

FEDERAL INCOME EARNERS AND CONCERNS FOR QUALITY HOMES: AN EVALUATION FOR SUSTAINABLE HOUSING IN AKWA IBOM STATE

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ABSTRACT

Purpose: The study evaluated home qualities and sustainability concerns, with a view to providing an insight into the importance of sustainability concerns on quality of homes occupied by federal income earners in Akwa Ibom state.

Design/methodology/approach: This study adopted a cross-sectional survey design using structured questionnaire purposively administered on 208 households resulting in 193 valid responses. Data were analysed using descriptive, relative importance index and Kruskal Wallis tests.

Findings: The study concluded that there were 45.5%, 50.0% and 72.7% significant home quality attributes among low, medium and high-income earners respectively. There were 76.2%, 71.4% and 66.7% significant housing sustainability concerns among low, medium and high-income earners respectively, with minimal concerns attaining high level consideration. The study concluded that there is significant variation in the home qualities of the various income groups, but there is no significant difference in their housing sustainability concerns.

Practical implication: The study recommends that the low and medium income earners should put more consideration on economic sustainability concerns so as to further enhance the quality of their homes, while the high-income earners should include social concerns together with improved concerns of environmental sustainability for enhanced housing development and maintenance.

Originality/value: The study revealed the rate of importance of housing quality perceived by respondents as well as the moderate significance accorded the sustainability concerns, which have not significantly influenced home qualities among low and medium income earners.

Keywords: Building maintenance; federal income earners; quality homes; sustainable housing; sustainability concerns.

1. INTRODUCTION

According to Ibem, Opokoa, Adeboye, and Amole (2013), buildings are enclosed spaces (shelter) designed and constructed to provide occupants with conducive, safe, comfortable, healthy and secured indoor environment to carry out different kinds of

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activities. Over the years, the necessity for quality shelter has attracted global attention especially in developing countries where the urbanization process has been growing at an alarming rate (Ugonabo and Emoh, 2013). Good quality housing is essential to planning, ensures the safety and wellbeing of people, promotes beauty, convenience and aesthetics in the overall built-up environment (Jiboye, 2010). Oluwaseyi (2019) sees adequate housing as generally being more than having a roof over one's head, but encompasses protection from disposal of household and human wastes, sufficient spaces for health and privacy, security of tenure of occupancy, availability of safe drinking water, affordability and access to employment, health, recreation and educational services.

Irrespective of the importance of housing as one of the best indicators of a person's standard of living and its place in society, it has been observed that the quantity or quality of houses in Nigeria is neither adequate nor satisfactory. The problem of insufficient quality housing is more serious in urban areas in Nigeria as most people live in poor quality housing and unsanitary environments.

According to Ndubueze (2009), the increasing concerns over rising levels of homelessness, housing costs, mortgage defaults and foreclosures, negative equity experienced by households, together with the declining neighbourhoods and over-heated housing markets have concertedly pressed quality housing affordability into the centre of housing policy. The study noted further that the issue of managing the relationship between the price of quality housing and the capacity of the household to pay for their housing is fundamental to the achievement of adequate provision and distribution of housing. This however, depends to a great deal on the income group which it belongs as well as the pressure exerted by other needs on the family earnings. Omole (2010) noted that the problem of low income affects the level of capital formation, which deprives the people of sufficient resources to utilize in improving their homes and keep their environment healthy for comfortable living. The capacity of a household to pay for their housing development depends to a great deal on the income group it belongs as well as the pressure exerted by other needs on the family earnings. Similarly, Agburu (2012) observed that insufficient wages or income makes life extremely precarious for a worker and members of the family.

This study aims at providing an insight into the nature and quality of homes occupied by federal income earners and concerns for sustainability in Akwa Ibom State, with a view to enhancing sustainable housing development and maintenance in Nigeria. The objectives include to evaluate the quality of homes occupied by federal income earners in Akwa Ibom state, and examine the levels of concern for housing sustainability of the federal income earners.

1.1. Research hypotheses

Two hypotheses were postulated for this study.

- i) There is no significant variation in the quality of homes occupied by the federal income earners' in Akwa Ibom state.
- ii) There is no significant variation in the concern for sustainability among the federal income earners.

The results of these hypotheses will provide an insight into the importance of sustainability attributes for the improvement of quality of houses in the study area. The

results will also unveil the orientation of the stakeholders in real estate development on the basic social, economic and environmental concerns that can maximize the development and maintenance of houses among different social and economic strata.

2. REVIEW OF RELATED LITERATURE

A number of studies on building conditions, sustainability concerns and categories of federal income earners were reviewed as a basis for the questionnaire formulation for this study.

2.1. Housing quality indicators and attributes

Housing is one of the most significant factors contributing to individual's quality of life. The quality of housing accounts for both quantitative and qualitative dimensions of housing units, their immediate environment and the needs of the occupants. Quantitative dimension of housing includes objective attributes, which are assessed using physical features, services and environment; while qualitative dimension deals with psychosocial aspects of an individual such as perception, needs, satisfaction and disappointment (Meng and Hall, 2006; Mohit, Ibrahim, and Rashid, 2010; Tas, Tas and Aydin, 2014). Several housing quality indicators and attributes have been identified by various authors including security and privacy in building; ventilation in building; availability of good road network, water and electricity supply, and social infrastructure within the neighbourhood; waste disposal and drainage system; good building design which takes into consideration standard room sizes, availability of basic facilities within house and neighbourhood interaction (Jiboye, 2004; Omole, 2010; Ibem *et al.*, 2013; Adeleye *et al.*, 2014). These attributes thus serve as sources for the variables of housing qualities adopted in this study.

2.2. Sustainability concerns in housing development

Attempts have been made to discuss the concepts of sustainability vis-à-vis sustainable development from different perspectives. The concept of Sustainable Development emerged in 1987 with emphasis on development as a process of change in the direction of investment, orientation of technology and institutional changes which are in harmony to meet human needs and aspirations. It recognizes the integration of environment with development, while emphasizing sustainability as a major attribute. To meet the needs of the present generation, Udoudoh (2014) noted that there must be a continued growth in general and supply of major consumables and services into daily lives and economic production must be considered and effectively managed. This is in recognition that sustainable development is a dynamic process which encompasses all aspects of life for everyone, now and for generations to come.

Sustainable housing therefore encompasses all the processes of providing housing which ensures better quality of life for the inhabitants both now and in the future. In order for development to qualify as sustainable, certain criteria have to be satisfied simultaneously. These are social progress which recognizes the needs of everyone; effective protection of the environment; prudent use of natural resources; and maintenance of high and stable levels of economic growth and employment (Asad and Khalfan, 2007 and Zabihi *et al.*, 2012). Other scholars namely Saroop and Allopi (2014) developed the criteria which defined the essential components by which sustainability may be assessed

collectively. Each criterion relates to a key element of sustainability. Through the measurement and monitoring of these indicators or concerns, the social, economic and environmental effects of infrastructure solutions can be assessed and evaluated to meet stated aims and clients' objectives more effectively. These objectives are efficient layout planning, resources utilization, environmental quality, functional efficiency, future maintenance, economy, safety and social concerns.

Shen *et al.* (2011) also identified thirty (30) sustainability indicators categorized into economic, social and environmental aspects as follows: economical aspect- analysis of market supply and demand, technical advantage, project budget, project financing channels, project investment planning, life-cycle cost, life-cycle benefit/profit, financial risk, payback period, and internal return ratio (IRR). The social aspects are effects on local development, provision of employment opportunities, project function, scale of serviceability, provision of ancillary amenities to local economic activities, public safety, public sanitation, land use and its influence on the public, protection to culture heritage, and promotion of community development; while the environmental aspect includes ecological effect, effect on land pollution, effect on air quality, effect on water quality, noise effect, waste generation, influence on public health, environment protection measures in project design, energy savings, and protection to landscape and historical sites. These served as sources of twenty-one housing sustainability concerns used in this study.

2.3. Classifications of household income and earning capacity

There appear to be diverse opinions on the classifications of household income and earning capacity among the states and federal civil services in Nigeria. For instance, Ndubueze (2009) identified the low income group as those households whose per capita income are below N40,000.00 while the high income groups were identified as households with per capital income earnings above N100,000.00, implying that those between these two extremes are the middle income earners. Jaja (2013) categorized the low income earners as those earning less than N20,000 monthly salaries, the medium income earners as those earning between N20,000 and N50,000, while the high income earners earn more than N50,000 as average monthly salary. Nwude (2013) observed that the classification of households into income earning capacity can be done as: low income - those earning up to N100,000 per month; medium income – those earning up to N300, 000 per month and high income - those earning above N300,000 per month. The study also stated that the classification can also be through civil service salary scale thus: low income - those between Salary Grade Levels 01 and 06, medium income - between Salary Grade Levels 07 and 13, while the high income earners fall between Salary Grade levels 14 and 17. This differ from the categorization by Rukaiyat *et al.* (2015) in a study of housing affordability by federal civil servants in Minna, which grouped federal civil servants into lower cadre (Grade Levels 3 to 7), middle cadre (G/L 8 - 13) and higher cadre (G/ L14 -17). The approach in this study is consequent upon the observation by Omole (2010) that the problem of low income affects the level of capital formation, which deprives the people of sufficient resources to utilize in improving their homes and keep their environment healthy for comfortable living. The use of federal income earners is to allow for a wider level of generalization of result outcome for sustainability in Nigeria as a whole.

2.4. Some previous empirical studies on housing quality

Adedire and Adegbile (2018) assessed housing quality in Ibeju- Lekki, a peripheral settlement outside Lagos metropolitan region, using purposive sample of 370 housing units from clusters of 16 peri-urban. Data were sourced through structured questionnaires, interview (with local planning personnel) and observation schedules administered through a field survey. Analysis of the data were done using descriptive analysis to generate frequencies and percentages on socio-economic profile, neighborhood quality, locational quality, dwelling quality, and building materials used. Tests of correlation were conducted on the mean of variables of neighborhood quality, locational quality and building materials, derived through recoding of variables by means of transformed statistical tool, to establish the factors influencing housing quality in the study area. The results showed a significant positive correlation between household income and housing quality influenced by respondents' socio-economic attributes, building materials, neighborhood quality, and locational quality in the study area. It was concluded that socio-economic characteristics, predominantly income of households, play a major role in the level of housing quality that can be accessed in the study area, and recommended that the state government and private developers should promote alternative building materials to enhance housing affordability by the low-income group, and align urban policy to eliminate disparity in infrastructural development.

Oluwaseyi (2019) employed both descriptive and inferential statistics to assess housing Quality in Osun State, Nigeria. The study used Likert scale to explain respondents' perceptions of condition of houses sampled in Osogbo Local Government. The result of the analysis, revealed that the quality of housing is not encouraging and this is due to the low level of income earned by the inhabitants. The study therefore recommends the use of housing micro-finance which consist mainly of giving loans to low income earners. It was also suggested that both the state and local government should embark on programmes that will encourage provision of social facilities such as pipe-borne water, public toilet facilities, and effective waste disposal system.

Yoade, Adeyemi and Yoade (2018), assessed the housing quality in Ede, Nigeria, and the impacts of urbanization on environmental degeneration of urban built environment. A total of 388 housing units, consisting of 236, 78 and 74 units were drawn for sampling from the high, medium and low density areas of the study area, respectively. The secondary data comprised available census data, official documents and other relevant secondary data were obtained from existing literature, on books and journals. The study revealed that household-size has a significant influence on the overall housing quality in the study area. The study concluded that it is imperative to check and prevent further decay for good living and working environment.

Morenikeji, Umaru, Pai, Jiya, Idowu and Adeleye (2017) examined the factors responsible for the spatial variation in housing quality across the 36 states and the Federal Capital Territory in Nigeria using 33 housing characteristics. The data used are the 2006 Housing Characteristics and Amenities tables which were sourced from Nigeria's National Population Commission, with Principal Component Analysis extracting three components. The first component which accounted for 38% has electricity, water closet toilet, hygienic sources of water and high quality roofing, walling and flooring materials highly loaded on it. The second which accounted for (31%) comprised inferior walling, roofing and flooring materials, pit toilet, traditional and semi-detached house types, while the third component (7%) had mainly zinc wall and public toilet highly loaded on it. These factor loadings were used as variables in discriminant analysis, three distinct regions of differing housing quality emerged corresponding to the western, eastern and northern geographical regions of the

country with 97.3% of the states correctly classified and with the western (high) and northern (low) states at the opposite ends of the quality scale. It was recommended that non-conforming buildings, particularly, residential, and insanitary environment should be put in check through very strict and proactive enforcement of development control edicts and sanitary laws.

Adeoye (2016) evaluated the housing infrastructure and quality in Akure, capital city of Ondo state, Nigeria. It tried to identify the problems that have aided the degradation of basic housing infrastructures, substandard housing, overcrowding and the likelihood of future incidences of disease and epidemics. The study area was divided into high, medium and low – density zones. Existing demographic and land use characteristics of the city, and both primary and secondary data were used. Questionnaire were administered, collection and updating of the base maps, observation checklists and the use of necessary field were the instruments for the study. Penalty scoring was used to assess the conditions and quality of 180 houses selected for the study. The study revealed that Houses in the high – density area have the worst property and environmental characteristics followed by houses in the medium – density area. Many of the houses were categorized as either sub – standard or unfit for human habitation. The study further suggested a regeneration by private investors with possible displacement of residents from the high – density zone to new towns; a vigorous programme of housing and health education; enhanced collaboration between stakeholders to develop enforceable standards for existing housing stock is necessary; while the government is also expected to improve the existing infrastructures.

These studies were limited to assessment of air quality outside Akwa Ibom, without assessing the concerns for sustainability which can have serious influence on the quality of homes.

3. METHODOLOGY

This study adopted a cross-sectional survey approach which is exploratory, descriptive and quantitative. The survey was carried out with the aid of structured questionnaire which was piloted by survey of experts who are conversant with the subject matter. This was to determine whether the questions were ambiguous, unambiguous or have substantially captured the required housing qualities and sustainability attributes. These were tested for reliability and validity and found to be of high level with Cronbach alpha (α) ranging between 0.71 and 0.89 thus can be highly acceptable, since the value of alpha is desirable with the range higher than 0.6 (Gliem and Gliem, 2003).

The study population consists of federal income earners in Akwa Ibom State. The study purposively sampled 208 respondents resulting in 193 valid copies of mail questionnaire comprising 90 low, 62 middle and 41 high income earners. Through the guidance of the group discussion during the pilot study, twenty-two home qualities and twenty-one sustainability attributes were all identified from the related articles reviewed in this study. The measurements were on a five point Likert-scale namely: poor=1, low=2, moderate=3, high=4 and very high=5.

In analysing the collected data, the total weight value (TWV) was then calculated for each of the variables. The TWV was arrived at from the summation of the products of the number of responses for the rating of each variable and the respective weight value for each rating. The TWV helped to arrive at the relative importance index (RII) used to determine the respondents' perception of quality of homes and importance of the sustainability

concerns in line with the formula used by Ugwu and Haupt (2007) and Enshassi, Mohamed and Abushaban (2009) as shown in equation 1:

$$RII = \sum \frac{W}{A} \times N \dots \dots \dots (1)$$

Where W is the weight given to each variable by the respondents and ranges from 1 to 5; A – the highest weight = 5; N – the total number of respondents.

The RII were then classified as: 0-0.359 very low quality (VLQ); 0.36-0.529 low quality (LQ); 0.53-0.679 moderate quality (MQ); 0.68-0.839 high quality (HQ) and 0.84-1.0 very high quality (VHQ) (scale of $0 \leq RII \leq 1$) as adapted from the classification by adapted from Kazaz, Manisali and Ulubeyli (2008). A cut-off score of RII computed was determined by summing the weights and dividing by the total number of weighting items and highest weight respectively: $(1+2+3+4+5)/5/5 = 0.60$. Thus, events that have RII that are higher than 0.60 are defined as having significant quality, those with RII equal to 0.60 are moderate, while those less than 0.60 have insignificant quality. This approach adapted from Ujene (2014) is with the expectation that the use of 0.60 as reference value will effectively cover only important variables in terms of their quality and consideration. The variation in the perceptions of homes quality and consideration for sustainability concerns were analysed using Kruskal Wallis test.

4. PRESENTATION AND DISCUSSION OF FINDINGS

After analysing data obtained from the described methodology, results and finding are presented in this section.

4.1. Characteristics of respondents used for the study

The respondents that supplied the data used for the study were analyzed for an understanding of the characteristics of the people whose perceptions were investigated. For this purpose, the type of house occupied, sex, marital status, working experience, age, and qualification of the respondents were evaluated and the result presented in Table 1.

The result indicated that majority of the low income earners live in separate rooms with shared facilities, self-contain and one-bedroom flat. Majority of the medium income earners live in two and three bedroom flats, while the high income earners live in four bedrooms flat and duplexes. The result also shows that male respondents were dominant among the three groups of income earners. Majority of the respondents were married, hence require quality housing for their families. The result also indicated that the low income earners who were mostly between 40 and 60 years had experience of work and housing issues ranging up to 15 years. The medium income earners were slightly higher in age and experience of work and housing issues, while majority of the high income earners were fast approaching retirement, justifying that they may have passed through housing problem for quite a long time.

Majority of the respondents also have basic educational background as most of them had at least senior school certificates. The results generally indicated that the selected respondents have the required characteristics to provide reliable information for this study.

Table 1: Descriptive results of respondents' characteristics

Characteristics of Respondents	Sub characteristics	GL 01-06 No (%)	GL 07-13 No (%)	GL 14-17 No (%)	Total No (%)
Type of House occupied	Separate rooms with shared facilities	55(61.11)	02(2.23)	00(0.00)	57(29.53)
	Self-contained One-bedroom flat	23(25.56)	12(19.35)	05(12.20)	40(20.73)
	Two & Three-bedroom flat	12(13.33)	43(69.35)	10(24.39)	65(33.68)
	Four-bedroom flat & Duplex	00(0.00)	05(8.06)	26(63.41)	31(16.06)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)
Sex of Respondents	Male	64(71.11)	46(74.19)	31(75.61)	141(73.06)
	Female	26(28.89)	16(25.81)	10(24.39)	52(26.94)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)
Marital Status of Respondents	Single	11(12.22)	06(09.68)	00(0.00)	17(08.81)
	Married	62(68.89)	42(67.74)	31(75.61)	135(69.95)
	Separated/Divorced	09(10.00)	8(12.90)	07(17.07)	24(12.44)
	Widow/Widower	08(08.89)	6(9.68)	03(07.32)	17(08.81)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)
Experience of Respondents on housing issues	1-5yrs	10(11.11)	3(04.84)	00(0.00)	13(06.74)
	6-10yrs	21(23.33)	06(09.68)	03(07.32)	30(15.54)
	11-15yrs	34(37.78)	10(16.13)	08(19.51)	52(26.94)
	16-20yrs	18(20.78)	14(22.58)	13(31.71)	45(23.52)
	>20yrs	07(07.78)	29(47.77)	17(41.46)	53(27.46)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)
Age of Respondents	1-17yrs	00(0.00)	00(0.00)	00(0.00)	00(0.00)
	18-40yrs	31(34.44)	08(12.90)	04(09.76)	43(22.28)
	40-60yrs	43(47.78)	18(29.03)	14(34.15)	75(38.86)
	>60yrs	16(27.46)	36(58.06)	23(56.10)	75(38.86)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)
Qualification of Respondents	Ordinary Level & Trade Tests	19(21.11)	08(12.90)	00(0.00)	27(13.99)
	Ordinary /Higher National Diploma	10(11.11)	07(11.29)	08(19.51)	25(12.95)
	B.Sc	32(35.56)	14(22.58)	10(24.39)	56(29.02)
	M.Sc	24(26.67)	25(40.32)	16(39.02)	65(33.68)
	PhD	05(05.56)	08(12.90)	07(17.07)	20(10.36)
	Total	90(46.63)	62(32.12)	41(21.25)	193(100)

4.2. Evaluation of quality of homes occupied by respondents

In order to evaluate the quality of homes occupied by the respondents in the region, twenty-two attributes of home quality were identified from literature. Respondents were requested to indicate their assessment of the attributes as described in the methodology. The results are presented in Table 2. The results showed that although 45.5% of the quality attribute attained the 0.60 significance level among low income earners, yet only 22.7% attained high quality level. Among the medium income earners 50.0% of the quality attributes were of significant quality of which 27.3% attained high quality. Among the high income earners 72.7% of the attributes were of significant quality out of which 54.5% attained high quality. The result also shows that the home quality attribute of most significance among the low income housing is roof condition, followed by neighbor relationship condition, security and waste disposal facility. Among the medium income houses the attribute of most quality is security, followed by roof condition, state of neighbor relationship and waste disposal facility. The result suggested that the low and medium income earners mostly ensure that they have roof over their heads which provide security and good relationship with their neighbours. Among the high income earners, the result

showed that home quality attribute of most significance is noise control, followed by aesthetic condition, privacy in building and security. This suggested that the high income earners mostly ensure that they live in very quiet, beautiful and secured houses where they have privacy and devoid of neighbor interaction.

Table 2: Results of evaluation of quality of homes occupied by federal income earners

Home Quality Attributes	Low Income Earners - N=90			Medium Income Earners - N=62			High Income Earners-N=41		
	TWV	RII	Rank	TWV	RII	Rank	TWV	RII	Rank
Noise control	143	0.32	20	188	0.61	11	180	0.88	1
Aesthetic condition	256	0.57	14	96	0.31	21	175	0.85	2
Privacy in building	298	0.66	6	159	0.51	18	172	0.84	3
Security	352	0.78	3	260	0.84	1	166	0.81	4
Facilities within house	216	0.48	18	164	0.53	17	161	0.79	5
Landscape/Parking space	264	0.59	12	179	0.58	12	159	0.78	6
Kitchen condition	140	0.31	22	127	0.41	19	152	0.74	7
Wall condition	321	0.71	5	215	0.69	5	151	0.74	8
Ventilation/ air quality	232	0.52	17	192	0.62	9	148	0.72	9
Adequacy of room sizes	271	0.60	9	210	0.68	6	148	0.72	9
Toilet & Bathroom condition	141	0.31	21	127	0.41	19	140	0.68	11
Roof condition	385	0.86	1	253	0.82	2	140	0.68	11
Road network condition	248	0.55	16	174	0.56	14	136	0.66	13
Foundation condition	292	0.65	7	200	0.65	8	130	0.63	14
Doors & Windows condition	266	0.59	11	207	0.67	7	129	0.63	15
Floor condition	254	0.56	15	88	0.28	22	128	0.62	16
Drainage system condition	274	0.61	8	189	0.61	10	120	0.59	17
Electricity supply	152	0.34	19	168	0.54	16	119	0.58	18
Water supply	263	0.58	13	174	0.56	14	117	0.58	19
Waste disposal facilities	335	0.74	4	242	0.78	4	102	0.50	20
Adequacy of circulation spaces	270	0.60	10	178	0.57	13	98	0.48	21
State of neighbours relationship	354	0.79	2	249	0.80	3	75	0.37	22

4.3. Comparison of quality of homes occupied by the income groups

In order to compare the perceptions of quality of homes occupied by the income groups, the first hypothesis was postulated as previously stated. The results of the hypothesis which was tested with Kruskal Wallis test at $p \leq 0.05$ was meant to provide confidence of views and ascertain if significant variation exists in the qualities of homes occupied by the three groups of income earners. The decision rule is that if $p\text{-value} > 0.050$, the hypothesis is accepted, but if $p\text{-value} \leq 0.050$ the hypothesis is rejected. The results are presented on Table 3.

The results in Table 3 showed that the $p\text{-value}$ for the first hypothesis is $0.049 < 0.050$, hence the null hypotheses is rejected, implying that there is significant variation in the quality of houses occupied by the different income earners. The source of variation in the quality of homes occupied, though not covered in the scope of this work, but may be attributable to the level of poverty among the low and some medium income earners as well as lack of social and communal interaction among the rich who prefer to live in mansions in reserved areas with high fence around them and unsatisfactory

consideration for social and environmental sustainability as shown in Ujene, Udoudoh and Ozigbo (2017).

Table 3: Kruskal Wallis result for comparing homes quality of the income groups

Kruskal-Wallis Test							
Items compared among Income groups	Low income	Middle income	High income	Chi- Square	p-value	sig. level	Decision
	Mean	Mean	Mean				
	Rank	Rank	Rank				
Quality of homes	28.730	30.110	41.660	6.025	0.049	0.050	Reject

4.4. Evaluation of the consideration given to housing sustainability concerns

In order to evaluate the consideration given to housing sustainability concerns by the respondents in the region, twenty-one housing sustainability concerns were identified from literature. Respondents were then requested to indicate their assessment of the consideration given to sustainability concerns in ensuring quality homes as earlier described. The results presented in Table 4 shows that 76.2% of the housing sustainability concerns attained the 0.60 significance level among low income earners, from which 66.7% attained high consideration level. Among the medium income earners 71.4% of the housing sustainability concerns were of significant consideration of which 52.3% attained high consideration.

Table 4: Results of evaluation of concerns for Housing Sustainability

Housing Sustainability Concerns	Low Income Earners - N=90			Medium Income Earners - N=62			High Income Earners-N=41		
	TWV	RII	Rank	TWV	RII	Rank	TWV	RII	Rank
Concern for air quality	360	0.80	3	248	0.80	2	171	0.83	1
Concern for profitability	258	0.57	19	184	0.59	16	160	0.78	2
Concern for natural lighting	366	0.81	2	267	0.86	1	157	0.77	3
Concern for financing channels	321	0.71	10	219	0.71	6	151	0.74	4
Concern for payback period	228	0.51	20	184	0.59	16	151	0.74	4
Concern for water quality	315	0.70	11	205	0.66	12	144	0.70	6
Concern for community development	351	0.78	5	216	0.70	8	141	0.69	7
Concern for maintainability	309	0.69	12	218	0.70	8	142	0.69	7
Concern for public health	324	0.72	9	211	0.68	11	137	0.67	9
Concern for public safety	348	0.77	6	242	0.78	3	135	0.66	10
Financial risk concern	285	0.63	16	193	0.62	14	135	0.66	10
Concern for conservation	348	0.77	6	224	0.72	5	131	0.64	12
Concern for stakeholders' satisfaction	354	0.79	4	239	0.77	4	128	0.62	13
Concern for market supply/ demand	260	0.58	18	176	0.57	18	126	0.61	14
Concern for pollution control	265	0.59	17	160	0.52	21	120	0.59	15
Concern for resources utilization	333	0.74	8	213	0.69	10	119	0.58	16
Ecological concern	288	0.64	15	195	0.63	13	117	0.57	17
Concern for environmental aesthetics	309	0.69	12	191	0.62	14	113	0.55	18
Concern for waste generation/control	300	0.67	14	173	0.56	19	111	0.54	19
Energy saving concern	222	0.49	21	167	0.54	20	109	0.53	20
Concern for communal interaction	393	0.87	1	219	0.71	6	99	0.48	21

Among the high income earners 66.7% of the sustainability concerns were given significant consideration out of which only 38.1% attained high level consideration. The result also showed that the sustainability concern of most significance among the low income housing is concern for communal interaction, followed by concern for natural lighting, air quality and concern for stakeholders' satisfaction. Among the medium income earners, the housing sustainability concerns of most significance is concern for lighting, followed by concern for air quality, public safety and stakeholders' satisfaction. The result suggests that the low and medium income earners give most consideration to social and environmental sustainability concerns than economic sustainability concerns.

Among the high income earners, the result showed that the housing sustainability concerns of most significance is concern for air quality, followed by concern for profitability, concern for lighting, financing channels and payback period. This suggests that the high income earners give most consideration to environmental and economic than social sustainability concerns.

4.5. Comparison of the considerations for sustainability concerns by the income groups

In order to compare the perceptions of considerations for sustainability concerns by the income groups, the second hypothesis was postulated as previously stated. The results of the hypothesis which was tested with Kruskal Wallis test at $p \leq 0.05$ was meant to provide confidence of views and ascertain if significant variation exists in considerations for sustainability concerns by the three categories of income earners. The decision rule is that if $p\text{-value} > 0.05$, the hypothesis is accepted, but if $p\text{-value} \leq 0.05$ the hypothesis is rejected. The results are presented on Table 5.

Table 5: Kruskal Wallis result for comparing consideration for housing sustainability among income groups

Kruskal-Wallis Test							
	Low income	Middle income	High income	Chi-Square	p-value	sig. level	Decision
Items compared among Income groups	Mean Rank	Mean Rank	Mean Rank				
Considerations for Housing sustainability	36.570	31.500	27.930	2.362	0.307	0.050	Accept

The results in Table 5 show that the p-value for the second hypothesis is $0.307 > 0.050$, hence the null hypotheses is accepted, implying that there is no evidence in the data to suggest that the perceptions of the different income groups are different. The results indicated that although there are some perceived differences in consideration given to sustainability concerns by the income groups, the differences are not statistically significant. The similarity may be attributable to the general low level of development, sustainability awareness and financial empowerment in developing countries.

4.6. Discussion of findings

It was found that that out of the 45.5% significant home quality attributes among low income earners only 22.7% attained high quality level. Out of the 50.0% significant quality

attributes among the medium income earners 27.3% attained high quality, while 54.5% attained high quality out of the 72.7% significant home quality attributes among the high income earners. The evaluation of federal income earners' home qualities shows that the low and medium income earners live in inadequate quality housing, while the high income earners live in better quality houses. These findings which may be attributable to the inadequate income being earned by these categories of inhabitants supports the similar finding of Oluwaseyi (2019).

The study established that there is significant variation in the quality of houses occupied by the different income earners. The variation in the quality of homes occupied was linked to the level of poverty among the low and some medium income earners as well as lack of social and communal interaction among the rich who prefer to live in mansions in reserved areas with high fence around them and unsatisfactory consideration for social and environmental sustainability. This finding supports that of Adeoye (2016) which revealed that houses in the high density and middle density area have the worst property and environmental characteristics than the low density area. This is attributable to the poverty level of the low income earners who live in high density zones. The implication of this finding is that the poor housing quality noticed among the two lower income groups who live in more crowded zone can exacerbate existing health problems.

The study also found that, out of the 76.2% significant housing sustainability concerns among low income earners, 66.7% attained high consideration level. Among the medium income earners out of 71.4% significant housing sustainability concerns, 52.3% attained high consideration. Among the high income earners 66.7% of the sustainability concerns were given significant consideration out of which only 38.1% attained high level consideration.

The study also found that there is no significant difference in the concern of the various income earners for housing sustainability attributes. This supports the assertion of Low demand for sustainable construction from clients as well as organisations' lack of sustainability strategies because of low awareness about sustainability issues in construction (Tunji-Olayeni, Mosaku, Oyeyipo, and Afolabi, 2018). The concerns for sustainability issues have been found to be fairly significant, but not of significantly high consideration especially among low and medium income groups. Hence, it may be responsible for the inadequate home qualities observed among the low and medium income groups.

5. CONCLUSION AND RECOMMENDATIONS

This study has evaluated federal income earners' home qualities and their concerns for housing sustainability so as to provide an insight into the nature and extent of quality of homes occupied by federal income earners importance of concerns for sustainable in Akwa Ibom state, with a view to enhancing sustainable housing development and maintenance in Nigeria. It concluded that the low and medium income earners live in inadequate quality housing, while the high income earners live in better quality houses. The most significant home quality attributes among the low income housing is roof condition, neighbour relationship condition, security and waste disposal facility. Among the medium income houses the attribute of most quality is security, roof condition, state of neighbour relationship and waste disposal facility, indicating that because of the lean income of the low and medium income earners, they mostly ensure that their housing provide roof over their head, security and good relationship with their neighbours. The high income earners

significantly ensure noise control, followed by aesthetic condition, privacy in building and security, indicating high priorities on ensuring very quiet, beautiful and secured houses where they have privacy and devoid of neighbour interaction.

The study also concluded that, the concerns for sustainability issues have been found to be fairly significant, but not of significantly high consideration especially among low and medium income groups. The sustainability concerns of most significance among the low and medium income housing are concerns for communal interaction, natural lighting, air quality, public safety and stakeholders' satisfaction, indicating that the low and medium income earners give most consideration to social and environmental sustainability concerns than economic sustainability concerns. The housing sustainability concerns of most significance among high income earners are: concern for air quality, profitability, lighting, financing channels and payback period, indicating that they give most consideration to environmental and economic than social sustainability concerns. The study concluded that there is a significant variation in the qualities of homes inhabited by the various income groups, but no significant difference in their concern for housing sustainability concerns. The study therefore recommends that the low and medium income earners should enhance the quality of their homes by putting consideration on economic sustainability concerns, while the high income earners should include social concerns together with improving their concerns for environmental sustainability of housing in the study area. Government should also create enabling environment for the integration of social, economic and environmental sustainability concerns for the improvement of housing qualities through adequate legislature and enlightenment.

6. LIMITATIONS OF THE STUDY

This study is limited to the housing qualities and sustainability concerns selected from literature and the views of the selected construction managers who returned their questionnaire. The source of variation in quality of houses occupied by the different income earners has not been evaluated in this study through post-hoc test, because of the intended scope. The result could be improved by further studies on other housing qualities, sustainability concerns not covered in this study, other respondents from the built environment stakeholders, as well as determining sources of variation in housing qualities. In spite of these limitations, the result could provide reasonable insight into the relevance of housing qualities among income groups and the need for sustainability consciousness, with a view to enhancing sustainable housing, in quality, quantity and affordability in the study area, as well as guide for further studies.

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