The effects of residential environmental factors on residents' housing satisfaction in Ogun State, Nigeria

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Abstract

The study highlights the effects of residential environments on residents' housing satisfaction in Ogun State. The research site consists of residential areas of the selected Local Government headquarters of Ogun state, Nigeria, with 20 Local Government Areas (LGAs). The paper adopted mixed research approach. Data were collected through structured questionnaire. Using an average household size of five as established by National Bureau of Statistics final report of (2007), and the number of buildings in each of the selected communities, a total of five thousand, two hundred and seventeen (5217) copies of questionnaires were derived. However, four thousand six hundred and ninety-one (4691) were retrieved for analysis. Descriptive and inferential statistical tools were used for the analysis. The study reveals that all environmental variables used in predicting respondents housing satisfaction in the study area were significant with P≤0.05. It was further revealed that the most important environmental variable explaining housing satisfaction in the study area is the perception of respondents about the feeling of their neighbourhood (COP) explaining 37.3% of variance in the dependent variable. The implication of the findings is that the neighbourhood social environment and community services aspects of residential environments were positively related to housing satisfaction. The results of this study supported the importance of community involvement at the neighbourhood level. The study recommends that in housing development, the social and physical environmental attributes must be considered when providing housing for the people, be it public or real estate investors.

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Introduction

Many studies on housing satisfaction examine the effects of various housing attributes, neighborhood, and demographic characteristics on housing satisfaction (Onifade and Saibu, 2020; Adegbile et al., 2019; Baillie and Peart, 1992; Galster, 1987; Ha and Weber, 1991; Marans and Rodgers, 1975). Others have analyzed housing satisfaction for special population groups such as married women (Onifade and Saibu, 2020) single-parent families (Bruin and Cook, 1997; Cook et al.,1994) or households at risk of serious housing problems (Crull, 1994). Some were specific to residential locations such as urban Black elders in public housing (Husaini et al., 1991), residents in rural communities (Combs and Vrbka, 1993), older women in Florida (Baillie and Peart, 1992), and elderly residents in subsidized housing (Johnson et al., 1993).

Although there has been consistent agreement that certain factors contribute to housing satisfaction, there are also counter arguments on the extent of relationship or impact of some of these variables. For instance, earlier research on housing satisfaction underscored the importance of the psychological, physical, and social aspects of the residential environment. Some argued that factors regarding the physical environment were more important than the psychological and social environments (Binstock and Shanas, 1985; Lawton, 1986). On the other hand, others posited that the social environment such as one's network, safety, activities, privacy, and services, were more important factors (Lawton and Nahemew, 1979; McAuley, 1987; Tuken, 1994). However, little research appears to have been done on the link between the perceptions of different residential social environments and housing satisfaction especially in Ogun State. Residential satisfaction has long been a topic of great interest in environmental psychology and built environment (Adriaanse, 2007; Fernández-Portero, et. al., 2017). As described by Amérigo and Aragonés (1997), it can be described as an attitude reflecting the fulfilment of residents living in a specific place in relation to their needs, expectations, and

objectives. A substantial amount of research has investigated the antecedents and consequences of residential satisfaction (Amerigo and Aragones, 1997; Fernández-Portero, et., al., 2017).

Regarding factors that influence residential satisfaction, the majority of research has focused on objective and subjective attributes of the residential environment as well as on the personal characteristics of residents. Residential satisfaction has also been shown to be a critical predictor of cognitive, affective, and behavioural characteristics of the residents, including such aspects as life satisfaction, attachment, mental/human wellbeing, and residential mobility (Bonaiuto, 2004; Bonaiuto et al., 2003). Housing satisfaction reflects ''the degree to which occupants feel that their housing is helping them to achieve their goals (Jiboye, 2012). Jiboye (2012) emphasized that the literature is replete with analyses of many variables that are strongly related to housing satisfaction and the occupiers' evaluations of the variables. Some of these are building features (such as number of bedrooms, size and location of kitchens, and quality of materials) and neighbourhood facilities (like schools, hospitals, shops and recreational facilities). (Salleh, 2008). In another study conducted by Tomáš et al., (2015), the paper focused on the perception of residential environment in cities, specific indicators of residential environment were identified, the study concluded that local specificities (safety, good public transport connection to the city centre and noise) must be properly taken into account. Studies have shown that residential satisfaction is a significant indicator of life fulfilment (Lee and Guest, 1983; Russ and Eft, 1979). These discoveries propose that the satisfaction impacts of the physical, economic, and social environment of the dwelling units play a role in housing satisfaction, which consequently influences life satisfaction. Housing satisfaction is perceived as a significant segment of people's general quality of life. Adams (1984) states that for many people, housing is the biggest consumption item in their lifetime, and home is the setting where one discovers refuge, rest, and fulfilment. The home is the place in which people experience

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intimate relationships and thus the home tends to affect the quality of their lives (Morris and Winter, 1978; Stoeckler, 1977; Stoeckler and Larntz, 1986).

Some scholars indicate that the housing concept is beyond mere accommodation for protection or security against elements of nature and human intruders but includes the housing environment both social and physical (Aragonés et al., 2002; Milić and Zhou, 2018). Olotuah (2009) and Olayiwola (2012) opined that housing encompasses all phenomena and environmental qualities, which human beings existence depends on it. This includes biological (clean air, water), psychological (contentment, prestige, satisfaction, privacy, choice, security, freedom), social (interaction with others, human development and cultural activities) components for fruitful subsistence. The essence of this rests in the provision for adequate and accessible shelter on land and wherever human habitation is possible, with required amenities to make it functional, convenient, aesthetically pleasing, safe and hygenic (Huang and Du, 2015). An individual's place of residence or lack thereof, is necessary in defining their quality of life. Millions of families and individuals who are not financially capable below the national poverty threshold are hard-pressed to find decent, affordable housing that meets their economic, social and environmental needs (Nguyen et al., 2018). This is to establish that housing environmental conditions is a consideration in housing provision.

In this regard, housing satisfaction can be defined as an evaluation of the extent to which housing units, services, and social environment are meeting residents' housing needs, expectations and aspirations. It is also a measure of the value individuals or households derive from consuming housing as a product and bundle of services. Renter or Home Owner occupied housing unit(s) that is adequate from the design and physical point of view may not significantly be satisfactory from the occupants' point of view (Onibokun, 1974; Jiboye, 2008). Nevertheless, the study of Francescato et al., (2017) found out that there is a strong correlation between housing satisfaction and physical and social environment.

The link between housing satisfaction and physical environment has been defined along the notion of fifteen aspects, which are density/crowding, safety/security, aesthetics/appearance, site facilities, access to friends, site location/access to community. The rest are maintenance, economic costs, sense of community, management policy, personal freedom/privacy, the perception of community, the perception of neighbour, personality attributes and demographic characteristics (Francescato et al., 2017). The concept of housing satisfaction is, therefore, not only looked at from physical, engineering and architectural components point of view, but also, the components of the immediate environment, behavioural, cultural and social demographics of the household. (Onibokun, 1974). Many studies on housing have been carried out especially on housing satisfaction in Ogun state but the effects of the residential environment on housing satisfaction have not been fully explained. The measure of quality of residential conditions for households is usually premised on residents' needs and aspirations. Satisfaction with housing conditions points towards the actualization of these expectations. Contrarily, complaints on these inadequacies in their living conditions will arise (Permentier et al., 2011). One emerging challenge arising from the process of socio-economic, demographic, cultural and political transformation of urban areas in the developing countries is planning and design urban houses and spaces, to meet the peculiar needs of individuals in agreement with their age, sex and economic status, as well as cultural and religious backgrounds (Ipoh, 2011). Various approaches have been widely used by scholars in carrying out studies on housing satisfaction in Ogun state, Nigeria. There is, therefore, need to examine the satisfaction level in these places with respect to various dwellings, which cut across the residential densities in the city. In addition, the need to study the level of variations of the interrelated factors that determine housing satisfaction across the residential densities in Ogun state is necessary, as it has not been established in literature. Therefore, the research problem as conceived in this study is to

examine the effects of residential environment interrelated factors on housing satisfaction in Ogun state.

Thus, this study seeks to assess the relationship between housing satisfaction and the interrelated factors, such as socio-economic characteristics, environmental characteristics, that influence housing satisfaction in Ogun state, Nigeria. This study will be of significance to planners and housing authorities in housing programme, design and development.

Ogun state is fast developing because of its nearness to Lagos and accommodating large population of people who works in Lagos state. This study, therefore, examines the effect of the social and physical environment on housing satisfaction in selected neighbouurhoods in Ogun State.

Housing situation in Ogun State

The Ogun State was created from the Western Region in 1976, and it inherited the Western Region policy of encouraging house ownership by its workforce rather than the provision of houses by government. As of 1976, therefore, there were only two estates in the State, one in Abeokuta and one in Ijebu-Ode. As there was no regional capital in the State, there were very few government buildings in the new State capital. Other urban centres had even fewer government owned houses, and they were virtually absent in the rural areas.

Most houses in the State were thus, either family compounds or privately built houses. For most of the settlements, the population was diminishing due to migration and the demand for let-able houses was low. The privately built houses were thus rather for status rather than commercial investments. With the creation of the State, and the movement of the capital of the State Government to Abeokuta, housing shortage was the first challenge, in both quality and quantity. This was the start of government involvement in housing production in the State.

The provision of housing in Ogun State by government may be categorised into two. The first is the provision of houses by the Federal Government as detailed above, and from which the State benefited. Specifically, this category includes the following housing developments: During the 1975-1980 development plan period, the Federal Housing Authority (FHA) had allocated 893 plots, completed 512 housing out of the 8000 housing plus land projected for the state, but this was only 17.6% achievement.

The first vehicle for the production of houses in the State was the State Housing Corporation. Created in 1997 as an offshoot of the Western Nigeria Housing Corporation, its primary objective was to increase the availability of dwelling houses, commercial and industrial buildings in the State for the acquisition of members of the public. Within the first year of its creation, 200 housing units were built at Oke Atan, Abeokuta and another 350 units in Ijebu Ode. In September 1984, the Ogun State Property and Investment Corporation, OPIC was formed. The charge to OPIC was to open up prime areas of the State and to carry on the business of property development. 20,000 hectares of land along the Lagos- Sagamu expressway, 8,000 hectares at Agbara/Igbesa, 1,000 hectares along Badagry– Sokoto road were acquired by Government and given to OPIC to manage.Conceptual and theoretical framework

The house is only one in a chain of factors, which determine people's relative satisfaction with their accommodation. Therefore, the adequacy of a house is influenced not only by the engineering elements but also by social, behavioural, cultural, and other elements in the societal environment system. On this basis, the concept of housing satisfaction from the systems approach (defined and theoretically explained by Michelson (1977), Onibokun (1973, 1974), Amole and Mills-Tettey (1998), Kellekc and Bebkoz (2005), Oladapo (2006) and others) was explored and adopted for this study. Assessing housing satisfaction, therefore, would mean evaluating the level of satisfaction of an occupant living in a particular housing unit, located within a particular community, and managed under a type of institutional management. In order

to adequately understand and explain this concept, Onibokun (1974) identified and proposed two underlying assumptions, which were employed to design a conceptual model of housing satisfaction (figure 1).
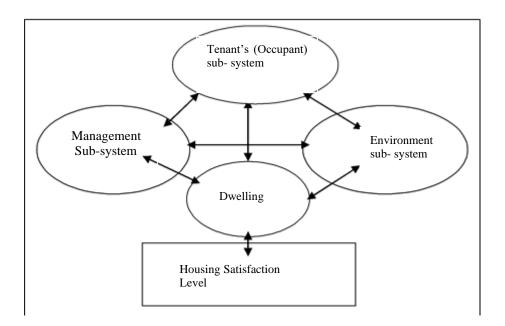

Figure 1: Systems Approach to User's Housing Satisfaction
Source: Lynch, 1960 in Jiboye (2008): A Study of Public Housing Satisfaction in Lagos Nigeria.

These assumptions are that what constitutes satisfaction of housing at a particular point in time can only be defined meaningfully in the relative rather than in the absolute sense. This, according to Eraser (1969), implies that housing satisfaction is not merely an arbitrary standard; it is a state or quality, in the sense that size is a quality. The term does not so much define threshold but denote a point on a bipolar continuum that may vary according to the intrinsic factors that influence its appraisal. Onibokun (1974) also substantiates this point. According to him, "comfort, another human concept, is both relative and changing, relative the extent that comfort, like content, is measured in terms of what is attainable at a given or place, and changing in time or place, and changing in that our ideas of what constitutes comfort in a given set of circumstances changes with achievement".

The second assumption underlying the model according to Onibokun, is that the components of each of the sub-systems and the system as a whole, is inter-dependent and fit these components, taken together, will influence and determine the relative satisfaction the occupants have with their housing. Studies on human perceptions and behaviour have shown that the interaction and inter-dependence of the components of a systems act as a stimulus to an individual who forms a cognitive image or a mental picture of himself/herself and each of the other components in the system. Such a cognitive image formed by the occupant through the perception process becomes the basis of his/her attitude and feelings towards each of the components of the system, and the totality of these feelings is the basis on which his/her relative satisfaction with each sub-system depends. The same notion and principles are expressed by Rapoport, cited in Onibokun (1974), who defines attitudes as "a mental and neutral state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related".

Arising from these theoretical assertions, the concept of residential satisfaction relevant to this study is approached from the theoretical-perspective of the "aspiration-gap" model proposed by Galster (1987) and later adopted by Amole and Mills-Tettey (1998) and Afon (1998). The theory suggests that "people perceive salient attributes of their physical environment and evaluate them based on certain standards of comparison, especially the standard defined by what people may reasonably aspire to. The extent to which there is little gap between perceived actual environment and the aspired - to- environment, provides the measure of satisfaction". Thus, information is required about the characteristics of occupants, those variables or factors which are thought to influence residential satisfaction and the perception and assessment of these factors to which the occupants naturally respond.

The subsystems identified for use in this study are described as follows (Fig 1):

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The dwelling sub-system: The dwelling sub-system refers to all the variables (the characteristics of the housing unit in which the occupier lives). Previous studies have shown that the physical adequacy of a housing unit, as determined by the quality, the quantity and the performance of these variables, will influence, in part, the extent to which the occupier is satisfied with the unit.

The environment sub-system: The environment sub-system refers to the ire of the social, physical, and psychological variables, which are external to the dwelling. These include all the other components, which make up the society or the community, which the housing units, dwellings, and the occupant are a part. Previous studies have shown that the occupant, through interaction, inevitably comes into intact with the various components of the environment, and these have an influence, negative or positive, on satisfaction with a particular housing unit, which is part of that environment. Michelson, in "Man and the Environment", notes that, "any moment may make some phenomena in other systems either easier or more difficult to maintain, so that, all else equal, the phenomena will tend to be found successfully maintaining themselves more in some types of setting than in others". Moreover, in his recent research on factors influencing residential satisfaction among middle-class families in some neighbourhoods in Toronto, Michelson concludes, "... the immediate environment plays a crucial role in the women's lives". However, Ukoha and Beamish, in Oladapo (2006) observes that the suitability of the living environment to the needs of the residents regarded as essential for any successful housing programme. It is clear at the macroscopic level of environment is highly relevant for the present sample. Going by the studies of Santos (2002), Allee (2008) and Alsaqre (2011), housing environmental features, sometime referred as neighbourhood features (Aigbarboa & Thwala, 2013) can be divided into tangible (such as drainage, road networks and playgrounds) and intangible features (such as noise and security). Hence, environmental Performance evaluation whether

for residential, educational, commercial or an office can be carried out based on users/occupant's satisfaction (Ibem et al., 2013); experience (Brown et al., 2010); perception (Cozens et al., 2001) etc.

Further studies concerning which neighborhood feature has received empirical support in relation to neighborhood satisfaction broke down those features into three major categories: (physical, economic, and social). Here are the exact neighborhood features and the supporting evidence. Physical Features Satisfaction with upkeep of homes and yards (e.g., Dahmann, 1983; Galster and Hesser, 1981; Vrbka and Combs, 1993), satisfaction with landscape in the neighborhood (e.g., Miller et al., 1980; Russ-Eft, 1979); satisfaction with the street lighting in the neighborhood (e.g., Dahmann, 1983), satisfaction with crowding and noise level (e.g., Bonnes, Bonaiuto and Ercolani, 1991; Cook, 1988;Miller et al., 1980; Russ-Eft, 1979); satisfaction with nearness of neighborhood to facilities needed (e.g., Andrews and Philips, 1970; Lansing et al., 1970; Russ Eft, 1979; Vrbka and Combs, 1993; Yockey, 1976), and satisfaction with quality of the environment in the community (e.g., Lee and Guest, 1983; Russ-Eft, 1979). Social Features satisfaction with social interactions with neighbors(e.g., Ahlbrandt and Cunningham, 1979; Bruin and Cook, 1997; Cooper and Sarkissian, 1986; Francescato, Weidemann, Anderson, and Chenoweth, 1980; Fried and Gleicher, 1961; Galster, 1987; Galster and Hesser, 1981; Lansing et al.,1970; Milleret al., 1980; Russ-Eft, 1979; Sopher, 1979; Speare, 1974; Weidemann and Anderson, 1982; Western et al., 1974; Yockey, 1976), satisfaction with the outdoor play space (e.g., Lansing, Marans, and Zehner, 1970; Yockey, 1976); satisfaction with people living in the neighborhood (e.g., Campbell, Converse, and Rodgers, 1976; Glaster and Hesser, 1981; Galster, 1987; Lansing et al., 1970; Miller et al., 1980; Russ-Eft, 1979; Vrbka and Combs, 1993; Yockey, 1976). Therefore, this study emphasised the following as social and physical environment, which has been defined along the notion of fifteen aspects. These include

density/crowding, safety/security, aesthetics/appearance, site facilities, access to friends, site location/access to community, maintenance, economic costs, sense of community, management policy, personal freedom/privacy, the perception of community, the perception of neighbour, personality attributes and demographic characteristics.

Methodology

An average household size of five (5) as established by National Bureau of Statistics final report, (2007) and the number of buildings in each of the selected communities were used, a total of five thousand, two hundred and seventeen (5217) copies of questionnaire were derived but four thousand six hundred and ninety-one (4691) were retrieved for analysis. Stratified sampling technique was adopted; this was done to get respondents from each of the categories of the neighbourhood. The sampling procedure entails the identification of the study area, identification of buildings and conduct of interviews with the respondents. Descriptive and inferential analytical methods were utilized for data analysis in the study. In recognition of the level of urbanization in Ogun state and all its regions and sub-region, the research work cut across various selected residential densities of low, medium and high areas in all the headquarters of local government areas in the state. The analysis of respondents' relative satisfaction with housing was carried out using the values of the weighed attributes of housing satisfactions to determine the housing satisfaction index. Thus, the Housing Satisfaction Indexes (HSIs) for each of the subsystems was determined across the different residential densities and the overall study area (Ogun State). The significant agreement or level of satisfaction tested was determined by adopting the mid-point value of the index, which is three (3) (that is indifferent or neither satisfied nor dissatisfied), as the acceptable mean (Oladapo, 2006; Fatoye and Olatubara (2006); Jiboye (2008). This implies that any result significantly different from these mean values was assumed to be either positive or negative (Oladapo (2006); Jiboye (2008). Table 1.3 defined the Variables in the Analysis of the Effects of social

and Physical environment on Housing Satisfaction across the Residential Densities in Ogun State.

In arriving at the housing satisfaction index for each subsystem, the Total Weight Value (TWV) for each attribute within the housing satisfaction subsystem was calculated. This was obtained through the summation of the product of the number of responses for each rating to an attribute and the respective weight value. Mathematically, this is expressed as:

$$TWV = \sum_{i=1}^{5} X_i Y_i$$

Where; X_i = Number of respondents rating an attribute i:

Y_i = Weight assigned to attribute i. i = Value of the rating i.e.

1,2,3,4 and 5

After the calculation of the TWV, the Housing Satisfaction Index (**HSI**) for each of the housing satisfaction attribute was obtained by dividing the TWV by the total number of responses for each housing satisfaction attributes. This is expressed as:

$$HSI = \frac{TWV}{\sum_{i=1}^{5} P_i}$$

The mean Housing Satisfaction Index $\overline{HSI}$ for each for residential environment subsystem was then obtained by summing up the HSI of the attribute and dividing by the total number of attributes in the subsystem. Thus, the mean index for physical and social environmental subsystems were denoted $\textit{HSI}$ENVIRONMENT. Similarly, the mean Housing satisfaction Index for the overall study area was denoted $\textit{HSI}$S.A. Mathematically, the mean Housing Satisfaction Index is expressed as: $\overline{HSI} = \frac{\sum HSI}{N}$

Findings and Discussion

Respondents Level of Satisfaction with the Social and Physical Environment

Presented in Table 1 is the level of satisfaction derived from the Social and Physical environmental attributes in the study area. It was established from the findings that 62.1% of respondents in the study area was satisfied with the level of security while about 45.0% were dissatisfied with the security conditions in the neighbourhood. While examining the level of satisfaction within the residential densities, respondents who were satisfied with the level of security was seen to increase from the low density towards the high-density area. This represents 61.6%, 74.3% and 74.4% of respondents in the low, medium and high-density areas. Conversely, respondents who were dissatisfied decrease in proportion from high to the low-density areas. Further analysis shows the respondents' satisfaction with the friendliness nature of the study area. It was revealed from Table 1 that 66.9% of respondents was satisfied with the friendliness level while 17.3% were dissatisfied and 15.1% were indifferent. In disaggregated form, 62 % of the respondents in the low-density areas were satisfied with Neighbourhood friendliness level, 67.7% in medium density and 67.8% in high density. It shows the neighbourhood is friendly to the residents.

Respondents' satisfaction with access to neighbourhood facilities and amenities (social environment) revealed that 19.4% of respondents in the study area were not satisfied while 14.9% of respondents were neither satisfied nor dissatisfied with the facilities and amenities. However, more than half (65.6%) of residents in the study were satisfied with the neighbourhood facilities. The proportion of respondents who were satisfied with the different facilities was observed to be high in the medium density areas (66.4%) compared to 65.9% and 62.3% in the high- and low-density areas respectively.

The study also showed that a high proportion of respondents in the study area were satisfied with the proximity to access educational facilities such as primary (72.2%), nursery (69.5%) and secondary school (69.4%). Across the residential densities, it was discovered that respondents in the high-density areas were more satisfied with the proximity to educational facilities compared to the medium and low densities. As shown in Table 1, 77.6%, 80.7% and 78.6% of respondents in the high-density areas were satisfied with the proximity to nursery, primary and secondary school respectively. This was higher compared to the proportion of the respondents satisfied in both medium and low-density areas. Similarly, more than half of the respondents in the study area were satisfied with proximity to their place of work (60.0%), medical services (62.4%), city centre (60.0%), recreational services (53.7%) and police services (. 54.9%). This proportion of satisfied respondents was also found to increase from the low to the high-density areas.

Further findings showed that less than half (48.2%) of respondents in the study area were satisfied with the level of population density within their housing unit. It was also observed that more than 50.0% of respondents were either indifferent or dissatisfied with the population density in the study. Within the residential densities, it was established from the result findings that occupants in the low density areas were more (49.2%) satisfied with the level of density within the neighbourhood than 48.8% and 44.6% in the medium and high-density areas respectively.

On friendliness rate, it was established from Table 1 that 67.7% and 67.8% of respondents in the medium and high-density areas respectively were satisfied while 62.6% were dissatisfied with the level at which neighbourhood friendliness level. In the overall study area, 66.9% of respondents were satisfied while 33.1% of respondents were indifferent and not satisfied with the level of friendliness. Table 1 showed that 65% of the respondents in low-density areas were satisfied on the safety condition of the neighbourhood, while 75% and 81% were satisfied in

medium and high-density areas respectively. It shows that that the respondents were satisfied with the safety condition of their locations (74%).

It was also established in Table 1 that 72.3% of respondents in the medium density areas were satisfied with the level of neighbourhood association while 68.2% and 67.6% were satisfied in the high- and low-density areas respectively. Similarly, majority of respondents in the medium density areas were also satisfied with the level of neighbourhood relations, social participation and interaction compared to the low and high-density areas. As indicated, 76.0% of respondents in the medium density were satisfied with the neighbourhood relations within the neighbourhood while 70.4% were satisfied with the level of social participation and interaction. The way respondents felt about the place they live was observed to increase from the low-density areas to the high-density areas. As shown in Table 1, 66.3%, 72.2% and 76.5% of respondents in the low, medium and high-density areas respectively felt satisfied with the building and neighbourhood as a place to live in. On the perception of the respondents as regards the Neighbourhood aesthetics, 56%, 51.6% and 61% of the respondents were satisfied in low, medium and high densities respectively. About 53% of the respondents on the overall were satisfied with the aesthetics of the study area.

Table 1: Level of Satisfaction with the Social and Physical Environment

	Residential densities						Total	
	Low		Medium		High			
Security	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)
Very satisfactory	65	8.4	192	6.0	59	8.3	316	6.7
Satisfactory	412	53.2	2189	68.3	469	66.1	3070	65.4
Indifferent	133	17.2	378	11.8	126	17.7	637	13.6
Unsatisfactory	140	18.1	338	10.5	36	5.1	514	11.0
Very unsatisfactory	25	3.2	109	3.4	20	2.8	154	3.3
Total	775	100.0	3206	100.0	710	100.0	4691	100.0
Friendliness								
Very satisfactory	32	4.1	170	5.3	29	4.1	231	4.9
Satisfactory	453	58.5	2002	62.4	452	63.7	2907	62.0
Indifferent	155	20.0	430	13.4	122	17.2	707	15.1
Unsatisfactory	101	13.0	418	13.0	79	11.1	598	12.7
Very unsatisfactory	34	4.4	186	5.8	28	3.9	248	5.3
Total	775	100.0	3206	100.0	710	100.0	4691	100.0
Facilities/amenities								
Very satisfactory	45	5.8	145	4.5	49	6.9	239	5.1
Satisfactory	438	56.5	1983	61.9	419	59.0	2840	60.5
Indifferent	122	15.7	480	15.0	99	13.9	701	14.9
Unsatisfactory	130	16.8	435	13.6	105	14.8	670	14.3
Very unsatisfactory	40	5.2	163	5.1	38	5.4	241	5.1
Total	775	100.0	3206	100.0	710	100.0	4691	100.0
Density								
Very satisfactory	114	14.7	146	4.6	69	9.7	329	7.0
Satisfactory	267	34.5	1417	44.2	248	34.9	1932	41.2
Indifferent	199	25.7	814	25.4	251	35.4	1264	26.9
Unsatisfactory	128	16.3	538	16.8	114	16.1	778	16.6
Very unsatisfactory	69	8.9	291	9.1	28	4.0	388	8.3
Total	775	100.0	3206	100.0	710	100.0	4691	100.0
Aesthetics								
Very satisfactory	38	4.9	127	4.0	13	1.8	178	3.8
Satisfactory	396	51.1	1525	47.6	421	59.3	2342	49.9
Indifferent	130	16.8	574	17.9	166	23.4	870	18.5
Unsatisfactory	160	20.6	809	25.2	75	10.6	1044	22.3
Very unsatisfactory	51	6.6	171	5.3	35	4.9	257	5.5
Total	775	100.0	3206	100.0	710	100.0	4691	100.0
Proximity to nursery school								
Very satisfactory	66	8.5	159	5.0	20	2.8	245	5.2
Satisfactory	407	52.5	2080	64.9	531	74.8	3018	64.3
Indifferent	118	15.2	517	16.1	89	12.5	724	15.4
Unsatisfactory	162	20.9	350	10.9	50	7.0	562	12.0
Very unsatisfactory	22	2.8	100	3.1	20	2.8	142	3.0
Total	775	100.0	3206	100.0	710	100.0	4691	100.0

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Table 2: Respondents' perception on the Physical and Social Environment in Selected Neighbourhoods in Ogun State

Social and Physical Environment Variables	Residential densities						Study Area	
	Low		Medium		High			
	TWV	HSI	TWV	HSI	TWV	HSI	TWV	HIS
Privacy	2910	3.75	11927	3.72	2702	3.81	17539	3.74
Security	2677	3.45	11635	3.63	2641	3.72	16953	3.61
Friendliness	2673	3.45	11170	3.48	2505	3.53	16348	3.48
Safety	2704	3.49	11658	3.64	2661	3.75	17023	3.63
Facilities/amenities	2643	3.41	11130	3.47	2466	3.47	16239	3.46
Density	2560	3.29	10207	3.18	2346	3.30	15109	3.22
Proximity to police service	2473	3.19	10582	3.30	2391	3.37	15446	3.29
Proximity to medical service	2516	3.25	10895	3.40	2482	3.50	15893	3.39
Aesthetics	2535	3.27	10246	3.20	2432	3.43	15213	3.24
Proximity to nursery school	2658	3.43	11466	3.58	2611	3.68	16735	3.57
Proximity to primary school	2727	3.52	11654	3.64	2687	3.78	17068	3.64
Proximity to secondary school	2650	3.42	11490	3.58	2637	3.71	16777	3.58
Proximity to workplace	2565	3.31	11236	3.50	2635	3.71	16436	3.50
Distance to city centre	2511	3.24	10691	3.33	2586	3.64	15788	3.37
Social participation and interaction	2650	3.42	11523	3.59	2537	3.57	16710	3.56
Community association	2686	3.47	11891	3.71	2595	3.65	17172	3.66
Community engagement	2701	3.49	11536	3.60	2546	3.59	16783	3.58
Community Perception	2747	3.54	11579	3.61	2630	3.70	16956	3.61
TOTAL	47586	61.39	202516	63.16	46090	64.91	296188	63.13
$\overline{HSI}_{ENVIRONMENT}$	$\overline{HSI}_{low} = 3.41$		$\overline{HSI}_{medium} = 3.51$		$\overline{HSI}_{high} = 3.61$		$\overline{HSI}_{S.A.} = 3.51$	

Respondents' Relative Satisfaction with Physical and Social Environment in the Study Area

The results in Table 2 on the satisfaction level of the respondents with their residential environment suggest that the occupants of the various buildings in the study area were neither satisfied nor dissatisfied with the social and physical environment (neighbourhood) as the mean Housing Satisfaction Index for environment attributes ($\overline{HSI}_{S.A.}$) was 3.51. Further findings

showed that respondents derived more satisfaction higher than the mean environmental index of 3.51 from attributes such as community association (3.66), community engagement (3.66), safety (3.63) and friendliness (3.63), respondents' community perception (3.61), security (3.61), proximity to primary school (3.64), secondary school (3.58) and nursery school (3.57). These attributes were observed to be skewed towards being indifferent and satisfied.

Comparing these values among the residential zones, the figures revealed that the mean environmental housing satisfaction index ($\overline{HSI}$ENVIRONMENT) for medium (3.51) and high (3.61) density areas were higher compared to the low density (3.41) and very low in comparison with the overall study area except higher in high density. This result implies that occupants' housing satisfaction as regards the physical and social environment was slightly above average in the order of ranking across the three residential densities.

The Impact of Social and Physical Environment on Housing Satisfaction

The influence of the environmental and neighborhood variables on the housing satisfaction was examined using stepwise regression analysis. In doing this, eighteen social and physical environmental related variables were used in predicting respondents housing satisfaction in the study area. The overall performance of the stepwise multiple regression analysis as depicted in Table 3 showed that environmental variables explained 78.9% of the variance of housing satisfaction in the study area as multiple coefficient of determination (R^2) value for all the independent variables was 0.789. The multiple coefficient (R) also showed a positive strong relationship of 0.888. The stepwise regression model of the social and physical environmental factors predicting housing satisfaction in the study area is given as follows:

$$HS = \beta_o + \beta_1 COP + \beta_2 PMS + \beta_3 SEC + \beta_4 FAC + \beta_5 PSS + \beta_6 PWP + \beta_7 CAA + \beta_8 AES$$
$$+ \beta_9 DES + \beta_{10} DCC + \beta_{11} NEF + \beta_{12} PNS + \beta_{13} CEE + \beta_{14} PPS + \beta_{15} SCF$$
$$+ \beta_{16} SPI + \beta_{17} PPS$$

The effects of residential environmental factors on residents' housing satisfaction in Ogun State, Nigeria

Findings from the study showed that all environmental variables used in predicting respondents housing satisfaction in the study area were significant with P≤0.05. As shown in Table 3, it was revealed that the most important environmental variable explaining housing satisfaction in the study area is the perception of respondents about the feeling of their neighbourhood (COP) explaining 37.3% of variance in the dependent variable. The proximity to medical services was the second important variable contributing 17.2% variation in explaining respondents housing satisfaction. The level of security (SEC), availability of facilities and amenities (FAC), proximity to secondary school (PSS), proximity to workplace (PWP) and community association (CAA) contributed 8.9%, 4.3%, 3.8%, 2.6% and 1.3% of variance respectively in explaining respondents housing satisfaction. Other environmental variables as shown in Table 3 explained less than 1% variation of housing satisfaction in the study area. In addition, the correlation between housing satisfaction and environment variables showed a positive and strong relationship.

Table 3: Stepwise Multiple Regression Analysis of Social and Physical Environmental Attributes in Ogun State

Variables	R	R^2	R^2 change	B	Beta	Sig.
COP	0.610 [a]	0.373	0.373	4.137	0.124	0.000
PMS	0.738 [b]	0.545	0.172	5.337	0.173	0.000
SEC	0.796 [c]	0.634	0.089	2.747	0.082	0.000
FAC	0.822 [d]	0.676	0.043	5.442	0.173	0.000
PSS	0.845 [e]	0.714	0.038	3.541	0.109	0.000
PWP	0.860 [f]	0.740	0.026	3.186	0.100	0.000
CAA	0.867 [g]	0.752	0.013	2.979	0.089	0.000
AES	0.874 [h]	0.764	0.011	2.916	0.097	0.000
DES	0.878 [i]	0.772	0.008	2.880	0.096	0.000
DCC	0.882 [j]	0.778	0.006	3.107	0.102	0.000
SCF	0.885 [k]	0.783	0.005	2.606	0.082	0.000
PNS	0.886 [l]	0.786	0.003	1.425	0.044	0.000
CEE	0.888 [m]	0.788	0.002	1.378	0.042	0.000
PPS	0.888 [n]	0.789	0.001	1.331	0.044	0.000
SCF	0.889 [o]	0.790	0.000	1.209	0.035	0.001
SPI	0.889 [p]	0.790	0.000	0.976	0.031	0.002
PPS	0.889 [q]	0.790	0.000	0.871	0.026	0.023
(F=1036.409, Sig.<0.05)						

Table 4: Definition of Variables in the Analysis of the Effects of social and Physical environment on Housing Satisfaction across the Residential Densities in Ogun State

Variables	Definitions
Dependent = Housing Satisfaction	Satisfaction = 1, Otherwise = 0
Independent (Predictors)	
Residential density (RED)	
Social and Physical Environmental Attributes	
Security (SEC)	Satisfactory = 1, Otherwise = 0
Friendliness (NEF)	Satisfactory = 1, Otherwise = 0
Safety (SCF)	Satisfactory = 1, Otherwise = 0
Access to facilities/amenities (FAC)	Satisfactory = 1, Otherwise = 0
Neighbourhood Density (DES)	Satisfactory = 1, Otherwise = 0
Proximity to police service (PPS)	Satisfactory = 1, Otherwise = 0
Proximity to medical service (PMS)	Satisfactory = 1, Otherwise = 0
AESTHETICS (AES)	Satisfactory = 1, Otherwise = 0
Proximity to nursery school (PNS)	Satisfactory = 1, Otherwise = 0
Proximity to primary school (PPS)	Satisfactory = 1, Otherwise = 0
Proximity To secondary school (PSS)	Satisfactory = 1, Otherwise = 0
Proximity to work place (PWP)	Satisfactory = 1, Otherwise = 0
Distance to city centre (DCC)	Satisfactory = 1, Otherwise = 0
Social participation and interaction (SPI)	Satisfactory = 1, Otherwise = 0
Community association (COA)	Satisfactory = 1, Otherwise = 0
Community engagement (CEG)	Satisfactory = 1, Otherwise = 0
Community Perception (COP)	Satisfactory = 1, Otherwise = 0

Conclusion

The study revealed that some of the social and physical environmental attributes identified in the literature are found to correlate with housing satisfaction. Investigation established that there is a positive and strong relationship between housing satisfaction and the identified

attributes. The study showed that the residents' satisfaction with housing is influenced by security, residents' community perception, facilities and amenities, the residential density, safety to community association and engagement. The implication of these findings is that residents' satisfaction is dependent on the availability and adequacy of any of these social and physical environmental variables and it would have negative or positive effects on the occupants' satisfaction with their housing units. In housing construction and development, the social and physical environmental attributes must, therefore, be put into consideration while providing housing for the people, be it public or real estate investors. This finding supports Francescato et al. (2017), that social and physical environment should be accommodated in housing development.

It is, therefore, imperative to state that residential environmental factors are very important in housing development. Therefore, every stakeholder in housing construction and management should accommodate some of the identified social and physical environmental factors in this study in order to enhance the acceptability, habitability and satisfaction of the occupants/users of the housing units. This study, however, is not exhaustive, as further research is required to provide information and further establish some of the findings of this study. Further study/ research is required on the socio-cultural characteristics of various ethnic groups and cultures with respect to housing development and management in Nigeria. Locational factors and the relevance of social interaction in housing satisfaction are recommended for further research with respect to housing development. Future research is encouraged to replicate the present study among different ethnic groups in Nigeria.

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