

Assessment of Housing Conditions and Reported Health Problems Among Residents in Owerri West Local Government Area, Imo State.

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Abstract- *The study assesses housing condition and reported health problems among residents in Owerri West Local Government Area, Imo State. The study employed a descriptive cross-sectional survey to access the housing conditions and reported health problems among residents in Owerri West Local Government Area, Imo State. The survey was designed with the use of structured questionnaires administered to 400 residents chosen from three autonomous communities of the three clans in the Local Government Area. Hygrometer (Humidity meter) was used to measure relative humidity and temperature of the houses in the studied areas. Findings reveal that malaria was the most reported ailment followed by hypertension and arthritis the least. The result shows that majority of the houses in the studied areas are type C and D and they are not built in compliance with the National Building Code. Hence, most of the residents are exposed to having malaria. The result also showed that type A and B buildings have high relative humidity and temperature and this shows that most respondents in type A and B stand a better chance of not been hypertensive as compared with their counterparts in type C and D houses. From the results, there was no significant relationship between housing conditions and arthritis. The result also shows that a greater percentage of residents living in type C and D buildings have poor disposal facilities and means of water supply, these could be contributive factor to their having ailment. The study concludes that housing conditions affects the health of the residents in the three autonomous communities across Owerri West Local Government Area, Imo State. Recommendations include deliberate efforts by the government to enforce building of houses in compliance with the National Building Code, public enlightenment amongst others.*

I. INTRODUCTION

Poverty is commonly defined as the absence of access to fundamental human requirements, with housing being of utmost importance. This holds true

in Nigeria and other developing nations where a large portion of the population lives in poverty. The significance of housing for survival, alongside food, cannot be overstated in such contexts (Gbadebo & Adeoti, 2015). Housing is recognized world-wide as one of the basic necessities of life and pre-requisite to survival of man (Onibokun, 2013). A house is a place that provides shelter, refuge, comfort, security, and dignity. The housing industry can be a stimulus to national economy. A house also provides the physical framework in which human, social, economic and cultural resources are realized, enriched, and integrated (Onibokun, 2013).

Due to lack of basic social amenities like electricity, treated potable water, good and safe roads, and access to basic healthcare services in many deprived areas as well as indiscriminate dumping of refuse and waste management in the environment have been shown to have negative impact on the health outcome of individuals and families some of which may be arthritis, malaria, hypertension, etc. (Thompson et al, 2020; Regmi et al, 2019 as cited in Adeniyi, 2023). Also, the residents of places with poor housing facilities have been shown by various scholars such as Ogundahunsi & Adejuwon (2014); Popoola et al (2015); Ndukwe, 2019; and Mohd et al (2024) to have various health problems ranging from physical, mental, social and economic negative impacts.

Healthy housing is a shelter that supports a state of complete physical, mental and social well-being. Healthy housing provides a feeling of home, including a sense of belonging, security and privacy. Healthy housing also refers to the physical structure of the dwelling, and the extent to which it enables physical health, including being structurally sound,

by providing shelter from the elements and from excess moisture, and by facilitating comfortable temperature, adequate sanitation and illumination, sufficient space, safe fuel or connection to electricity, and protection from pollutants, injury hazards, mould and pests. Weather housing is healthy also depend on factors outside its walls. It depends on the local community, which enables social interactions that supports health and well-being. Finally, healthy housing relies on the immediate housing environment, and the extent to which this provides access to services, green space, and active public transport options, as well as protection from waste, pollution and the effect of disaster, whether natural or man-made (Bonnefooy, 2007)

According to WHO (2009), people with poor health and negative well-being are more likely to live in poor housing and that improving housing conditions will improve health and save money. There are many diseases that have been linked with poor housing conditions among which are arthritis, malaria, hypertension etc.

According to Afolayan as cited in Popoola et al (2015) said that housing goes beyond the materials used in its construction but a collection of facilities that makes the designed building efficient, functional and livable by human and individual human standards. They went further to state that “Housing represents a place of satisfaction, safety, characterized by human protection, a place of human abode and dwelling. It encompasses the totality of the environment and infrastructure which provide human comfort, enhance people’s health and productivity as well as enable them to sustain their psycho-social or psycho-pathological balance in the environment where they find themselves.

Igwe et al (2017) stated that housing involves access to land, shelter and the necessary amenities to make the shelter functional, convenient, aesthetically pleasing, safe and hygienic. Okafor (2016) as cited in Igwe et al (2017) asserted that housing all over the world has remained an interdependent phenomenon that faces mankind and it represents one of the basic human needs which no doubt has a profound impact on the health, welfare and productivity of every individual irrespective of socio-economic status,

colour or creed. Henilane (2016) Opined that “the need for housing is not only one of the basic human needs, but also the indicator of living standard of the population. Today it is a topical issue that housing has to be comfortable, economical and reasonably maintainable, as well as architectonically expressive and compliant with the environment”.

Temperature and Humidity: Extreme temperatures and high humidity levels can harm health. Humans responds to heat is dependent on the body’s ability to cool itself. An important cooling mechanism is perspiration and its evaporation from the skin and therefore, because high air humidity can reduce and eventually prevent net evaporation, the health effect of high temperature depends also on relative humidity (or more precisely the dew point of air Cold weather may cause joints to stiffen and increase pain for individuals with arthritis. Likewise, excessive heat and humidity can lead to joint swelling and discomfort. Inadequate insulation or heating systems in housing can amplify the impact of temperature and humidity on arthritis symptoms and hypertension (Hajat, 2014).

Indoor Air Quality: Poor indoor air quality has a number of adverse health effects. It can adversely affect nervous and cardiovascular systems. Each year, approximately 3.8 million people die prematurely from illness attributable to the house hold air pollution. Poor indoor air quality can lead to arthritis and hypertension (WHO 2018).

Accessibility and Mobility: Most homes are not currently built with accessibility in mind and there is a high chance that they can be occupied by people with arthritis and hypertension and this will affect them negatively especially if they have limited mobility (Smith et al, 2008)

Since the dawn of time, humans have designed places of abode that people afford for protection from the natural elements. Most of these efforts have attempted to create internal environments that are conducive for living and the optimal performance of daily activities (Altgeld, 2014). In order to develop these internal environments, man has developed and utilized a range of sophisticated tools and scientific methods to gain an understanding of his surrounding

climatic conditions. With this knowledge, man has endeavoured to design building materials that are capable of assisting in creating an appropriate climate in indoor space that will alleviate the effects of the external environment on personal comfort (Wafi & Ismail, 2008).

One of the significant objectives of designing buildings is to ensure the internal comfort to occupants since most people generally spend 85 – 90% of their time indoors and thus providing a comfortable and healthy environment is imperative (Wafi & Ismail, 2008).

The importance of housing covers the entire aspects of human life. Primarily, it involves physical protection from hazards which ordinarily may be regarded as shelter but also provide the setting from many of the basic biological and social processes necessary to sustain life, which permitting the healthy growth and development of the mind. In all, housing as a unit of the environment of man, has a profound influence on the health, social behavior, satisfaction and general welfare of the community. It reflects the cultural, social and economic values of a society as it is the best physical and historical evidence of civilization in a country (Aluko, 2009).

The National Building Code, NBC 2006 set out minimum standards on building pre-design, design, construction and post construction stages in order to guarantee good building practice- through the attainment of quality, safety, and expertise. Despite the existence of National Building Code, NBC, 2006 many individuals still build their houses the way it suits them. One will wonder if they are not aware of the existence of the National Building Code, NBC, 2006.

The quality of housing conditions plays a decisive role in the health status of the Residents. Many health problems are either directly or indirectly related to the building itself, because of the construction materials that were used and the equipment installed, or the size or design of the individual dwellings. Representing the spatial point of reference for each individual, the home also has a broad influence on the psychosocial and mental well-being by providing the basis for place attachment and identity as well as

a last refuge from daily life. However, especially, for this mental dimension of housing satisfaction and the meaning of home to the resident, not much data on the relation between health and well-being, and subjective satisfaction, and housing perception are available (Ranson, 2011).

In developing countries, people's housing has been a major area of concern with increasing in population as a result of increasing interest in working in companies or industries. The rise in population which has led to various problematic conditions of peoples' housing which range from inadequate infrastructure facilities to overcrowding, has indeed met with renewed interest in sourcing and researching the best practicable approach towards the enablement and efficient, conducive housing environment. It is essential for housing to provide the basic infrastructure facility needed by the people. Such facilities include, toilets, running water, electricity, kitchen and a recreational area. Provision of these facilities in good working order is something that is not always readily available. It is a fairly common occurrence for these facilities to either be unavailable or in a state of disrepair (Aluko, 2009).

Some studies have suggested that residential building may influence peoples' growth and behaviour in relation to health conditions (Araujo & Murray, 2010; Lanasa et al, 2016).

The affordability of housing is crucial for some people, for others, comfort and home-like attributes are their main concerns. Considering the importance of housing, a recent study suggested that students have significantly higher expectations for housing than their parents did when they were students, and students are willing to pay for certain amenities (Roche, 2010).

Then, a number of studies have examined peoples' housing (Holahan & Wilcox, 2008; Brandon et al, 2008; Cross et al., 2009; Araujo& Murray, 2010) there is a lack of research on students' housing preferences, and methods and research instruments in this area remain under developed.

Typically, it has been suggested that availability of decent housing structure causes peoples to be less likely to move out or leave for other peoples' houses,

which is more likely to make good health progress, and more capable of achieving a higher level of academic performance for students (Loring, 2016).

Poor housing covers a wide range of issues, including homelessness, overcrowding, insecurity, housing that is in poor physical condition, and living in deprived neighbourhoods (Harker, 2016). The range of health problems which can be attributed to poor housing conditions is large, from psychological and physiological effects to specific diseases varying in the degree of associated morbidity (Chapin, 2011). There is a large and significant body of scientific literature that demonstrates convincingly that there are direct causal links between different aspects of poor housing and particular health conditions (Smith, 2009). Health problems that are associated with poor housing include infectious diseases, non-infectious diseases, respiratory diseases such as asthma, skin diseases, malaria fever, typhoid fever, hypertension, diarrhoea, cholera and psychological problems (Smith, 2009).

Since people housing provides not only physical protection but also a healthy social and behavioral stability, the productivity of a set of people may not be totally unconnected with their housing condition.

Statement Of the Problem

Poor condition of housing has always been one of the major challenges facing some rural and urban areas in Nigeria where most people tend to exceed the available facilities provided by the building. In Nigeria, there is no town that has not its own share of problems. Towns and cities are characterized by many problems. The notable problems facing housing ranges from overcrowding of people which amount to increased pressure on infrastructures, social amenities and rapidly deteriorating environment (Opayomi, 2013).

There are different types of housing environments in Nigeria, and Imo State in particular. Some houses were built in line with the specification of the Nigerian National Building Code of 2006, 2009, and 2011. Others were constructed without following the specifications of the aforementioned Building Codes. While some of the houses have almost every needed

basic amenities, others lack all the necessary amenities. The various housing conditions have varying effects on the health of the occupants or residents (Adeniyi, 2023).

Due to lack of basic amenities like electricity, treated potable water, good and safe roads, and access to basic healthcare services in many deprived areas as well as indiscriminate dumping of refuse and waste management in the environment have been shown to have negative impacts on the health outcome of individuals and families (Thompson, et al, 2020; Regmi, et al, 2019 as cited in Adeniyi, 2023). Also the residents of places with poor housing facilities have been shown by various scholars such as, Ogundahunsi & Adejuwon (2014); Popoola et al (2015); Ndukwe, 2019, and Mohd, et al (2024) to have various health problems ranging from physical, mental, social and economic negative impacts.

Owerri West Local Government Area, Imo State has housing environment that depict the characteristics as stated above. Hence, the researcher was poised to assess the various housing conditions and the reported health problems amongst the residents of the area. The health problems of interest were malaria, hypertension and arthritis.

General Objective

The general objective of this study is to assess the housing conditions and reported health problems among residents in Owerri West Local government Area, Imo State.

Specific Objectives

The following are the specific objectives of this study:

1. To determine the housing patterns in Owerri West Local Government Area, Imo State.
2. To determine the proportion of houses built in compliance to National Building Code in Owerri West Local Government Area, Imo State.
3. To determine the level of knowledge of the respondents on housing conditions.
4. To determine the health conditions of residents of Owerri West Local Government Area, Imo State.

Research Questions

1. What are the kinds of housing patterns in Owerri West Local Government Area, Imo State?
2. Do the people of Owerri West Local Government Area carry out their buildings in compliance with the National Building code?
3. What is the level of knowledge of the people on housing conditions?
4. What are the health problems associated with poor housing conditions?

Research Hypotheses

The study is guided by the following hypotheses:

Null Hypothesis 1: The housing condition has no significant association with the age of the people in Owerri west Local Government Area.

Null Hypothesis 2: The housing conditions has no significant association with the gender of the people in Owerri west LGA.

II. MATERIALS AND METHODS

A cross-sectional descriptive study design was built for the study which involves the collection and analysis of data from a population or a representative subset at a defined time. The study was carried out in Owerri West is a Local Government Area of Imo State, Nigeria. The population of this study are basically people living in their residential buildings in Owerri West Local Government Area. As at 2016 to 2018 the total number of houses registered according to Owerri Capital Development Authority was 197. Also, the area has an area of 295km² and a population of 99,265 as at the 2006 census. The population was projected at the rate of 3% per annum which was 141525 as at the year 2018. The sample size for the study is four hundred (400) occupants (landlords or tenants) in their residential buildings determined using Taro Yamane's sample size estimation proposal (Taro Yamane, 1967). A multi-stage sampling technique was adopted in the choice of respondents or residents for the study. Owerri West Local Government Area of Imo State comprises of three clans which are divided in the ratio of 1:2:3 for Umunwoha, Ara and Ochie respectively with respect to their sizes. The first stage of random

sampling was done to choose the compounds where the respondents were drawn from. A second stage of random sampling was done for the 67 compounds for Umunwoha, 133 for Ara and 200 for Ochie.

A third stage of stratified random sampling technique for respondents who may manifest the symptoms and signs of malaria, hypertension and arthritis was done. A respondent or resident was chosen from each of the compounds to make up the four hundred (400) for the study (sample size).

A well-structured questionnaire was designed for the collection of relevant data for this study. The questionnaire (instrument) was designed in self-administration type and it was prepared in simple English language.

The questionnaire was divided into five (5) sections where section A contains socio-demographic characteristics of respondent such as age, gender, income, education etc; Section B covers housing patterns where questions were asked to ascertain their knowledge on the condition and structure of the building. Section C: covers the compliance with National building code where questions were asked to ascertain the level of compliance of the respondent with National Building Code. Section D covers knowledge of the people on housing conditions where questions were asked to ascertain their knowledge on housing conditions. Section E covers health problems associated with poor housing conditions where questions were asked on health problems associated with poor housing conditions. The self-developed structured questionnaire was approved by my project supervisors and validated by three (3) statisticians in the Department of Public Health, Federal University of Technology, Owerri. Corrections were made based on the validators and my supervisors comments. My supervisors also approved the use of hygrometer and observation checklist for the study.

The questionnaire was pretested and distributed to a small group of respondents (40 occupants) in Owerri North LGA which had similar characteristics to those in the target population at Owerri west as a neighbouring L.G.A. The result was analyzed using Chronbach's Alpha Coefficient of Reliability test and

a reliability coefficient greater than 0.70 was obtained.

A letter of introduction was collected from the Head, Department of Public Health, Federal University of Technology, Owerri and presented to the leaders of the selected study areas. Verbal consent was obtained from the participants and the purpose of the study was explained to them before the questionnaire was given out to fill. The data were collected from the respondents in Owerri West Local Government Area through questionnaire administration. Each eligible participant was interviewed and those who refuse to give their consent were skipped.

The collected data for the study was cross tabulated in an excel worksheet and transported into Statistical Package for Social Sciences (SPSS, version 20.0). The analysis was done using descriptive statistics and the results were displayed in frequency tables and charts. Then, frequency tables were generated for the socio-demographic distribution of respondents. Bar charts were subsequently created to aid visual appreciation of pattern of housing conditions. Chi square was used to examined whether an association exist between possible reported health effect and housing conditions of the people in Owerri West Local Government Area, Imo State. The significance level for all statistical analysis was set at $P < 0.05$. ANOVA was used to determine the relationship between housing conditions and relative humidity and temperature.

The study received ethical approval from the Ethical Committee of the Department of Public Health, School of Health Technology, Federal University of Technology Owerri and informed consent were obtained from the participants (respondents).

III. RESULTS

4.1 Socio-Demographic Characteristics of the Respondents in the study area

The result in table 1 presented socio-demographic characteristics of respondents; 1 (0.3%) were less than 18-28years, 2 (0.6%) were between 29-38 years, 247 (25%) were between 39-48 years, 100 (25%) were between 49-58 years and 50 (12.5%) were 59

years and above. In respect to gender, 280 (70%) were male while 120 (30%) were for female.

On the same table, the highest percentages 200 (50%) of the participants were married followed by widow ones with 99 (24.8%) and 10(2.5%) were single and separated. Majority 170(35.4%) of participants were in secondary school followed by non- formal education with 120 (30%), tertiary education had 80 (20%) and only 20 (5%) had primary education. Also, highest percentages (45.3%) of the respondents were Artisan, 20% was for petty trading/farming and 15% was for Civil Servant/Public Servant and unemployed/student/apprentice had 10%. On monthly income allowance of the respondents, highest response 180(45%) were on those reported between ₦18, 000- ₦48, 000 ₦11,000-N20,000; between ₦ 49, 000- ₦78, 000 recorded 100(25%), ₦ 79,000-₦ 108, 000 has 80(20%), greater than ₦ 109, 000 has 40(10%).

Table 1: Socio-demographic Characteristics of Respondents in the study area

Statements	Frequency	Percentage
Age range of the participants		
18-28years	1	0.3
29-38years	2	0.5
39-48years	247	61.7
49-58 years	100	25.0
59 years and above	50	12.5
Total	400	100.0
Gender range of the participants		
Male	280	70.0
Female	120	30.0
Total	400	100.0
Marital status		
Single	10	2.5
Married	200	50.0
Separated	10	2.5
Divorced	30	7.5
Widow	99	24.8
Widower	51	12.8
Total	400	100.0

Educational status		
Non- Formal Education	120	30.0
Primary Education	20	5.0
Secondary Education	180	45.0
Tertiary Education	80	20.0
Total	400	100.0

Occupation of the participants		
Unemployed/Student/apprentice	40	10.0
Artisan	181	45.3
Petty trading/farming	80	20.0
Civil Servant/Public Servant	60	15.0
Business tycoon	39	9.8
Professional (Doctor, Lawyer, Engineer)	0	0.0
Total	400	100.0

Monthly income range		
₹18,000- ₹48,000	180	45.0
₹49,000- ₹78,000	100	25.0
₹79,000- ₹108,000	80	20.0
₹109,000 and above	40	10.0
Total	400	100.0

The figure 1 presented the living area of the participants, urban was 12.5%, rural was 25% and semi-urban was 62.5%.

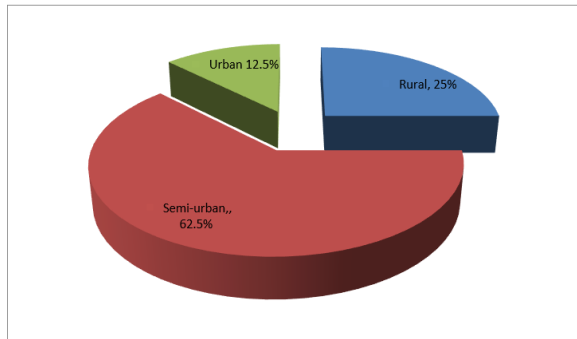


Figure 1: Response of Participants in the study area where they live

The figure 2 presented the type of housing pattern of the participants, highest percentage was 40% for single room, followed by 25% for flat, 10% for bungalow and the least was duplex with 2.5%

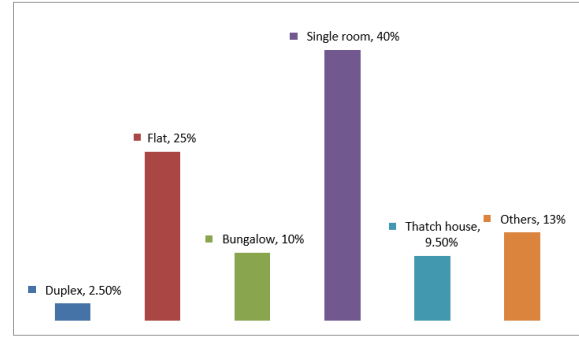


Figure 2: Type of housing Patterns in the study area

Type A Housing Pattern: knowledge of the people on housing conditions

The result in table 2 below presents the knowledge of participants on type A housing conditions. Majority 310 (77.5%) of the participants said yes the building constructed with strong or impervious materials while no was 90 (22.5%) and 340 (85%) said house well concreted and plastered, 380 (95%) said the wall of the building and the floor were supported with a damp proof course (DPC). Out of 400 participants, only 89 (22.2%) reported that building premises have a well-constructed drainage system while 311 (77.8%) was against it; 260 (65%) said the house have adequate facilities for sanitary disposal of waste. More half 270 (67.5%) of participants reported that their houses have adequate ventilation (Natural/artificial), 302 (75.5%) said that Aluminum long span was the type of roofing the house was made of followed by corrugated iron sheets with 98 (24.5%). 120 (30%) reported that the building premises properly fenced while 280 (70%) said no to that idea. Equal number 160 (40%) participants reported that their buildings have 2-5 rooms and above.

Table 2: Type A Housing Pattern/Conditions in the study area: knowledge of respondent on housing

Statements	Frequency	Percentage
Building constructed with strong or impervious materials		
Yes	310	77.5
No	90	22.5
Total	400	100.0

House well-constructed and plastered

Yes	340	85.0
No	60	15.0
Total	400	100.0

Strong wall and the floor supported with a damp proof course (DPC)

Yes	380	95.0
No	20	5.0
Total	400	100.0

Building premises have a well-constructed drainage system

Yes	89	22.2
No	311	77.8
Total	400	100.0

House have adequate facilities for sanitary disposal of waste

Yes	260	65.0
No	140	35.0
Total	400	100.0

House have adequate ventilation (Natural/artificial)

Yes	270	67.5
No	130	32.5
Total	400	100.0

Type of roofing of the house

Aluminum long span	302	75.5
Corrugated iron sheets	98	24.5
Raffia	0	0.0
Others	0	0.0
Total	400	100.0

Building premises properly fenced

Yes	120	30.0
No	280	70.0

Total	400	100.0
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Number of rooms in the building

2	80	20.0
3-5	160	40.0
5 and above	160	40.0
Total	400	100.0

The figure 3 presented the means of water supply in the house, highest percentage was 44% for borehole, followed by 31% for well water, 20% for tap water and the least was stream water with 5%.

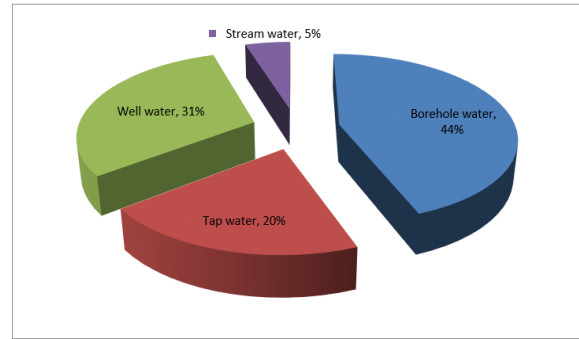


Figure 3: Means of water supply for houses in the study area

Type B Housing Condition/Pattern

The result in table 3 below presents the knowledge of participants on type B housing conditions. Majority 310 (77.5%) of the participants said yes the building constructed with strong materials while no was 90 (22.5%) and 320 (89%) said the house well concreted and plastered, 350 (87.5%) said the wall of the building and the floor were supported with a damp proof course (DPC). Out of 400 participants, 90 (22.2%) reported that building premises have a well-constructed drainage system while 310 (77.8%) was against it.

Table 3: Type B Housing: Knowledge of respondent on housing

Statements	Yes		No		Total
	Freq	%	Freq	%	
Building constructed with strong materials	310	77.7	90	22.5	400
Building well-constructed and plastered	320	89.0	80	20.0	400
Strong wall and the floor supported with a damp proof course (DPC)	350	87.5	50	12.5	400
Building premises have a well-constructed drainage system	90	22.5	310	77.7	400

The figure 4 presented the number of rooms the building have. Highest percentage was 50% 3-5 rooms, followed by 40% on 5 rooms and above and 10% for those that reported 2 rooms.

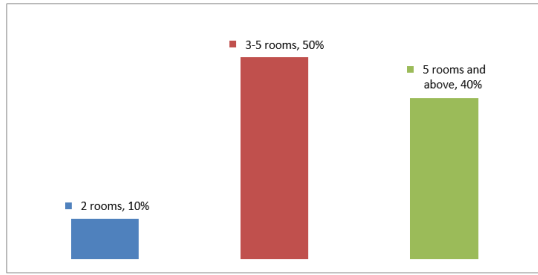


Figure 4: Number of rooms in the buildings in the study area

The figure 5 presented the means of water supply in the house, highest percentage was 20% for borehole, followed by 30% for well water, 40% for tap water and the least was stream water with 10%.

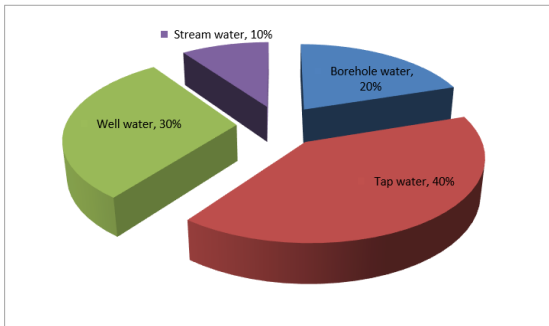


Figure 5: Means of water supply in the houses in the study area

The figure 6 presented the number of waste disposal facilities does the building have, highest percentage (45%) reported two waste disposal facilities, followed by 30% according to those reported three waste disposal facilities, 10% said one waste disposal facility and 10% reported more than four waste disposal facilities.

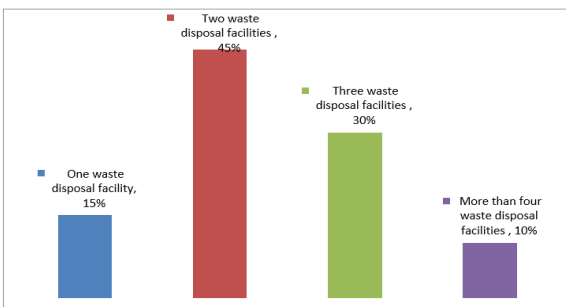


Figure 6: Number of waste disposal facilities in the study area

Type C Housing Condition/Pattern: knowledge of respondent on housing

The result in table 4 below presents the knowledge of participants on type C housing conditions. 120(30%) of the participants said yes the building constructed with mud blocks and roofed with corrugated iron sheets while no was 280(70%) and 80(20%) said the building constructed with brick materials and roofed with corrugated iron sheets, 360(90%) said the building have toilet/bathroom facilities.

Table 4: Type C Housing Pattern: knowledge of respondent on housing

Statements	Yes		No		Total
	Freq	%	Freq	%	
Building constructed with mud blocks and roofed with corrugated iron sheets	120	30.0	280	70.0	400
Building constructed with brick materials and roofed with corrugated iron sheets	80	20.0	230	89.0	400
Building have toilet/bathroom facilities	360	90.0	40	10.0	400

Type D Housing Condition/Pattern: knowledge of respondent on housing

The result in table 5 below presents the knowledge of participants on type D housing conditions. Majority 380 (70%) of the participants said no, the building was not constructed with wood and roofed with corrugated iron sheets while yes was 20 (5%). Only 50 (12.5%) said the building was constructed with brick materials and roofed with corrugated iron sheets while 350 (87.5%) was against the idea. Also, 310 (77.5%) said the building was constructed with raffia and 90 (22.5%) said no. The building have good ventilation and lighting, 88 (22%) said yes while with 312 (78%) said no.

Table 5: Type D Housing Conditions: knowledge of respondent on housing

Statements	Yes		No		Total
	Freq	%	Freq	%	
Building constructed with wood and roofed with corrugated iron sheets	20	5.0	380	95.0	400
Building constructed with bamboo and roofed with corrugated iron sheets	50	12.5	350	87.5	400
Building constructed with raffia	310	77.5	90	22.5	400
Building have good ventilation and lighting	88	22.0	312	78.0	400

Compliance with National Building Code

The result in table 6 below presents the compliance with National Building Code 120. 120 participants (30%) said that their building plans were approved by Owerri Capital Development Authority (OCDA) while 280 participants (70%) said no to that. Majority 150 (53.6%) of the participants said their building plans were not approved by Owerri Capital Development Authority because there was no time to pass through the process of approval, 99 (35.3%) said no money to pay the necessary fees and 31 (11.1%) approval by OCDA is not necessary.

Table 6: Compliance with National Building Code

Statement	Frequency	Percentage
Building plan approved by Owerri Capital Development Authority (OCDA)		
Approved	120	30.0
Not approved	180	70.0
Total	400	100.0
Reasons for unapproved building plan by Owerri Capital Development Authority		
No time to pass through the process of approval	150	53.6
No money to pay the necessary fees	99	35.3
Approval by OCDA is not necessary	31	11.1
Others	0	0.0
Total	280	100.0

Knowledge of the People on Housing Conditions

The result in table 7 presents the knowledge of the people on housing conditions; 181 (45.3%) said they were aware that the condition of their houses can affect human health while 219 (54.8%) said no. The source(s) of the awareness; Environmental Health Officers had 20 (5%), Television had 259 (64.8%), radio was 43 (10.8%), public lecture 78 (19.5%). Aware of the existence of National Building Code; 121 (30.2%) agreed while 279 disagreed to that idea. The source(s) of the awareness of building bye-laws; Environmental Health Officers had 152 (38%), Television had 149 (37.3%), radio was 61 (15.3%), public lecture 38 (7%).

Table 7: Knowledge of the People on Housing Conditions in the study area

Statement	Frequency	Percentage
Awareness that the condition of a house can affect an individual's health		
Yes	181	45.3
No	219	54.8
Total	400	100.0

Sources of awareness that housing conditions affect health of an individual

Environmental Health Officers	20	5.0
Television	259	64.8
Radio	43	10.8
Public Lecture	78	19.5
Others	0	0.0
Total	400	100.0

Awareness of the existence of building code by the government

Yes	121	30.3
No	279	69.8
Total	400	100.0

Sources of awareness of building code by the government

Environmental Health Officers	152	38.0
Television	149	37.3
Radio	61	15.3
Public Lecture	28	7.0
Others	10	2.5
Total	400	100.0

IV. DISCUSSION

Assessment of housing conditions are reported health problems among resident in Owerri West Local Government Area, Imo State was carried out. Housing conditions was studied by determining the housing patterns, proportion of houses built in compliance to national building code, level of knowledge of respondents on housing conditions, means of water supply and waste disposal facilities used by the residents of Owerri West Local Government Area, temperature and relative humidity of the houses in the study area and the reported health conditions of residents of Owerri West Local Government Area, Imo State.

From the results, it was observed that housing condition were classified into four different types and type A and B were fairly good housing conditions in relation to building material, housing roofs, doors and windows, cemented/tiled floors and adequate spacing within the housing premises compared to type C and D of housing conditions. This research outcome also conforms to the opinion of Olotuab (2006), who stated that, houses in Nigeria are thus characterized by structurally unsound, functionally obsolete, economically unprofitable and socially unacceptable houses both in urban and rural area.

Types of housing pattern in the study area

The result shows that out of the 400 houses in the study area, 40%(160) are single rooms, 25% (100) are flat, 10% (40) are bungalow, thatch houses 9.5%(38), other houses 13% (52), and the least was duplex with 2.5% (10). From the result, majority of the houses in the study area are mainly type C and D housing conditions.

This may be due to the fact that most people within the area cannot afford to build or pay for rent that has standard structure. This research outcome conforms to the opinion of Olotuab (2006), who stated, houses in Nigeria are thus characterized by structurally unsound, functionally obsolete, economically unprofitable and socially unacceptable houses both in urban and rural areas. According to Gbadebo & Adeoti, (2015), the high percentage of poverty profile at rural environment no doubt contributed much to the poor quality of rural housing landscape where not

less than 65 percent of housing stocks have corrugated roofing material, 71 percent with mud wall material as well as poor housing facilities as compared with this study result with 40% of housing being single rooms and roofed with corrugated iron sheets as well as 9.5% being thatch houses. Following the instruction from Kayode (2010), it was identified that the materials used for construction, building condition, and age of building as physical housing status indicators were not good enough.

The study also agrees with Owocye (2013) which states that sun dried blocks and mud accounts for the highest material used for building in most remote areas.

Compliance to National Building Code: The result shows that 180 respondents (70%) said that their building plans were not approved by Owerri Capital Development Authority. To some of the respondents there is no time to pass through the process of approval of building plan, for others, there is no money to pay the necessary fees and lastly, some said that there is no need for approval of their building plans by Owerri Capital Development Authority. All these factors contribute to the building of substandard houses which may have negative health effects on the residents of the study area.

Level of knowledge of the respondents on the housing conditions

Some of respondents in the study area reported poor knowledge of housing condition on their health conditions while few of the respondents have the awareness through Environmental Health Officers and Television. Poor level of awareness of some of the respondents in the study area on the impact of housing condition on health could be one of the major factors accounting for poor housing standard. Poor housing can increase the incidence of malaria, hypertension and arthritis.

In respect to water supply, the findings indicated tap water, well water and borehole as the common source of water supply in type A and B of housing conditions.

Amadi (2011) stated that housing conditions have different ways in which it can protect against

contaminants and they includes the following; provision of safe and sanitary water supply, protect the water supply system against pollution, provision of toilet facilities that minimize the danger of transmitting disease, protection against sewage contamination of the interior surfaces of the dwelling, avoid unsanitary conditions near the dwelling, allow sufficient space in sleeping rooms to minimize the danger of contact infection and allow sufficient space in sleeping rooms to minimize the danger of contact infection.

Means of water supply and waste disposal facilities used by residents

In respect to water supply, the findings indicated tap water, well water and borehole as the common source of water supply in type A and B of housing conditions while respondents type C and D housing conditions uses stream water. With respect to waste disposal facilities, majority of the houses type C and D houses uses one waste disposal facility while those in type A and B housing conditions uses three to four waste disposal facilities. Amadi (2011) stated that housing conditions have different ways in which it can protect against contaminants and they includes the following; provision of safe and sanitary water supply, protect the water supply system against pollution, provision of toilet facilities that minimize the danger of transmitting disease, protection against sewage contamination of the interior surfaces of the dwelling, avoid unsanitary conditions near the dwelling, allow sufficient space in sleeping rooms to minimize the danger of contact infection and allow sufficient space in sleeping rooms to minimize the danger of contact infection. Poor waste disposal facilities can attract mosquitoes thereby predisposing one to malaria attack.

Conclusion

Based on the findings of the study, it was established that the housing conditions of the residents in the studied area have possible health impacts such as malaria and hypertension. The study also showed that there was no strong association between housing conditions and arthritis among the respondents. The study revealed that most of the houses in the study area were built without approval of their building plans by Owerri Capital Development Authority. The study also revealed that a higher percentage of houses

in the study area are mainly type C and D with a few of type A and B houses. Also, most of the respondents uses one waste disposal bin and their means of water supply is mainly stream water especially for those in type C and D houses. This can be shown in the common sicknesses/ailments the people regularly come down with and the rate/frequency of sickness and/or hospitalization. Therefore, there is need to check these lapses in the conditions of the houses to effect improvement. Poor housing conditions cause different health conditions. Most of the diseases resulting from housing have a direct relation to poverty and non-compliance to National Building Code.

V. RECOMMENDATIONS

The following recommendations are made based on the findings of the study:

- The government should ensure that all houses are built in line with the National Building Code.
- Government and non-governmental agencies should carry out enlightenment campaigns on the need for building decent houses.
- Every house should provide good physical and environmental conditions in order to prevent health problems
- Good hygiene practices should be applied in every household to avoid creating an environment conducive to pests

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