria, attracts residents from other ethnic origins. Only 35.7% were "self-employed, while 30.3% were in public/civil service employment. Other categories (33.96) were those not engaged in any particular vocation, but in domestic petty trading and possibly, street hawking within their housing neighbourhood. This finding suggests that public housing is not exclusively meant for civil or public servants alone, but also caters for the housing needs of other categories of respondents in different occupations - including the self employed.

Most of the tenants were well educated; as 60.8% had tertiary education and 24.2% had post-primary (secondary) education. Only 3.9 and 11.2% had either primary education or no formal education at all. Perhaps, the high level of educational attainment by most tenants may well be responsible for their preference for an organized housing system such as this being studied. A summary of households' average monthly income shows that 71.9% earned an average of \$136. Only 12.7% earned below \$66 monthly while 8.3 and 5.2% earned an average of \$268 and \$500, respectively. Just 1.9% earned a little above \$662 (Table 3). These indicate a relatively low average income level of respondents in the study area, when compared with respondents' high level of educational attainment, and also for the fact that the cost of maintaining a household and residential unit in the urban areas of Nigeria is relatively high. However, it is possible from this analysis that these socio-economic attributes could influence tenants' housing preferences and overall housing satisfaction in the study area. Meanwhile, the

remaining part of this section focuses on the assessment of tenants' satisfaction with their housing and the determination of satisfaction correlates in the study area.

### **Assessment of housing satisfaction**

Table 4 shows the result of respondents' (tenants) rating of their levels of satisfaction with housing in the study area. The result indicates that most of the respondents in the study area were generally satisfied with their housing environments. A good majority (42.3 and 34%); and (30.3 and 9.5%) of the respondents in the entire sample claimed that they were satisfied or very satisfied with their housing estate environment, in terms of the estate amenities and facilities (SEFA), as well as the overall estate appearance (SOHEE), respectively. About 20.7 and 54.4% of the respondents claimed they were averagely or just satisfied. Only a fragment of the entire sample (2.5 and 0.5%); and (4.2 and 1.6%) indicated that they were dissatisfied or very dissatisfied with their estates environment (Table 4a and b) . This finding could be justified on the ground that most public housing estates' environments in Nigeria were conceived and developed having basic neighbourhood amenities and social infrastructures like road, water, drainages, waste disposal and electricity. The availability and level of maintenance of these facilities could possibly influence tenants' satisfaction level.

A result similar to that discussed above is obtained for respondents' satisfaction with their dwellings (housing units), as a good number of the respondents {(49.9 and 10%); (47.4 and 10.6%); and (36.8 and 7.3%) respectively}, claimed they were satisfied or very satisfied with their dwelling spaces (SAWDS), dwelling interior design (SAWDID), and the overall dwelling (SAWOD). Also, the

**Table 4.** Respondents' (tenants') satisfaction level with housing.

Scale	Rating	Number (n)	Percentage
<b>(a) Satisfaction with estate facilities and amenities (SEFA)</b>			
1	Very dissatisfied	5	0.5
2	Dissatisfied	25	2.5
3	Just satisfied	212	20.7
4	Satisfied	432	42.3
5	Very satisfied	348	34.1
Total		1022	100
<b>(b) Satisfaction with overall housing estate environment (SOHEE)</b>			
1	Very dissatisfied	16	1.6
2	Dissatisfied	43	4.2
3	Just satisfied	556	54.4
4	Satisfied	310	30.3
5	Very satisfied	97	9.5
Total		1022	100
<b>(c) Satisfaction with dwelling spaces (SAWDS)</b>			
1	Very dissatisfied	11	1.1
2	Dissatisfied	100	9.8
3	Just satisfied	298	29.2
4	Satisfied	510	49.9
5	Very satisfied	103	10.1
Total		1022	100
<b>(d) Satisfaction with dwelling interior design (SAWDID)</b>			
1	Very dissatisfied	13	1.3
2	Dissatisfied	24	2.4
3	Just satisfied	393	38.5
4	Satisfied	484	47.4
5	Very satisfied	108	10.6
Total		1022	100
<b>(e) Satisfaction with overall dwelling (SAWOD)</b>			
1	Very dissatisfied	22	2.2
2	Dissatisfied	62	6.1
3	Just satisfied	487	47.7
4	Satisfied	376	36.8
5	Very satisfied	75	7.3
Total		1022	100
<b>(f) Satisfaction with dwelling ventilation (SAWDV)</b>			
1	Very dissatisfied	16	1.6
2	Dissatisfied	49	4.8
3	Just satisfied	258	25.3
4	Satisfied	496	48.5
5	Very satisfied	203	19.9
Total		1022	100

**Table 4. Contd.**

<b>(g) Satisfaction with lighting in dwelling (SALID)</b>			
1	Very dissatisfied	32	3.1
2	Dissatisfied	74	7.2
3	Just satisfied	243	23.9
4	Satisfied	549	52.7
5	Very satisfied	134	13.1
Total		1022	100
<b>(h) Satisfaction with privacy in dwelling (SAWPID)</b>			
1	Very dissatisfied	18	1.8
2	Dissatisfied	28	2.7
3	Just satisfied	209	20.5
4	Satisfied	462	45.2
5	Very satisfied	305	29.8
Total		1022	100
<b>(i) Satisfaction with management involvement and response rate (SAMIR)</b>			
1	Very dissatisfied	97	9.5
2	Dissatisfied	211	20.7
3	Just satisfied	143	14.0
4	Satisfied	140	13.7
5	Very satisfied	46	4.5
-	no response	385	37.7
Total		1022	100
<b>(j) Satisfaction with management's attitude on rules (SAMAR)</b>			
1	Very dissatisfied	65	6.4
2	Dissatisfied	342	33.5
3	Just satisfied	278	27.2
4	Satisfied	194	18.9
5	Very satisfied	53	5.2
-	no response	90	8.8
Total		1022	100

Source: Field survey, 2008.

majority {(48.5 and 19.9%); (52.7 and 13%); and (45.2 and 29.8%) respectively}, claimed they were satisfied with the ventilation (SAWDV), lighting (SALID) and level of privacy (SAWPID) in their dwellings. A good number of the respondents {(29.2 and 38.5%; 47.7 and 25.3% and 23.9 and 20.5%) respectively}, indicated that they were averagely or just satisfied with their dwellings (Table 4c - h).

Contrary to the result discussed above, Table 4(i and j) shows that only a small proportion of the respondents (4.5 and 13.7%) and (5.2 and 18.9%), were actually satisfied with the estate managements. About 14 and 27.2% claimed they were averagely or just satisfied. Whereas a good number of the respondents [(20.7 and 9.5%) and (33.5 and 6.4%) respectively], were quite dissatisfied with the managements in terms of their

response and involvement in the estates' upkeep (SAMIR), as well as their attitude towards enforcing rules and regulations and general conduct (SAMAR).

### **Evaluating correlates of housing satisfaction**

In evaluating the factors (correlates) affecting housing satisfaction, the dependent variables of the environment, the dwelling, and the management components were correlated (using Pearson's correlation coefficient) with fifty (50) identified housing attributes. The acceptable levels of significance were obtained at the 0.01 and 0.05 probability levels respectively. Consequently, attributes with significant correlations were further subjected to regression analysis and analysis of variance test (ANOVA)



**Table 5.** Summary of correlated variables of satisfaction.

	i(Environment)	ii(Dwelling)	iii(Management)
I	1	1	1
Ii	-0.122 <sup>xx</sup>	-0.047	0.540 <sup>xx</sup>
Iii	0.248 <sup>xx</sup>	0.014	0.224 <sup>xx</sup>
Iv	0.293 <sup>xx</sup>	-0.133 <sup>xx</sup>	0.482 <sup>xx</sup>
V	0.334 <sup>xx</sup>	0.047	0.283 <sup>xx</sup>
Vi	-0.001	0.335 <sup>xx</sup>	0.352 <sup>xx</sup>
Vii	-0.091 <sup>xx</sup>	0.215 <sup>xx</sup>	0.546 <sup>xx</sup>
Viii	0.62 <sup>x</sup>	0.233 <sup>xx</sup>	0.129 <sup>xx</sup>
Ix	0.020	0.106 <sup>xx</sup>	
X	-0.032	0.054	
Xi	0.022	0.252	
Xii	-0.059	0.209 <sup>xx</sup>	
Xiii	-0.009	0.197 <sup>xx</sup>	
Xiv	-0.036	0.287 <sup>xx</sup>	
Xv	-0.112 <sup>xx</sup>	0.242 <sup>xx</sup>	
Xvi	0.003	0.224 <sup>xx</sup>	
Xvii	-0.159 <sup>xx</sup>	0.251 <sup>xx</sup>	
xviii	-0.037	0.190 <sup>xx</sup>	
Xix	0.311 <sup>xx</sup>	0.159 <sup>xx</sup>	
Xx	0.018		
Xxi	-0.045		

<sup>x</sup>Significant at 0.05 level; <sup>xx</sup> Significant at 0.01 level. Source: Author's computer output, 2008.

in order to identify specific factors and also determine the level of interaction between these factors and housing satisfaction in the study area. The result is presented in Table 5.

### The correlated variables of housing satisfaction

The correlation analysis in Table 5 reveals that a positive and significant relationship exists between environmental satisfaction (component E), and some variables like access to electricity (iii), drainage system, (variable iv), road (variable v), postal service (variable viii), and neighborhood noise level (variable xix). These variables have correlation coefficients of 0.248, 0.293, 0.334, 0.062, and 0.311 respectively. This implies that tenants' satisfaction with their environment tends to increase as the conditions and accessibility to power supply, drain-age, road, postal service, and noise level improves within the study area.

The analysis also indicate that variables like access to water supply (variable ii), banking facility (variable vii), security/police services (variable xv), and public transportation (variable xvii), have negative but significant correlation coefficients of - 0.122, -0.091, -0.112, and - 0.159 respectively, and are inversely related to satisfaction with the environment (component E). This also implies that tenants' satisfaction with their environment is negatively affected by the either the availability or non-

availability of facilities like water, banking facility, security, and transportation services within the study area. The table also shows the correlation coefficients between satisfaction with the dwelling (component D), and some dwelling attributes.

The result reveals a positive and significant association between dwelling satisfaction (D) and attributes like the building design (variable vi), room sizes (variable vii), spatial adequacy (variable viii), building extension (variable ix), floor condition (variable xi), window condition (variable xii), ceiling condition (variable xiii), roof condition (variable xiv), wall condition (variable xv), wall finishes (variable xvi), ventilation (variable xvii), lighting (variable xviii), and privacy (variable xix). These variables have correlation coefficients of 0.335, 0.215, 0.233, 0.106, 0.252, 0.209, 0.197, 0.287, 0.242, 0.224, 0.251, 0.190 and 0.159 that are significant at the 0.05 and 0.01 levels respectively. This indicates that the adequacy and conditions of these attributes tend to increase tenants satisfaction with their dwellings. Furthermore, the result reveals a negative but significant correlation (-0.133) between the number of sleeping rooms within dwellings and tenants' satisfaction with their dwellings. This implies that the number of sleeping rooms within the housing units does not necessarily increase tenants' level of satisfaction with their dwellings.

The correlation result in Table 5 also shows that all the management attributes like the enforcement of rules and

**Table 6.** Regression coefficients of environmental factors of satisfaction.

Environmental factors	B	Std error	Beta	t	Sig (P)
(Constant)	9.528E-02	170		3.869	0.96
Water supply	0.659	0.057	0.49	1.668	0.000
Electricity	0.102	0.025	0.126	4.018	0.000
Drainage	0.185	0.028	0.208	6.500	0.000
Neighborhood noise level	0.228	0.027	0.23	8.284	0.000
Post office in housing area	0.244	.052	0.139	4.688	0.000

P significant at 0.01.

**Table 7.** The overall F-test value from the regression of environmental factors.

Simple R	R-square	Standard error	Analysis of variance	Sum of squares	Df	Mean square	F	Sig. (P)
0.426	0.182	0.730	Regression	114.821	5	22.964	43.094	0.000
			Residual	517.439	971	0.533		

P significant at 0.01.

**Table 8.** Regression coefficients of dwelling factors of satisfaction.

Dwelling factors	B	Std error	Beta	t	Sig. (P)
(Constant)	1.478	0.141		10.461	0.000
Number of sleeping rooms	-0.087	0.032	-0.086	-2.761	0.006
Building design	0.252	0.036	0.235	7.050	0.000
Floor condition	0.124	0.035	0.120	3.533	0.000
Roofs condition	0.193	0.033	0.191	5.882	0.000

P significant at 0.01.

regulations (variable ii), response rate to repairs and general maintenance (variable iv), communication level (variable v), response to waste disposal (variable vi), rate of cordiality between management and tenants (variable vii), as well as the rate of garbage disposal (variable viii), are positively and significantly related with the tenants' satisfaction with the management (component M). These variables have correlation coefficients of 0.549, 0.482, 0.283, 0.352, 0.546 and 0.129 respectively. Thus, tenants' satisfaction tends to increase with the improvement in the management's involvement in estates administration within the study area.

Tables 6, 7 and 8, show the overall statistics of the results obtained from the regression equation between the environmental, dwelling and management variables and housing satisfaction. From Table 6, only variables like electricity supply (0.102), drainage system (0.185), noise level (0.228), availability of postal service (0.244), and water supply (0.095), are found to be significantly related with tenants' satisfaction with their environment. This result is further validated by the analysis of variance (ANOVA) test, which explains the linear relationship and level of significance between the dependent variable

(satisfaction with environment), and the independent variables (the predictors). It yielded an F- ratio of 43.094, which is significant at the 0.01 level. Also, the R - Squared ( $R^2$ ) value (coefficient of determination) of the regression analysis indicates that 18.2% of the variation in satisfaction with environment was determined by the identified variables (the predictors) (Table 7).

With regards to the dwelling component, Table 8 shows that variables such as the building design (0.252), floor condition (0.124), roof condition (0.193), as well as the number of sleeping rooms (having a negative coefficient of -0.087), are found to be significantly related with satisfaction with the dwelling (component D). Table 9 shows the analysis of variance F - ratio of 47.719, (significant at 0.01 levels), while the R - squared ( $R^2$ ) value indicates that about 17.6% of the variation in satisfaction with the dwelling is determined by the identified variables. Similarly, the regression analysis of the management component in Table 10, reveals that only variables such as management's attitude on rules enforcement (0.335), response to repairs and maintenance (0.520), rate of cordiality (0.243), as well as management response to waste disposal (0.603), are found to be related with satis-

**Table 9.** The overall F-test value from the regression of dwelling factors.

Simple R	R-Squared	Standard error	Analysis of variance	Sum of squares	Df	Mean square	F	Sig (P)
0.420	0.176	0.717	Regression	98.217	5	24.554	47.719	0.000
			Residual	459.499	894	0.515		

P significant at 0.01.

**Table 10.** Regression coefficients of managements factors of satisfaction.

Management factors	B	Std Error	Beta	t	Sig(P)
(Constant)	-558	0.258		-2.163	0.031
Management's attitude towards enforcement of rules.	0.335	0.46	0.295	7.223	0.000
Management's response to repairs and general maintenance.	0.520	0.090	0.219	5.756	0.000
Rate of cordiality.	0.243	0.46	0.229	5.317	0.000
Estate management's responsible for waste disposal.	0.603	0.141	146+	4.285	0.000

P significant at 0.01.

**Table 11.** The overall F-test value from the regression of management factors.

Simple R	R- square	Standard error	Analysis of variance	Sum of squares	Df	Mean square	F	Sig. (P)
0.679	0.461	0.865	Regression	341.584	4	85.396	114.070	0.000
			Residual	399.018	533	0.749		

P significant at 0.01.

faction with the management component(M). The analysis of variance test yielded an F- value of 114.07, while the R-squared ( $R^2$ ) value indicates that 46.1% of the variation in satisfaction with estate management is determined by the explanatory variables (Table 11). This  $R^2$  ratio is high compared with those of the environment and dwelling components. It thus confirms findings by Ukoha and Beamish (1997) and Oladapo (2006), on the relevance and extent to which tenants' satisfaction are determined by management's involvement in public housing administration in Nigeria.

## DISCUSSION

The results of this study showed two major findings. First, from the analysis in Table 4, a good number of tenants in the study area were quite satisfied with their housing environment and dwelling, whereas they were dissatisfied with the management component of their housing. The result showed that tenants' satisfaction level with both the environment and dwelling components was above average, while the satisfaction level with the management component was below average. The positive correlation score between satisfaction and management variables, which implies a high level of sensitivity of the tenants to management related issues, also substantiates this finding. A probable reason for tenants' dissatisfaction with the management as indicated by this study is the

poor response rate and unfriendly attitude typical of most officials in charge of housing estate maintenance. In substantiating this further, Oladapo (2006), citing Ukoha and Beamish (1997) had noted that the management factor constitutes a major source of dissatisfaction to public housing tenants in Nigeria. In a situation whereby the responsibility of government in maintaining existing housing infrastructures in Nigeria has long been neglected (Ebong, 1983; Jiboye, 2009), the upkeep of most public estates has overtime been the sole responsibility of the tenants, whom for the reason of their low income level as indicated through this study, and high cost of living are not financially capable of undertaking any form of maintenance or improvement. And because of their desire for a decent and satisfactory living, would expect some levels of commitment and attention from the management.

The results discussed in Tables 5 - 11, further revealed that variables such as electricity supply, drainage system, neighborhood noise level, postal service and water supply, are factors which significantly influenced tenants' satisfaction with their estate environment. Similarly, variables such as the number of sleeping rooms, the building design, floor and roof conditions of the dwellings are factors which significantly influenced tenants' satisfaction with their dwellings, while management variables like attitude towards enforcement of rules and regulations within the housing estate, management's response rate to repairs and general maintenance, rate of cordiality

between management and tenants, as well as the involvement of the management in garbage disposal within public housing estates affected tenants' satisfaction with the management in the study area. These findings thus substantiate earlier assertions by Onibokun (1973), and Oladapo (2006) that adequate and satisfactory housing goes beyond simply providing shelter, but includes among others the components of the dwelling itself, the environment within which the dwelling is located, and the institutional arrangement under which it is maintained.

## Conclusion

This paper has examined the correlates of public housing satisfaction in Lagos, Nigeria by identifying relevant factors which determine tenants' satisfaction levels with public housing system in Nigeria. The findings have shown that the variables of the dwelling, environment, and management components of public housing actually affected tenants' satisfaction with their housing in the study area. This is because a good number of the variables examined correlated significantly with tenants' satisfaction. The findings further showed that while the dwelling and environmental components of housing were satisfactory to the tenants, the management component appeared quite unsatisfactory to the tenants. The implication of this findings for housing policy formulation in Nigeria is that the provision of adequate and relevant environmental amenities, qualitative and users' responsive dwellings coupled with an effective and efficient housing management structure are all necessary prerequisites to ensuring adequate and satisfactory housing in our cities. By substantiating Lu (1999), this study could therefore serve as a good feedback to government and housing technocrats in third world nations generally, and Nigeria in particular, by providing them with relevant information that will guide in housing improvement and development.

## REFERENCES

- Amerigo M, Aragones J (1990). Residential Satisfaction in council housing. *J. Environ. Psychol.* 10: 313-325.
- Anantharajan T (1983). Evaluation of Residential Development through Users' Ratings and Rankings of Environmental Attributes. Ural, O (ed) Proceedings of International Association of Housing Science Congress on Housing. NW 7-12. Miami, Florida.
- Coakes SJ, Steed LG (2001). SPSS: Analysis without anguish, John Wiley and Sons, Milton, UK.
- Diogun JO (1989). Housing Problems in Nigeria. Low-Income Housing survey. *Housing Today* 6(1): 31-32, Jan-April.
- Djebarni R, Al-Abed A (2000). "Satisfaction Level with Neighbourhood in Low-income Public Housing in Yemen" *J. Constr. Manage.* 18(4): 230-242.
- Ebong MO (1983). The Perception of Residential Quality. A Case Study of Calabar, Nigeria. *Third World Plann. Rev.* 5(3): 273-284.
- Fleury-Bahi G, Felonneau M (2008). Processes of place identification and residential satisfaction. *Environ. Behaviour.* 40(5): 669-682.
- Galster GC, Hesser GW (1981) Residential Satisfaction: Compositional and Contextual Correlates. *Environ. Behav.* 13(6): 735-758.
- Gilbertson J, Green G, Ormandy D, Thomson H (2008). Good housing and good health? A review and recommendations for housing and health practitioners. A Sector Study Housing Corporation. UK. Available at <http://www.health housing 20060816144328.pdf>. [Accessed, March, 2009].
- Hur M, Morrow-Jones H (2008). Factors that influence residents' satisfaction with neighborhoods. *Environ. Behaviour.* 40(5): 619-635.
- Jiboye AD (2008). A study of Public Housing Satisfaction in Lagos, Nigeria. An unpublished Ph.D Thesis. Dept. Urban Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Jiboye AD (2009). The significance of households' characteristics on housing quality in Osogbo, Nigeria. *J. Geogr. Planning Sci.* 2 (2) : 1-10.
- Kearney AR (2006) Residential development patterns and neighborhood satisfaction. Impacts of density and nearby nature. *Environ. Behav.* 38(1): 112-139.
- Kellekc DOH, Bebköz L (2005). Determinants of Users' Satisfaction and Environment Quality: Sample of Istanbul Metropolitan. URP Department, Faculty of Architecture, Istanbul Technical University .Turkey ([www.feweb.vu.ul/ersa](http://www.feweb.vu.ul/ersa)) (2005) Konadu-Agyemang K, Noonam JM, McCord D (1994). Social housing and Social integration in the Durham Region of Ontario, Canada. *Ekistics.* 366(367): 145-155.
- Lu M (1999). Determinants of residential satisfaction: ordered logit vs regression models. *Growth Change* 30(2): 264-287.
- Lynch K (1960). The image of the city. Lynch K (ed) Cambridge: The M.I. T. Press.
- Mabogunje AL (1968) Urban Landuse Problems in Nigeria. Inst. British Geogr. Special Ed. No 1.
- Mbali I, Okoli OG (2002). Affordable Housing for Low-Income Group in Nigeria. A redefinition of the basic parameters. *Hous. Today.* 1(5): 16-17, Feb-March.
- NHP (1991). National Housing policy, Nigeria. Official Gazette. Abuja, Nigeria.
- NPC (2006). National Population Census of Nigeria. Federal. Republic. Nigeria.
- Oladapo AA (2006). A Study of Tenant Maintenance Awareness, Responsibility and Satisfaction in Institutional Housing in Nigeria. *Int. J. Strategic Prop. Manage.* Vilnius Gediminas Technology. University 10: 217-231.
- Onibokun P (1973). Environmental Issues in Housing Habitability. *Environ. Plann.* 5: 461-476.
- Onibokun P (1974). Evaluating consumers satisfaction with housing; An application of a System Approach, *Am. Inst. Planners J.* 40(3) : 189-200.
- Ozdemir OB (2002). Reinvestment decisions and rehabilitation in housing. In Ural, O., Abrantes, V. and Tadeu, A. (eds.) Housing construction-an interdisciplinary task, Coimbra, Portugal, 3: 1927-1934.
- Potter J, Cantarero R (2006). How does increasing population affect resident satisfaction? A small community case study. *Environ. Behav.* 38(5): 605-625.
- So ATP, Leung AYT (2004) Survey of attitudes towards buildings in three Chinese cities: Hong Kong, Shanghai and Taipei. *Facilities* 22(3/4): 100-108.
- Ukoha OM, Beamish JO (1997). Assessment of Resident and Public Housing in Abuja, Nigeria. *Hab. Int.* 21(4): 445 – 460.
- Western JS, Weldon PD, Haung TT (1974). Housing and Satisfaction with Environment in Singapore. *Am. Inst. Plann. J.* May pp.201-208.