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AN APPRAISAL OF HOUSING ENVIRONMENT AND HUMAN HEALTH STATUS: EMPIRICAL EVIDENCE FROM OJE RESIDENTIAL NEIGHBOURHOOD IN IBADAN NORTH EAST LGA, NIGERIA

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Abstract
The study is premised on the observed concurrence in the conceptualisations of "housing" and "health. Inadequate living conditions affect resident's health negatively, and a vast majority of the world population continues to live in deplorable housing conditions. This paper, therefore, examined residential housing and human health status among the residents of the Oje community in Ibadan North-East Nigeria. From a population of about 10,585 people, the stratified sampling technique was used in stratifying the study area into four zones, while the simple random technique was used in selecting 220 household heads or their representatives. Data analyses were done using descriptive and inferential statistics. The study provides evidence of housing environment-related diseases, namely malaria (98.0%), cough (30.0%), typhoid (24.0%), and diarrhoea (38.0%). Furthermore, the result provides an evidence-based association between residential household conditions and human health in the study area. There was also a significant association between the residential household conditions and human health status, namely; the incidence of malaria and drainage system (χ^2=34.54, p<0.05), incidence of cough and room density (χ^2=32.54, p<0.05), incidence of typhoid and sanitary condition (χ^2=16.38, p<0.05) and incidence of cough and structural condition (χ^2=31.55, p<0.05). The study concludes and recommends that monthly environmental sanitation should be strengthened, with defaulters facing serious punitive measures, like a one-month jail term without any option of a fine. Also, environmental hygiene and drainage clearance should be vigorously upheld, House owners or their representatives are to provide drainage facilities in their houses where such are lacking; regular public awareness programmes on housing conditions and health issues should be invigorated, to improve and enhance standard of living, liveability and wellbeing of the residents.

Keywords: Residential housing, human health status, household condition, environmental sanitation.

Background to the Study

Adequate housing is a critical human need necessary for the enjoyment of all other human rights (UN-Habitat, 2010). However, the sector faces the reality of a continuous increase in deficient dwellings, majorly attributed to poor design and maintenance. A great number of people daily continue to struggle with poor housing conditions including overcrowding, high cost of housing, and absence or poor infrastructural facilities among others; all these are sources of concern to urban planners, scholars and policymakers, considering their implications on the health and well-being of the population. Government efforts towards addressing this problem have led

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to the development of standards and legislation through building codes which ensure that people are provided with better quality shelters that seek to offer protection from adverse environmental conditions (WHO, 2011). In a similar argument, Nwachukwu, Fidelis, and Charles (2010) posit that environmental conditions have worsened as a result of increasing urbanization, industrial expansion and unprecedented population growth; with undesirable consequences on the conditions of housing, both in dilapidated areas, as well as the new housing estates.

Housing conditions are considered as the sum of external forces, both natural and man-made that impact the wellbeing of man. They also consist of life support devices that provide comfort to make the residents of a housing unit comfortable (Ankeli et al., 2015). Evidence from the WHO has shown that the risk of transmitting such diseases as pneumonia, bronchitis, tuberculosis, and gastrointestinal infections increases with a high occupancy rate because of the proximity of people living together (WHO, 2010). Similarly, Bonnefoy (2007) identified some of the housing quality parameters that may influence the well-being of the occupants to include; access to water, poor environmental properties, and conditions of living that could predispose occupants to diseases including malaria, typhoid, and diarrhoea. Moreover, while access to water may not constitute a challenge to urban cities in developed nations, it is still recognised as a daunting challenge in developing countries. However, accessing efficient, quality and sustainable water supply in the disadvantaged neighbourhoods is being restricted as a result of prohibitive costs. This situation becomes worsened in places with substandard and precarious housing units; and their associated problems of poor sanitation and health concerns (Benzie et al., 2011).

Several studies (Agbo et al, 2012; Bonefoy, 2007; Maqbool et al., 2015; Rauh et al., 2008) have established a link between housing conditions and human health. In the Oje community of the Northeastern part of Ibadan, Nigeria, there has been little investigation on how housing quality is related to the health conditions of residents. Meanwhile, a preliminary investigation of the study area, however, shows the presence of dilapidated buildings, coupled with the poor sanitary condition of the neighbourhood. This study, therefore, seeks to provide answers to the level of incidence of housing-environment-related disease, and the relationship between residential housing conditions and human health, in the study area.

The Study Area

Oje is located within Ibadan North-East Local Government in Ibadan Metropolitan area of Oyo state. Ibadan, the capital city of Oyo state lies between latitude 17^0 9' N and 7^0 29' North of the Equator, and longitude 3^0 47' East and 3^0 59' East of the Greenwich Meridian. Oje is a high-density residential area located within the traditional core of the city with some parts extending to the northern region. Oje is characterised by old dilapidated residential buildings owned by individuals with a perpetually poor and unhygienic housing environment, littered with excreta and decomposing household wastes. River channels are usually converted into a conveyor belt for solid and liquid wastes. All these provide a good breeding ground for pathogens to thrive thereby making the inhabitants susceptible to infectious diseases. The structure of the population in the area shows a mixture of old and young people with an average population of

about 10,585 based on the 1991 population census figure (NPC, 1991).

Literature Review and Conceptual Framework

Literature Review

The quality of housing is regarded as a key factor that influences the health status of the occupants. This is because several problems have been directly or indirectly attributed to the building design, size, installed equipment, and materials used for constructing the building (Bonnefoy, 2007). Additionally, housing is seen to be a crucial social predictor of both mental and physical health, as well-built housing shields residents from outside pollutants that might be harmful to their health (Maqbool, Viveiros, and Ault, 2015).

Studies have constantly identified several housing-related factors which negatively influence the health of the occupants, including indoor environment quality, physical conditions of the building, the social and environmental elements, neighbourhood and macro-policy environment; and the building layout and architecture (Bonnefoy, 2007). Other health implications of sub-standard housing conditions include; the risk of contracting respiratory infections, such as asthma, and lung cancer due to exposure to radon and asbestos; melancholy and worry; burns and accidents that cause harm or death; hypothermia; and inflammation of the skin and eyes among others (Olukolajo et al., 2013). Corroborating this, a higher risk of developing rheumatoid arthritis, food poisoning, allergies, infections, hypothermia, physical injuries from accidents, depression, anxiety, and respiratory and cardiovascular disorders has been linked to poor housing conditions (UK House of Parliament, 2011).

Similarly, it has also been shown that individuals with bad health and poor well-being have higher chances of living in poor housing, and improving the housing conditions will invariably enhance the health status of the inhabitants thus leading to a reduction in the cost of living. On the other hand, people who live in damp and muddy houses are more vulnerable to health challenges including allergic rhinitis, asthma, and respiratory infections. In the same vein, buildings that have mould can pose a risk to the health of babies, young children, the elderly, people with skin diseases, and those undergoing chemotherapy (WHO, 2009). In a study conducted by Agbo et al. (2012), it was discovered that ill-health conditions including typhoid and para-typhoid fever, dysenteries, diarrhoea, cholera, schistosomiasis, hookworm, ascariasis, guinea worm, urinary tract infections, as well as several other intestinal and parasitic illnesses, can be acquired through subpar lavatory facilities, which can operate as a haven for dangerous germs including bacteria, parasites and viruses. Also, environmental factors especially the quality of air which affects residential heating sources and indoor allergens have been reported to trigger asthma, while a low-quality or badly-maintained housing unit is susceptible to invasion by rodents and insects such as mould, cockroaches, and dust mites, which invariably, host organisms causing asthma and other respiratory infections (Rauh et al., 2008).

Aligning in the argument is NCHH (2009), which submits that, structural deficiencies and plumbing problems can cause water leakage which provides a breeding ground for these pests and makes the house accessible to them. Furthermore, too much moisture in the house encourages the formation of mould and creates an ideal habitat for dust mites, cockroaches, mice, and rats. Though, Fuller-Thomson and

Hwang (2000), note that there is a conflicting argument that suggests household density has a significant impact on the transmission of infectious illnesses. Robust evidence abounds in literature where there is a significant correlation between housing conditions and health implications. In the Oje community, an important core area of Ibadan Metropolis, there exists a dearth of evidence-based scholarly investigation on the correlation between housing conditions and their implications on the health status of the residents, hence, this study.

In their research on housing quality and health problems in a low-income urban community, Habib et al. (2008) found that half of the households they investigated had chronic illnesses, and two-thirds of the occupants lived in homes with more than four housing-related issues. Furthermore, the research findings indicate a statistically significant and favourable correlation between living conditions and the frequency of illnesses. In a similar study conducted by, Ogundahunsi and Adejuwon (2004) on housing conditions and health relationship, the result showed that the most common illness recorded was malaria, which was followed by cholera, typhoid fever, and dysentery in that order. In furtherance to that, the study demonstrated a strong correlation between the building's age, occupancy ratio, and the general health of the population in the study area. The study concluded that having a healthy home is essential to living a long and sustainable life.

Conceptual Issues

In housing and health studies, concepts are building blocks that help explain, categorize and understand the phenomena of housing and health, as well as, identify patterns, relationships, or underlying principles guiding the study. In the current study, the following concepts are used:

Maslow's Hierarchy of Needs (Basic Needs Theory)

The hierarchy of needs theory was propounded by Abraham Maslow (1943) in his 1943 paper titled “A Theory of Human Motivation”. The theory essentially describes the stages of human needs and motivations, arranged in a hierarchical pyramid, with the most basic needs at the bottom and the high-level needs at the top. It is obvious from this study that, people living in inadequate housing environments may experience low self-worth or social stigma, inequality, poverty with communicable diseases, etc. On the other hand, those who live in stable and quality housing will experience good environmental conditions with associated sound health and high self-esteem and well-being. Thus, addressing the psychological and safety needs of the inhabitants of Oje traditional core area of Ibadan Metropolis is a priority in healthcare. This is because many residents of the study area are found living in substandard housing, lacking access to necessities like clean water, sanitation, and adequate space. When these basic housing needs are unmet, health risks increase, leading to issues such as malnutrition, waterborne diseases, and respiratory problems.

Health Belief Model

This model was developed in 1950 by Irwin, M. Rosenstock, Godfrey Hochbaum, and Stephen Kegels. The model was designed to explain why people fail to adopt disease-preventive health behaviours. In the community of Oje, in Ibadan Metropolis, this model examines how the perception of risk (e.g. living in unsanitary conditions influences the health behaviours of the residents). In other words, the model explains how residents' health behaviours are influenced by their personal beliefs about their health problems, perceived benefits of actions,

and barriers to taking action. For instance, somebody who has a multiple leg fracture may oppose going to the hospital for orthopaedic attention, rather, might prefer going to a trado-medical house where herbs and other concussions may be administered to him. Even, if residents perceive their health risks as serious, they may not believe that efforts to improve their housing (such as using clean water, sustainable and efficient waste management practices, or improving ventilation) will make a significant difference to their health. If they do not perceive the benefits of these actions, they are most unlikely to engage in health-promoting behaviours.

Methods and Instruments

This study used the cross-sectional survey research approach. Field surveys were used to gather both primary and secondary data. According to the National Population Census of 1991, the total population of the Oje core area of Ibadan was 10,585 people (NPC, 1991). For this study, the figure was projected to 2024, giving an estimate of 22,222 people, from which 1.125% was taken as the sample size. As a result, approximately 250 questionnaires were administered to the household heads or any adult person in the house, using a simple random technique. The secondary data were sourced from published and unpublished materials from the National Population Commission, Oyo State Headquarters, journals, articles, unpublished projects, and books. The study also utilised the stratified and simple random probability sampling technique, and thus, was used to stratify the study area into zones, while the simple random technique was used in selecting households or their representatives. Analysis of data was performed using both description (frequency, percentages, and chart) and inferential (Chi-square test) statistics, and the 0.05% alpha threshold value was adopted. The Statistical Product and Service Solution (SPSS) version 20 program was used to analyse the data.

Discussion of Findings

Socioeconomic and Housing Characteristics of Residents in the Study Area

The assessment of residents' background characteristics as shown in Table 1 revealed that female respondents accounted for more than two-thirds (70.9%) of the total respondents surveyed, while the male respondents accounted for the remaining (29.1%). The distribution of respondents according to educational qualification showed that slightly above one-third (34.5%) of the respondents had secondary education, one-third (33.6%) had primary education, while respondents with higher education constituted the least proportion (9.2%). The marital status of the respondents showed more than a quarter (80.9%) of the respondents were married and the income range of more than half (55.5%) of the respondents falls below ₦2,000. The household size of the residents showed that more than half (60.0%) of the respondents were from household size with 2-5 persons and slightly more than half (52.7%) of the respondents are traders.

The housing characteristics of residents in the study area showed three quarters (75.5%) of the building are between ages 21 and 40 years. The structural condition of the building revealed slightly above one-third (37.3%) were fair, while one-third (33.6%) were found to be poor. More than half (53.6%) of the toilets were the pit latrine type and about half (49.1%) of the drainage conditions were almost blocked, while one-third (33.6%) were blocked. Overall, two-thirds (66.4%) of the sanitary conditions in the study area were reported as poor.

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Table 1: Socioeconomic and Housing Characteristics of Respondents

Variables	Freq	%	Physical Characteristics	Freq	%
Sex			**Age of Building**		
Male	73	29.1	Less than 20 years	27	10.9
Female	177	70.9	21-40 years	189	75.5
Educational Qualification			Above 40 years	34	13.6
No formal Education	57	22.7			
Primary education	84	33.6	**The structural condition of the building**		
Secondary Education	86	34.5	Good	25	10.0
Higher Education	23	9.2	Fair	93	37.3
Marital status			Poor	84	33.6
Married	202	80.9	Dilapidating	30	11.8
Single	34	13.6	Collapsing	18	7.3
Widow/widower	14	5.5	**Toilet type**		
Income Range			Water closet	30	11.8
Less than ₦2,000	139	55.5	Pit latrine	134	53.6
₦2,000 - ₦3,999	102	40.9	Bucket	4	1.8
₦4,000 and above	09	3.6	No toilet	82	32.7
Household size			**Drainage Condition**		
< 2 persons	14	5.5	Free-flowing	43	17.3
2-5 persons	150	60.0	Almost blocked	123	49.1
6-8 persons	75	30.0	Blocked	84	33.6
More than 8 persons	11	4.5	**Sanitary condition**		
Occupation			Good	16	6.4
Farming	04	1.8	Fair	68	27.3
Trading	132	52.7	Poor	166	66.4
Civil Service	09	3.6			
Artisan	43	17.3			
Others	62	24.6			
	250	**100.0**		**250**	**100.0**

Source: Authors fieldwork, 2024

Incidence of Housing-Environment-Related Diseases in the Study Area

The incidence of diseases in the study area is shown in Fig. 1. The result of the analysis indicates that almost all (98.0%) of the respondents were affected by malaria, while only 2.0% reported they were not affected by malaria. The incidence of cough, typhoid, and diarrhoea infection among the respondents showed about one-third (30.0%) was affected by cough, close to one-quarter (24.0%) by typhoid, and slightly above one-third (38.0%) was affected with diarrhoea. These findings were similar to the work of

Ogundahunsi and Adejuwon (2004) who studied housing conditions and health relationships in Osun state. The authors reported malaria to be the most commonly reported illness, closely followed by dysentery, typhoid fever, and cholera, in that order. The high prevalence of malaria in this study may not be unconnected with the poor sanitary conditions of the environment. For instance, an assessment of the drainage condition in the area revealed that almost half of the drainage in the area was almost blocked, while one-third of the drainage was completely blocked. This can no doubt provide a good breeding ground for mosquitoes – the principal host of the parasite that causes malaria.

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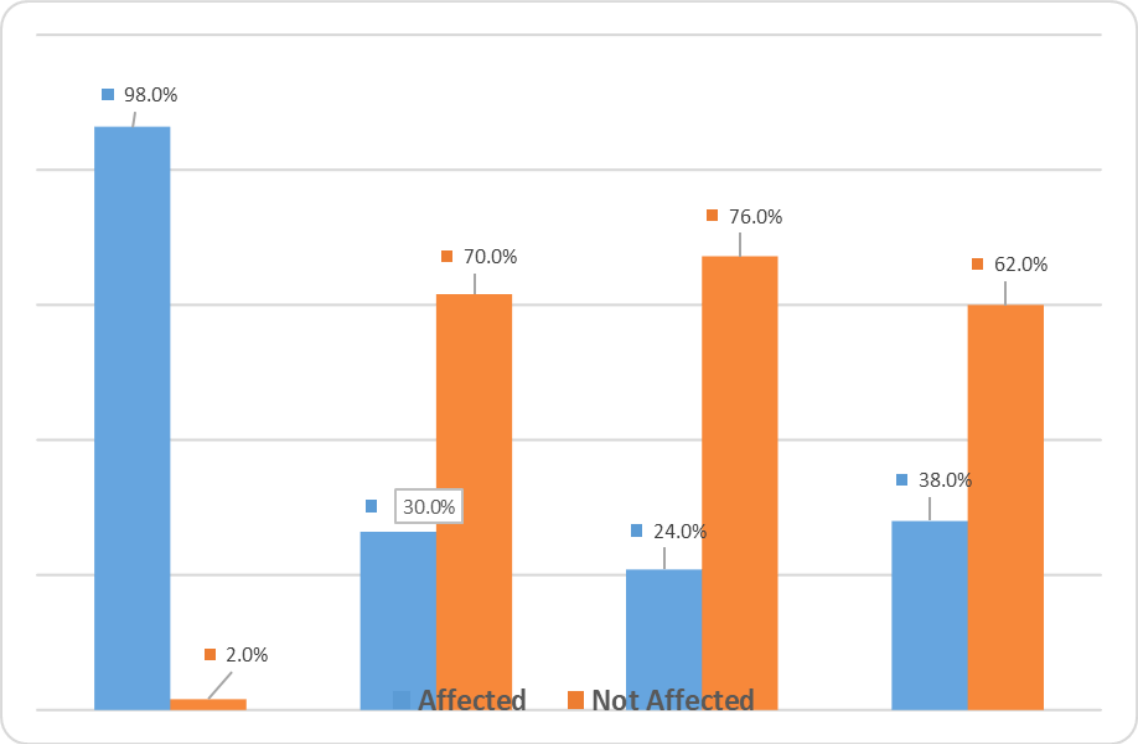
Fig. 1: The Incidence of Housing-Environment-related Diseases in the Study Area



Authors' fieldwork, 2024

Relationship between Residential Housing Conditions and Human Health

The assessment of the association between the condition of residential housing and human health suggests evidence of an association between residential housing conditions and human health ($p<0.05$). All the episodes of illnesses assessed were significantly associated with housing conditions. These findings corroborate the work of Ogundahunsi and Adejuwon (2004) who found a significant and positive relationship between housing conditions and the incidence of illnesses.

Specifically, the authors showed that the age of the building, occupancy ratio, and health status of residents in the area were related. The results revealed almost all 98.2% of the respondents regardless of their drainage systems, were affected with malaria. However, higher proportions of those affected were observed among those whose drainage system was almost blocked (48.2%) and blocked (32.2%). Also, the incidence of cough and room density showed that about one-quarter of respondents (30.0%) regardless of room density were infected with cough, with almost two-thirds (63.6%) reported among respondents from dwellings with between 2-4 persons.

However, analysis of the results further revealed that about a quarter (23.6%) of the respondents were infected with typhoid. Meanwhile, among those affected, more than three-quarters were reported to be among respondents with poor sanitary conditions. With regards to diarrhoea incidence, about one-third (31.8%) were affected. Among those affected, a significant proportion of about 91.4% were observed among those with poor sanitary conditions.

Finally, the result of the analysis revealed a little above one-quarter of the respondents were affected with cough. Moreover, a higher proportion of about 39.4% of those affected were found among

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respondents whose structural conditions of their housing units were regarded as fair.

Table 2: Relationship between Residential Housing condition and Human Health

Incidence of Malaria		**Drainage system**					**Total**	χ^2
		Free-flowing	Almost blocked	Blocked				
Not affected	Freq	0	2	2			4	
	%	0.0	0.9	0.9			1.8	34.54
Affected	Freq	38	106	72			216	0.01**
	%	17.3	48.2	32.7			98.2	
		Room Density						
Incidence of Cough		< 2 Persons	2-4 Persons	5-7 Persons	>7 Persons			
Not Affected	Freq	8	118	28	0		154	
	%	5.2	76.6	18.2	0.0		70.0	32.54
Affected	Freq	8	42	21.2	2		66	0.01**
	%	12.1	63.6	6.4	3.0		30.0	
Incidence of Typhoid		**Sanitary Condition**						
		Good	Fair	Poor				
Not Affected	Freq	14	54	100			168	
	%	8.3	32.1	59.5			76.4	32.54
Affected	Freq	-	6	46			52	0.01**
	%	0.0	11.5	88.5			23.6	
Incidence of Diarrhea		**Sanitary Condition**						
		Good	Fair	Poor				
Not Affected	Freq	14	54	82			150	
	%	9.0	36.0	55.0			68.2	16.38
Affected	Freq	0	6	64			70	0.01**
	%	0.0	8.6	91.4			31.8	
Incidence of Cough		**Structural Condition**						
		Good	Fair	Poor	Dilapidating	Collapsing		
Not Affected	Freq	16	56	54	16	12	154	
	%	10.4	36.4	10.4	10.4	7.8	70.0	31.55
Affected	Freq	6	26	20	10	4	66	0.01**
	%	9.1	39.4	30.3	15.2	6.1	30.0	

Source: Authors' fieldwork, 2024

Conclusions and Recommendations

The study assessed the residential housing and human health status in the Oje community, one of the most prominent traditional core areas of Ibadan North-East Local Government Area of Ibadan Metropolis. The study discovered a high prevalence of malaria followed by diarrhoea, cough, and typhoid. Findings from the study further suggest evidence of a connection between residential housing and human health. Every incidence of disease reported was significantly associated with the housing condition. Because of the findings of this study, it is recommended that people be educated on the health implications of their housing conditions. The poor condition of the drainage in the area suggests reasons for the high prevalence of malaria in the region. Therefore, efforts are needed to sensitise the residents about the danger inherent in blocking the free passage of water in drainages, as this can lead to stagnant water, thereby providing a good breeding ground for mosquitoes to strive.

Since the national monthly environmental sanitation exercise is still much upheld as the major avenue for the people to keep their environment clean, this must be strengthened and serious punitive measures should be meted out to offenders

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of defaulters, including the compromising law enforcement agents. They must be sent to correctional centres for one month of compulsory community development exercise, without any option of fine. More so, the provision of drainage facilities should be made compulsory for every house owner or representative and must be cleared periodically.

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