



The influence of socioeconomic variability on the housing quality standard in sub- Saharan Africa

Olawumi DARAMOLA

Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria

Olufemi ADELEYE

Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria

Hafeez AGBABIAKA

Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria

Falilat OLOWU

Department of Architecture, Obafemi Awolowo University, Ile-Ife, Nigeria

Abstract: The study examined the relationships between residents' socioeconomic characteristics and the housing quality standard in Abeokuta, Nigeria. Systematic sampling technique was used to select 198 household heads for questionnaire administration. The findings revealed that socioeconomic factors are correlated in the following proportions: educational level shows a moderate correlation with monthly income ($r = .463, p < 0.01$), length of stay ($r = -.433, p < 0.01$) and age of building ($r = -.414, p < 0.05$); monthly income displays a fairly strong correlation with length of stay ($r = -.502, p < 0.01$) and age of building ($r = -.625, p < 0.01$); household size presents a relatively strong correlation with length of stay ($r = .766, p < 0.01$), and a moderate correlation with age of building ($r = .545, p < 0.01$). The results of the multiple regression analysis produced an $R^2 = 0.387$, meaning that socioeconomic variables explained the 38.7% variance in the housing quality standard (HQS) in the study area. Therefore, the study concluded that length of stay, educational level and age of building are strongly associated with the housing quality in Abeokuta.

Keywords: housing quality standard, housing and environmental infrastructure, residents' socioeconomic influence

JEL codes: O18, R2, R21, R31

DOI: <https://doi.org/10.25167/ees.2018.47.3>

Correspondence Address: Hafeez Agbabiaka, Department of Urban and Regional Planning, Faculty of Environmental Design and Management, Obafemi Awolowo University, Ile-Ife, Nigeria. Tel.:+2348067169480, E-mail:wisdomisliffee@yahoo.com.

Introduction

Housing is one of the conditions behind the basic necessities and physical survival after the provision of food. (UN-Habitat, 2006; Olayiwola, 2012; Adeleye, Azeez and Yusuff, 2014). Akeju (2007) asserted that housing is one of the best indicators of a person's standard of living and position in society. Classification of housing depends on the number of rooms, comfort, form and the place where they are found (Adeleye, Azeez, and Yusuff, 2014). Housing reflects social, cultural and economic situation of any society and impacts the health, welfare, social attitude, psychological and economic productivity of an individual person (Mundo and Hernandez, 2014; Matt, Carl, Sara and Hannah, 2013).

The assessment of housing standards is essential and basic to urban planning. The work of Sule (1982) revealed that standard housing is residence with housing facilities that meets the minimum condition on the quality of housing elements and security of the occupants. In the developed and developing countries, studies have shown that challenges on poor housing quality standard might be the lack of quality measurement methods or standards as discussed by Stanley (2015). Other factors affecting the quality standard housing could be skills and experience of the manpower, site lay-outs, materials, equipment used, weather conditions, among others. However, Ng'ang'a (2014) asserted that poor housing quality poses a threat to the quality of life of the residents. Andrew (2012) identified a cluster of substandard housing among patients whose medical-legal partnerships were used to address the social and environmental determinants of human health. It was further revealed that the cluster of substandard housing led to the cluster of communicable diseases. Adenuga (2013) asserted that quality assurance of standard housing is easily compromised and frequently lost as a result of reliance on individual's contribution towards implementation on the designers, contractors, suppliers, and subcontractors. This study focuses on the factors that influence the standard of housing quality in the residential areas of Abeokuta, Nigeria.

1. Study area

Abeokuta town is situated on the east bank of the Ogun River, around a group of rocky outcrops that rise above the surrounding wooded savanna. It lies on the main railway from Lagos to Ibadan, more than 70km south, and on the older trunk road from Lagos to Ibadan; it also has road connections to Ilaro, Shagamu, Iseyin, and Ketou (Benin). Abeokuta is a city located in

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY STANDARD IN SUB-SAHARAN AFRICA

Ogun State, Nigeria. On February 3, 1976 Abeokuta was made the capital of Ogun State Southwest of Nigeria. Ogun State was carved out of the defunct Western State. It is situated between Latitudes $6^{\circ} 30'$ and $8^{\circ} 30'N$ and Longitudes $2^{\circ} 30'$ and $4^{\circ} 30'E$ On the Ogun River, 103km north of Lagos by railway and 130km by water. Abeokuta has two (2) Local Government Areas (Abeokuta South and Part of Abeokuta North) and with total population of 451,607 people (National Population Commission, 2010). It is 4364 inhabitants per one square kilometer of land. Abeokuta was a walled town and relics of the old wall still exist. Notable buildings include the Ake Palace (the residence of the *Alake*), Centenary Hall (1930), and several churches and mosques. Secondary schools and primary teachers' colleges at Abeokuta are supplemented by the Federal University of Agriculture (FUNAB) with Abeokuta campus, which specializes in science, agriculture, and technology, the Ogun State Polytechnic, Crescent University and Federal College of Education (Encyclopedia Britannica).

2. Literature review

Afon (2000) argued that to evaluate the housing quality, one needs the concept of environmental attributes, which describe the nature and properties of a particular thing. It was also put forward by Jiboye (2004) that a definition of quality is not only based on the users' desire but the product being considered. Housing quality is viewed by UN-Habitat (2006) and Meng, Hall and Roberts (2006) as the grade or level of acceptability of dwelling units including the design and functionality of housing structures, building materials used, amount of internal and external space pertaining to the dwelling, housing utilities, and basic service provision. According to Okewole and Aribigbola (2006) and Adeleye et al (2014), housing quality embraces many factors such as physical condition of building, facilities and other services that make housing conducive to live. UN-Habitat (2006) and Adeleye et al (2014) asserted that quality housing is more than a roof over one's head: it also means the provision of adequate facilities and infrastructure to make housing units suitable to reside in. Evidently, housing possesses certain qualities through which it can guarantee safety, security, satisfaction and good health to man. Hence, the quality of housing within any neighborhood should meet the basic health standards, promote living standards and also be affordable to all categories of household, irrespective of their standard size.

Satisfaction level from a housing unit is determined by the condition of housing elements and measured by residents' perception of their housing units and their immediate environment. However, according to Jiboye (2012), housing satisfaction is influenced by many factors in the system and socioeconomic characteristics of the occupants. These factors may include: age, marital status, number of children and family size, socioeconomic status, income, education, employment and welfare, length of residence, housing physical characteristics, satisfaction with housing physical condition and management services, social participation and interaction, past living conditions and residential mobility as well as future intention to move. It comprises satisfaction with the housing elements and its environment. Housing habitability refers to the physical condition of dwellings (structurally, internally and externally); the existence of basic household amenities (such as cooking, washing and heating facilities); and the condition of the environment surrounding the home. It also comprises the social, behavioral, cultural and personal characteristics of the inhabitants and the nature of the institutional agreement under which the house is managed (Gans, 1962; Onibokun, 1973, 1974; Raven, 1976; Jiboye, 2004, 2008).

In describing the physical conditions of dwellings, Kutty (1999) asserted that the structural adequacy of housing is an important indicator. She investigated the determinant of structural adequacy as an attribute of housing quality. In doing this, data from the American Housing Survey of Metropolitan Areas were used to specify a logit model determining factors that influenced the structural adequacy of dwellings. These factors, using the supply-side and demand-side variables, were variables such as age of building, structural type, tenure, status of residents and household vehicle ownership. Therefore, the physical characteristics of dwelling units can be strong indicators to measure housing quality.

3. Research methodology

Data for the study were drawn from primary and secondary sources. The primary data were obtained from administering questionnaires to residents in Abeokuta. The multistage sampling procedure was used for this study. The questionnaires were distributed to 198 randomly selected residents in Abeokuta from three residential densities. Systematic sampling procedures were adopted to select 50% of political wards in this regard, 1 out of every 2 wards were selected, meaning that 14 out of the 27 political wards as recognized by INEC (2015) were selected for

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY STANDARD IN SUB-SAHARAN AFRICA

the study. The field work revealed that there were 189 streets in the selected political wards; 74, 65 and 50 streets respectively in the high, medium and low residential densities of Abeokuta. Half of these streets were randomly selected, making 37, 33 and 25 streets in the high, medium and low residential densities of Abeokuta, respectively. The numbers of residential buildings along these streets were estimated at 921, 641 and 422 in the high, medium and low residential densities. Therefore, the head of a household was sampled from 1 out of every 10 buildings across the selected streets in the study area. Information obtained through the questionnaire includes socioeconomic characteristics of household heads, housing elements, condition of building materials used for the construction, facilities and infrastructure.

The obtained data were analyzed using descriptive and inferential statistics, such as frequency distribution, cross tabulation, residents' knowledge index (RKI) and residents satisfaction index (RSI). Five point Likert scale (very good = 5, good = 4, fair = 3, bad = 2 and very bad = 1) was used to measure the RKI of the housing quality audit and (very satisfied = 5, satisfied = 4, averagely satisfied = 3, dissatisfied = 2 and very dissatisfied = 1) was used to measure RSI. Each coded response was multiplied by the number of respondents, which gave the Weighted Value (WV). The Summation of the Weighted Values (ΣWV) was divided by the number of respondents (N) to arrive at each component Mean Weighted Value (MWV). The Mean Weighted Value (MWV) was then obtained by dividing Summation of Mean Weighted Value (ΣMWV) by the total number of elements (q). This gave the overall conditions. Thus, $MWV = \Sigma WV/N$, where N = population of respondents $\Sigma MWV/q$, q = total number of variables.

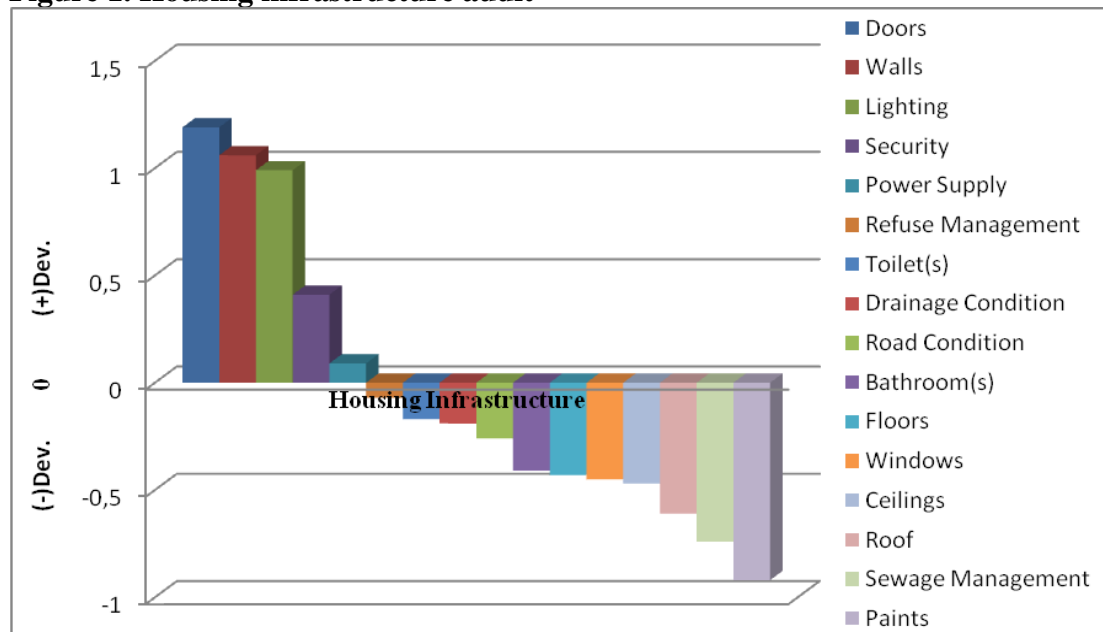
4. Results and discussion

4.1. Housing condition audit

Housing condition in the study area was measured in two different dimensions: housing infrastructure and environmental infrastructure. These two dimensions were measured using a 5-point Likert scale. The findings on the housing infrastructure audit as presented in Table 1, established that 5 out of 16 indicators considered to measure housing condition in the study area have positive deviation of the mean, while the remaining 11 indicators had negative deviation of the mean. Furthermore, considering the minimum and the maximum standard of each indicator, the respondents rated Doors condition as 1st with (MWV= 4.22 and MD= +1.96), walls condition was rated as 2nd with (MWV= 4.09 and MD= +1.06), lighting was rated 3rd with (MWV= 4.02

and MD= +0.99), security was rated 4th with (MWV= 3.44 and MD= +0.41) and power supply was rated 5th with (MWV= 3.12 and MD= +0.09). However, the 11 indicators that had negative deviation were rated by the respondents, considering the minimum and maximum planning standard as follows: Refuse management (MWV= 2.96 and MD= -0.07), Toilet system (MWV= 2.86 and MD= -0.17), Drainage condition (MWV= 2.84 and MD= -0.19), Road condition (MWV= 2.77 and MD= -0.26), Bathrooms (MWV= 2.62 and MD= -0.41), Floors (MWV= 2.60 and MD= -0.43), Windows (MWV= 2.58 and MD= -0.45), Ceilings (MWV= 2.56 and MD= -0.47), Roof (MWV= 2.42 and MD= -0.61), Sewage management (MWV= 2.29 and MD= -0.74), and Paint (MWV= 2.11 and MD= -0.92), (see Figure 1).

Figure 1. Housing infrastructure audit



Sources: authors' field survey, 2016

The implication of the findings is that the overall condition of housing infrastructure in the study area as rated by residents is fair. The residents are pleased with the qualities of housing infrastructure with respect to planning standards in the study area. For instance, doors qualities with standard size are used for construction, walling materials in terms of sandcrete blocks, plastering and painting, lighting materials in terms of cables and fittings, security and power supply in the study area. The residents express their displeasure towards the qualities of some housing infrastructure, such as refuse management system, road conditions, drainage conditions, and sewage management system, among others, in terms of their standards.

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY
STANDARD IN SUB-SAHARAN AFRICA

Table 1. Housing infrastructure audit in the study area

Housing infrastructure	Rating and weighted values					SWV	MWV	MD	Rank
	VG(5)	G(4)	F(3)	B(2)	VB(1)				
Doors	87	82	20	4	5	836	4.22	1.19	1 st
Walls	89	86	14	4	5	810	4.09	1.06	2 nd
Lighting	89	86	14	4	5	796	4.02	0.99	3 rd
Security	31	66	69	27	3	683	3.44	0.41	4 th
Power Supply	8	72	67	40	10	619	3.12	0.09	5 th
Refuse Management	28	44	45	47	39	584	2.96	-0.07	6 th
Toilet(s)	87	17	17	4	5	567	2.86	-0.17	7 th
Drainage Condition	28	42	40	46	41	561	2.84	-0.19	8 th
Road Condition	17	41	56	46	33	542	2.77	-0.26	9 th
Bathroom(s)	12	9	81	83	13	518	2.62	-0.41	10 th
Floors	10	14	77	82	15	516	2.60	-0.43	11 th
Windows	12	8	82	81	15	512	2.58	-0.45	12 th
Ceilings	12	6	79	86	15	508	2.56	-0.47	13 th
Roof	12	6	79	86	15	480	2.42	-0.61	14 th
Sewage Management	-	22	65	61	50	455	2.29	-0.74	15 th
Paints	13	8	80	84	13	418	2.11	-0.92	16 th
Total	535	609	885	785	282	9405	48.50		

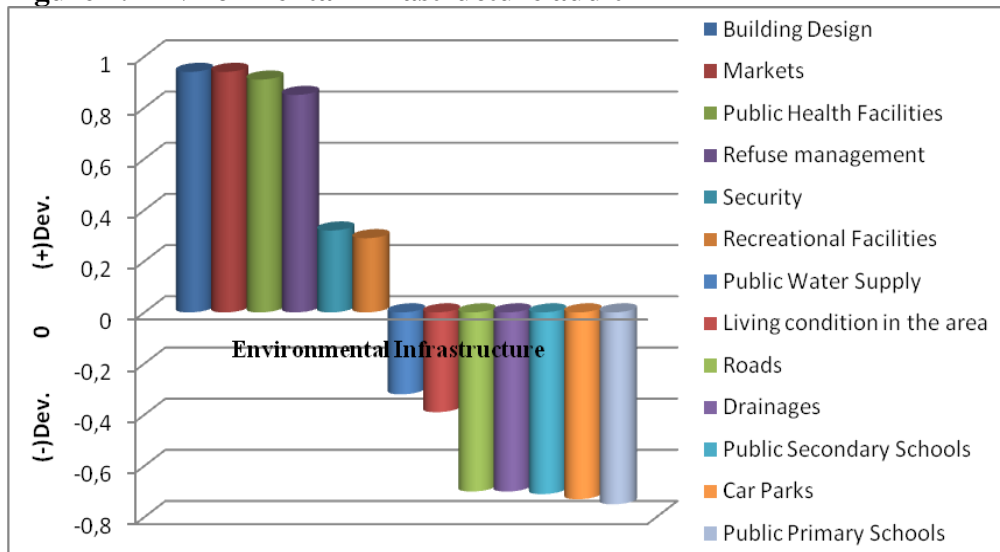
Mean index of $\sum MWV = 48.50/16 = 3.03$

Source: field work, 2016.

4.2. Environmental infrastructure audit in the study area

Having rated the quality of the housing infrastructure, the respondents were also asked to rate their satisfaction with the environmental infrastructure as the second dimension to measure housing quality. The findings as presented in Figure 2 and Table 2 revealed that six out of the thirteen environmental indicators in the study area had a positive deviation of the mean; this implies that the respondents are satisfied with those indicators (See Figure 2). These indicators are Building design (MWV= 4.26 and MD= +0.94), Markets (MWV= 4.26 and MD= +0.94), Public health facilities (MWV= 4.23 and MD= +0.91), Refuse management (MWV= 4.17 and MD= +0.85), Security (MWV= 3.64 and MD= +0.32) and Recreational facilities (MWV= 3.61 and MD= +0.29). At the same time, the respondents expressed their dissatisfaction with public water supply, living conditions in the area, condition of roads, drainage systems, schools, and car parks located within the study area. Therefore, the overall ratings of the environmental infrastructure in the study area shows that the respondents were (3.32) averagely satisfied with the infrastructure.

Figure 2. Environmental infrastructure audit



Sources: authors' field survey, 2016

The implication of the findings connotes that the quality of the environmental infrastructure is in a tolerable state, and residents are satisfied with the quality of Building Design, Markets, Public Health Facilities, Refuse management, Security system, and Recreational Facilities in the in the study area. It was also inferred from the findings that Public Water Supply, Roads, Drainages, Schools and Car Parks are in deplorable state and need to be renovated, and as such these services do not satisfy the residents.

Table 2. Environmental infrastructure audit in Abeokuta

Infrastructure	Rating and Weighted Values					SWV	MWV	MD	Rank
	VS(5)	S(4)	AS(3)	D(2)	VD(1)				
Building Design	89	87	13	4	5	845	4.26	0.94	1 st
Markets	88	87	15	4	4	845	4.26	0.94	2 nd
Public Health Facilities	89	84	14	5	6	839	4.23	0.91	3 rd
Refuse management	82	86	19	5	6	827	4.17	0.85	4 th
Security	64	51	49	18	14	721	3.64	0.32	5 th
Recreational Facilities	64	48	51	18	15	716	3.61	0.29	6 th
Public Water Supply	32	30	60	53	20	586	3	-0.32	7 th
Living condition in the area	36	20	56	68	18	582	2.93	-0.39	8 th
Roads	15	7	79	82	15	519	2.62	-0.7	9 th
Drainages	15	9	76	82	16	519	2.62	-0.7	10 th
Public Secondary Schools	12	13	74	84	15	517	2.61	-0.71	11 th
Car Parks	12	22	75	81	18	513	2.59	-0.73	12 th
Public Primary Schools	15	16	75	75	17	509	2.57	-0.75	13 th
Total	613	560	656	579	169	8538	43.11		

Mean Index of $\sum MWV = 43.11/13 = 3.32$

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY
STANDARD IN SUB-SAHARAN AFRICA

Source: field work, 2016.

4.3. Factors influencing housing quality in the study area

The results of Kendall Partial Correlation (correlation matrix) presented in Table 3 revealed that the socioeconomic factors (A-D) and those related to housing quality (E-I) correlated highly in the following proportions: educational level shows a moderate correlation with monthly income ($r = .463, p < 0.01$), length of stay ($r = -.433, p < 0.01$), age of building ($r = -.414, p < 0.05$) and a weak correlation with drainage system ($r = .160, p < 0.01$). Monthly income has a fairly strong correlation with length of stay ($r = -.502, p < 0.01$) and age of the building ($r = -.625, p < 0.01$) and a moderate correlation with household size ($r = -.402, p < 0.01$). Household size, as a factor, has a relatively strong correlation with length of stay ($r = .766, p < 0.01$), and a moderate correlation with age of building ($r = .545, p < 0.01$). The last factor that is highly correlated is the length of stay, displaying a strong correlation with age of building ($r = .708, p < 0.01$). This gave an indication that the socioeconomic variables among other variables account for the factors that highly influence HQS in the study area. This calls for further analysis using multiple regression analysis to determine the combined and unit contribution of the socioeconomic variables toward predicting housing quality standard in Abeokuta.

Table 3. Correlation matrix of socioeconomic characteristics, building materials and infrastructure

	A	B	C	D	E	F	G	H	I
A	1.00								
B	.463**	1.00							
C	-.218	-.401**	1.00						
D	-.433**	-.502**	.766**	1.00					
E	-.414*	-.625**	.545**	.708**	1.00				
F	.008	-.126*	.330**	.313**	.267**	1.00			
G	.008	-.126*	.330**	.313**	.267**	.440**	1.00		
H	.160**	.002	.292**	.087	.160**	.148**	.148**	1.00	
I	.022	.095	-.215**	-.141*	-.234**	-.028	-.028	.025	1.00

** Correlation is significant at the 0.01 level (2 – tailed), * Correlation is significant at the 0.05 level (2 – tailed)

Key: **A**= Educational level, **B**= Monthly income / salary, **C**= Household size, **D**= Length of stay (in years), **E**= Age of the building (in years), **F**= Condition of the building walls, **G**= Condition of toilets, **H**= Drainage system, **I**= Sewage management

Source: field work, 2016.

4.4. Multiple regression analysis of socioeconomic influence on Housing Quality Standard

The identified socioeconomic variables such as monthly income, length of stay, age of the building, educational level and household size, which have significant relationship as factors influencing HQS were subjected to multiple regression analysis. The variables were further categorized into the dependent variable and the independent one. This examines the contributions of each of the identified independent variables in explaining the dependent ones. The regression model is $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \epsilon$, where Y - Housing Quality Standard

a - Constant

b_i – regression coefficients

X_1 - Monthly income

X_2 - Length of stay

X_3 - Educational level

X_4 - Age of the building

ϵ - Error term

The four variables (Components 1, 2, 3 and 4) were used for multiple regression analysis in sequential order of four models. The multiple regression model summary of these components were in relation to HQS as presented in Table 4.

Table 4. Model summary for the multiple regression analysis

Model	R	R Square	R Square Change	Adjusted R Square	Std. Error of the Estimate
1	.399	.159		.157	4.052
2	.531	.282	.123	.278	3.750
3	.574	.329	.047	.323	3.631
4	.622	.387	.058	.379	3.476

Please Note: Model 1: $Y = 10.662 - 6.932E-5x_1$
 Model 2: $Y = 3.935 - 5.031E-5x_1 + 0.208x_2$
 Model 3: $Y = 0.645 - 6.708E-5x_1 + 0.224x_2 + 1.004x_3$
 Model 4: $Y = -2.546 - 5.684E-5x_1 + 0.088x_2 + 0.234x_3 + 1.954x_4$

Source: field work, 2016 (See Table 6)

Tables 4, 5 and 6 present the results of the multiple regression analysis. Regression model 1 established that Monthly income had a coefficient of determination ($R^2 = 0.159$), implying that

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY
STANDARD IN SUB-SAHARAN AFRICA

monthly income explains the 15.9% variation in HQS. Therefore the model is useful and statistically significant, which makes monthly income a good predictor of HQS. Regression model 2 showed the combined effect of monthly income and length of stay in predicting HQS. Both monthly income and length of stay produced a coefficient of multiple determination of $R^2 = 0.282$. This implies that 28.2% of HQS was predicted by both monthly income and length of stay in the study area. Moreover, the coefficient of determination for length of stay was determined as a change in the coefficient of multiple determination $\Delta R^2 = 0.123$. This was done to ascertain the actual percentage contribution of length of stay to the model. Hence, 12.3% of HQS was predicted by length of stay in the study area.

Table 5. ANOVA Test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	987.632	1	987.632	60.148	.000
	Residual	5205.114	317	16.420		
	Total	6192.746	318			
2	Regression	1747.827	2	873.914	62.129	.000
	Residual	4444.919	316	14.066		
	Total	6192.746	318			
3	Regression	2039.580	3	679.860	51.564	.000
	Residual	4153.166	315	13.185		
	Total	6192.746	318			
4	Regression	2398.407	4	599.602	49.620	.000
	Residual	3794.339	314	12.084		
	Total	6192.746	318			

Source: field work, 2016

Regression model 3 revealed the combined effects among monthly income, length of stay and educational level in predicting HQS. The three components were known to have a coefficient of multiple determination $R^2 = 0.329$. This implies that 32.9% of HQS was predicted by educational level, monthly income and length of stay. In furtherance, the coefficient of determination for educational level was determined as a change in the coefficient of multiple determination $\Delta R^2 = 0.047$. This was done to ascertain the actual percentage contribution of educational level to the model. Hence, 4.7% of HQS was predicted by educational level in the study area. Finally, regression model 4 revealed the combined effect of all four socioeconomic predictors: age of the building, educational level, monthly income and length of stay in predicting HQS. The 4 components produced $R^2 = 0.387$. This implies that 38.7% of HQS was predicted by

educational level, monthly income and length of stay and age of the building. In furtherance, the coefficient of determination for age of the building was determined as $\Delta R^2 = 0.058$. This was done to ascertain the actual percentage contribution of age of the building to the model. Hence, 5.8% of HQS was predicted by age of the building in the study area. Based on these findings, the regression equations were computed for model 4 :

(i) for the unstandardized coefficients ($y = B_0 + B_1x_1 + B_2x_2 + B_3x_3 + B_4x_4$)

$$y = -2.546 - 5.684x_1 + 0.088x_2 + 0.834x_3 + 1.954x_4$$

(ii) for the standardized coefficients ($y = \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4$)

$$y = -0.327x_1 + 0.155x_2 + 0.201x_3 + 0.350x_4$$

Table 6. Correlation coefficient

Model		Unstandardized coefficients		Standardized coefficients B	T	Sig.
		B	Std. Error			
1	(Constant)	10.662	.414		25.724	.000
	Monthly income / Salary	-6.932E-5	.894E-5	-.399	-7.756	.000
2	(Constant)	3.935	.992		3.966	.000
	Monthly income / Salary	-5.031E-5	.867E-5	-.290	-5.805	.000
3	Length of stay	.208	.028	.367	7.351	.000
	(Constant)	.645	1.188		.543	.588
	Monthly income / Salary	-6.708E-5	.912E-5	-.386	-7.358	.000
4	Length of stay	.224	.028	.395	8.111	.000
	Educational level	1.004	.213	.243	4.704	.000
	(Constant)	-2.546	1.279		-1.990	.047
4	Monthly income / Salary	-5.684E-5	.893E-5	-.327	-6.366	.000
	Length of stay	.088	.036	.155	2.426	.016
	Educational level	.834	.207	.201	4.033	.000
	Age of building	1.954	.359	.350	5.449	.000

Source: field work, 2016

Equations (i) and (ii) are the model built for predicting HQS from monthly income, length of stay, age of the building and educational level. Equation (i) was built based on the unstandardized regression coefficients of the predictors with different units of measurement. To better explain the predictor with the highest regression coefficient, Equation (ii) was computed using the standardized coefficients with the error term eliminated as presented in Table 6. Thus, the predictors could be compared directly. From equation (ii), monthly income ($\beta_1 = -0.327$) had a negative regression coefficient, which connotes an inverse relationship between HQS and

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY STANDARD IN SUB-SAHARAN AFRICA

monthly income, meaning that an increase in the monthly income does not translate to a corresponding increase in HQS, but to a decrease. Furthermore, length of stay $\beta_2 = 0.155$, which implies that length of stay results in a positive change in HQS in the study area. Educational level ($\beta_3 = 0.201$) connotes direct relationship between HQS and educational level. This implies that educational level brings a positive change in HQS in the study area. Lastly the age of the building ($\beta_4 = 0.350$) has a positive change in HQS.

The implication of the findings is that income has an inverse relationship with HQS, indicating that an increase in the income of residents does not translate to an increase in the standard housing units. The length of stay of residents in particular housing units affects their maintenance orientation and, in turn, has an influence on the HQS of that particular residence. A unit increase in the age of the building leads to an appreciable increase in the HQS of that particular building in the study area.

5. Conclusion and Recommendations

The study examined the socioeconomic influence on HQS in residential densities of Abeokuta, Nigeria. The results show that quality attached to the condition of housing infrastructure and environmental infrastructure such as toilets, bathrooms, windows, sewage management and drainage system were below the desired and expected standard in the study area. The findings also revealed that overall ratings of satisfaction level of housing and environmental infrastructure were average and fair, respectively. The results of Kendall Partial Correlation between household size and length of stay in the building, toilet condition, condition of the walls, drainage condition and sewage management were 0.466, 0.330, 0.320, 0.292 and -0.215 ($p \leq 0.05$), respectively. The results of the Multiple Regression Analysis showed that socioeconomic attributes, such as household size, monthly income, length of stay, educational level and age of the building explained the 38.7% of the variance in the HQS of the study area ($R^2 = 0.387$; $p = 0.05$). The study concluded that length of stay, educational level and age of building influenced HQS in Abeokuta.

Therefore, the study recommends that relevant authorities in charge of housing should embark upon a sensitization process on the importance of citizen participation in improving environmental and housing infrastructure. This can be done through periodic public enlightenment program on the mass media and social media. Also agencies in charge of

development control should enforce planning laws to guide the physical development in Abeokuta with a view to improving HQS in the study area.

Literature

- Adeleye, O.A., Azeez, T.O. and Yusuff, I.O. (2014): Perception of Housing Quality by Residents and Non Residents of Ibara Housing Estate in Abeokuta, Ogun State, Nigeria. In: *American Journal of Human Ecology*: 3(3); 35-42. <https://doi.org/10.11634/216796221504586>
- Adenuga, O.A. (2013): Factors Affecting Quality in the Delivery of Public Housing Projects in Lagos State, Nigeria. *International Journal of Engineering and Technology*. 3 (3), March, 2013. ISSN: 2049-3444.
- Afon, A.O. (2000): *Use of Residents' Environmental Quality Indicator (EQI) Data in a Residential Housing Improvement*: In effective housing in the 21st century, Nigeria. The environmental forum, F.U.T.A Pp. 115-122.
- Akeju, A.A. (2007): Challenges to Providing Affordable Housing in Nigeria. *A Paper Presented at the Second Emerging Urban Africa International Conference on Housing Finance in Nigeria held at Shehu Yar'adua Centre, Abuja , October 17-19, 2007.*
- Andrew, F.B., Melissa, D.K., Joshua, K.S., Virginia, T.M., Gillam, R.S.K. (2012): *Identifying and Treating a Substandard Housing Cluster Using a Medical Legal Partnership*. Nov., 2012. 130 (5). Available at: <http://www.pediatrics.aappublications.org/content/130/5/831>. Accessed 28 January 2016.
- Encyclopaedia Britannica: Abeokuta Nigeria. Available at: <https://www.britannica.com/place/Abeokuta>. (Accessed 2015)
- Gans, H. (1962): *The Urban Villagers Group and Class in the Life of Italians*. New York Free. Press. Pp. 149-180.
- Independent National Electoral Commission (2015): *List of Political Wards Nationwide*.
- Jiboye, A. (2004): *An Assessment of the Influence of Socio-Cultural Factors on Housing Quality in Osogbo, Nigeria*: M.Sc. Thesis submitted to the Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Jiboye, A.D. (2008): *A Study of Public Housing Satisfaction in Lagos, Nigeria*. Ph.D. Thesis Submitted to the Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Jiboye, A.D. (2012). Post-occupancy evaluation of residential satisfaction in Lagos, Nigeria: Feedback for residential improvement. *Frontiers of Architectural Research*, 1(3), 236-243.
- Matt, B., Carl, C., Sara, S. and Hannah (2013): *People Living in Bad House, Number and Health*. Natcen Social Research. 35 Northampton Square London. ECIV DAXT 0207250 1866. Available at: <http://openaccess.city.ac.uk/14445>. Accessed 16 August 2016.
- Meng, G., Hall, G.B. and Roberts, S. (2006): *Multi-group Segregation Indices for Measuring Ordinal Classes*. *Computers, Environment and Urban Systems*, 30; 275-299.
- Mundo, J.J., Hernandez, A. (2014): *Designing Sustainable and Healthy Homes*. *European Scientific Journal*. 10 (20); 232-243.
- Kutty, K. (1999): Determinants of Structural Adequacy of Dwelling. *Journal of Housing Research*. 10(1); Fannie Mae Foundation.
- Ng'ang'a, B.N. (2014): *Factors influencing provision of quality housing: a case study of Mandera Town, Kenya*. Available at: <http://erepository.uonbi.ac.ke/handle/11295/76276>. Accessed 19 April 2016
- National Population Commission (2010): *2006 Population and Housing Census of the Federal Republic of Nigeria*. Housing Characteristics and Amenities Tables, Priority Tables (LGA). Vol. II, Abuja, Nigeria.
- Okewole, I.A. and Aribigbola, A. (2006): Innovations and Sustainability in Housing Policy Conception and Implementation in Nigeria. *The Built Environment: Innovation Policy and Sustainable Development*. In: Okewole, I. A. (eds.): Covenant University Ota, Ogun State, Nigeria. Pp. 414-420.
- Olayiwola, L.M. (2012): *The Journey Through The Corridor of Housing*. An Inaugural Lecture Series 252 delivered at Oduduwa Hall, Obafemi Awolowo University Ife, Nigeria on Tuesday 13th November, 2012.
- Onibokun, P. (1973): Environmental Issues in Housing Habitability. *Journal of Environmental and Planning*. 5: 461-476.
- Onibokun, P. (1974): Management and Livability of Public Housing. *Journal of Property Management*.
- Raven, J. (1976): *Sociological Evidence on Housing: The Home Environment*. *The Architectural Review*. 142: 236-245.

THE INFLUENCE OF SOCIOECONOMIC VARIABILITY ON HOUSING QUALITY STANDARD IN SUB-SAHARAN AFRICA

- Stanley, F. (2015): *An Analysis of Factors Influencing the Quality of Housing Construction Projects*. Department of Management and Project Management, Cape Peninsula University of Technology, Cape Town, South Africa. *International Journal of Science and Technology*. ISSN 2454-5880. 1 (1); 195-211.
- Sule, R.A. (1982): *Urban Planning and Housing in Nigeria: Problems and Strategies*. New York Vantage Press.
- UN-Habitat (2006): *Regulatory Framework and Strategic Urban Planning and Management. A Paper Presented in African Ministerial Conference on Housing and Urban Development in Nairobi, April 3-4, 2006*.

Wpływ zmienności socjoekonomicznej na jakość warunków mieszkaniowych w Afryce subsaharyjskiej

Streszczenie

Opracowanie miało na celu zbadanie związku między charakterystyką socjoekonomiczną mieszkańców a jakością warunków mieszkaniowych w Abeokuta, Nigeria. Autorzy wykorzystali technikę doboru losowego do wyznaczenia 198 gospodarstw domowych i przeprowadzenia badania kwestionariuszowego z głowami tych rodzin. Uzyskane dane ujawniły, że czynniki socjoekonomiczne są skorelowane w następujących proporcjach: poziom wykształcenia pokazuje umiarkowaną korelację z dochodem miesięcznym ($r = .463$, $p < 0.01$), długością pobytu ($r = -.433$, $p < 0.01$) oraz wiekiem budynku ($r = -.414$, $p < 0.05$); dochód miesięczny wykazuje dość silną korelację z długością pobytu ($r = -.502$, $p < 0.01$) i wiekiem budynku ($r = -.625$, $p < 0.01$); wielkość gospodarstwa domowego prezentuje względnie silną korelację z długością pobytu ($r = .766$, $p < 0.01$), a umiarkowaną korelację z wiekiem budynku ($r = .545$, $p < 0.01$). Wyniki analizy regresji wielorakiej wyniosły $R^2 = 0.387$, co oznacza, że zmienne socjoekonomiczne wyjaśniały 38.7% zróżnicowania jakości warunków mieszkaniowych (*Housing Quality Standard*) jakie istnieje na badanym obszarze. W konsekwencji, wnioski wynikające z opracowania mówią o tym, że długość pobytu, poziom wykształcenia oraz wiek budynku wiążą się ściśle z jakością warunków mieszkaniowych w Abeokuta.

Słowa kluczowe: jakość warunków mieszkaniowych, infrastruktura mieszkaniowa i środowiskowa, wpływ socjoekonomiczny mieszkańców