

Housing and Residents' Health in Ogbomosho, Oyo State, Nigeria

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Abstract: *Since the time memorial till now, it is acknowledged that housing environment where man dwells has a significant impact on his health. While several authors have attributed poor residents' health to poor housing condition, salient underlining factors that explain the cause have not been exclusively exhausted, especially in the developing nations like Nigeria. Thus, this study assessed the impact of housing condition on residents' health in Ogbomosho North Local Government Area. Both primary and secondary data were utilised. A questionnaire survey was conducted in six political wards which predominantly comprised low density houses. A sample of 220 (25%) houses was adopted and structured questionnaires administered randomly to household heads. Data were analysed using descriptive and inferential statistics while multiple regression analysis was used to examine the relationship between housing condition and residents' health.*

The study revealed that 48% of the housing units were in fair condition; while mosquitoes and cockroaches are the most significant insects with 38.2% and 30.9% respectively. Likert scale revealed constraints to healthy housing condition to include water pollution (3.97) and air pollution (3.96) with positive deviation about their mean (3.73). Results from regression analysis revealed that a significant relationship exists between housing condition and health of the residents, with F-value of 9.90 and P-value of 0.00. This implies that the poor state of the housing infrastructure (such as toilet, kitchen, wall etc) accounts for prevalence of air and water borne diseases like malaria, cough, skin infections and cholera. These findings justify Currie and Carapetis (2000) conclusion 'that poor health is directly linked to poor housing and housing infrastructure'.

The study recommends need for a better understanding to be developed to allow for increased awareness about the relationships existing between housing and health inequalities through public enlightenment by both government and concerned non-governmental organisation.

Keywords: *housing, health, housing condition, affordable housing*

I. Introduction

The word 'housing' has been defined differently by concerned professionals across disciplines, reflecting diverse interests of experts in such professions like geography, urban planning, economics, political science, architecture, among others. To all intense and purpose, housing has been considered as the second most important essential needs of man after food (Oyelani, 2005). Housing in its entirety is more than shelter as it embraces all social services and utilities that lead to worthy living (Aluko, 2012), and this makes it a good dwelling which no doubt enhances the entire well-being and aspirations of the occupants (Ahianba, et. al., 2008). Recognition of this fact makes housing a major factor that determines human form and survival in any physical settings. Brink (1997), states that "housing is the defining feature of quality of life". Olatubara (2007) attributed the good condition and performance of residents in respect to discharge of their daily responsibilities and involvement to various urban activities to housing and neighbourhood characteristics. Despite this, it was noted with regrets that 'most people in developing countries of Asia, Latin America and Africa live in dwellings, which could be considered dangerous to health and an affront to human dignity' (United Nation Development Decades, 1960-1970).

Although Africa has one of the lowest Human Development Index (HDI) in the world, it is estimated that within the next two decades, 87 percent of the population growth will take place in urban areas of the continent (Daramola and Ibem, 2010, p. 125). Nigeria, as one of the economic giants in Africa with population of over 158 Million is currently overwhelmed by rapid urbanisation, poor infrastructure has an ever-increasing number of urban slums across the country. The urban infrastructural decay such as poor road network, lack of portable water supply, bad drainages and canals, poor housing and poor waste management systems have increased the environmental threat within the urban populace (Gbadegesin and Aluko, 2010). In Nigeria, Agbola (1998) enumerates the prevailing housing problems which include acute housing shortage; overcrowding; unsanitary living conditions; exorbitant rent; vis-a-vis tenant's income and exploitative tendency of shylock landlords; the high rate of homelessness, especially in the urban areas; and the high rate of substandard housing.

The afore-mentioned are the offshoots of rapid rate of urbanisation which strongly impacts on the socioeconomic wherewithal of the households; its negative consequences have compelled significant proportions of urbanites living in filthy and precarious spatial settings which impose certain health challenges to the population of households. The decision on the choice of housing which an household dwells is a function of interplay between certain

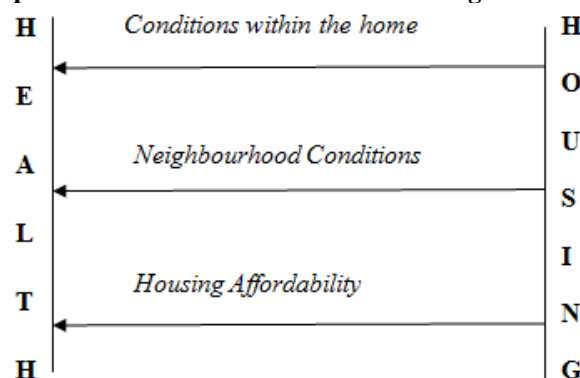
pertinent factors like socioeconomic, cultural, environmental, administrative, and psychological factors (Olatubara, 2007). The level of household income, its distribution and the prices of available housing and of other goods and services are important influences on decisions about how much to spend on housing unit, so is the demographic pattern which determines the growth of demand overtime (Aluko, 2003; Onibokun, 2000). Empirical observations have revealed that residents with infinitesimal wherewithal bears the brunt of detrimental housing situations (Bonney, 2007). Hence, dealing with poverty will thus remain a most important element in any housing policy, either through specific housing programmes, or through specific economic policies.

The concern attached to the problem of housing in the country is an indication of the highly deplorable conditions in which the citizens most especially the low income earners residing in the urban centres of the country live, as manifested in the unsanitary housing conditions, overcrowding in most houses (Ayedun and Oluwatobi, 2011) and unhygienic housing infrastructures (if at all available); causing poor health status in the residents dwelling therein. The link is obvious as the healthiness of a household's environment will be determined in no small manner by housing, along with housing-related infrastructure such as water and sanitation (Doling, et. al., 2013). This premise is buttressed by the report of the World Health Organisation WHO (2003) in the developing world which reports that '98% of deaths resulting from unsafe water, sanitation and hygiene'. The report identifies infectious diarrhoea as the largest single contribution to ill health associated with water, hygiene and sanitation inadequacies. Similarly Research Assessment Survey carried out by Bailie (2002) shows that only 15.8% of buildings in Nigeria have stools disposal facilities within their compounds while the remaining percentage throw their stool into bushes and improper disposal of human waste may lead to contamination of living areas with infected materials such as faeces and organisms such as shigella, E coli, salmonella, and rotavirus contained in this material can cause gastroenteritis, hepatitis A, and strongyloidiasis. In the light of the fact that, housing and health is not entirely a new discourse, this study seeks to contribute to the body of literature on the issue and at the same time use findings from the indigenous settlement of Ogbomosho to proffer objective recommendations to abate the trend.

II. Conceptual Framework and Literature Review

According to Reichel and Ramey (1987) a conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. It is a research tool intended to assist a Researcher in developing an understanding of the situation under investigation (Wandera, 2011). On this premise, this study utilised conceptual framework illustrated in figure 1 in order to meet the objective of the research. Housing characteristics and conditions was conceptualised as a factor of condition within the home, neighbourhood condition and housing affordability. These are the three major imaginary lines through which housing influences the health of the residents or households.

Fig. 1: Conceptualisation of the Link between Housing and Residents Health



Literature Review

A considerable body of literatures has overhauled various forms of relationship existing between housing condition and household health in diverse geographical locations of the world. Outcome from review of literature reveals that most studies were rather more of sectoral research concentrating on diverse housing-health-relationship (Bonney, 2007). A recent review by Fuller-Thomson et al. (2000) concludes that a majority of such studies was too focused, unbalanced, or of low practical relevance. However, the scientific evidence on the many links between housing and health has grown substantially in recent decades (Garner, 2006; WHO, 2010). Several research studies on housing and health issues have been undertaken in the last decade both at national and international levels (Odomodu, 1987; Shaw, 2004; Krieger et al., 2002; Breysse et al., 2004; Cohn et al., 2006; Chenoweth, 2007, among others); revealing the growing evidence base for the complex effects of housing conditions on health status. Whatever may be the case, the link between quality housing and human health is not a new one and its origination is traceable to

industrial towns of 19th century in Britain where workers therein experienced high rates of diseases, such as tuberculosis, cholera, and typhus (Doling, et.al., 2013). Ever since, there has been a continuous investigation till present time, on the subject matter by different scholars, in diverse nations of the world using different methodological approach.

In order to achieve a quality environment within the neighbourhood, Okewole and Aribigbola (2006) stress the need for a quality housing which satisfies minimum health standards and good living standard. Such an immediate housing environment and the neighbourhood represent an everyday-landscape, which can either support or limit the physical, mental, and social well-being of the residents (Bonney, 2007). While several studies hitherto conducted have established statistical associations existing between housing aspects (tenure, dwelling quality and type, home and location) and health outcomes, there has been little investigation into determining how the various aspects relate to one another for a particular population group (Garner, 2006). However, three important and inter-related aspects of residential housing, that is; the social, physical and economic characteristics of neighbourhoods, according to Robert Wood Johnson Foundation (2008), have been increasingly shown to affect short- and long-term health quality and longevity. Here, it is stressed further that the concentration of substandard housing in less advantaged neighbourhoods further compounds racial, ethnic as well as socio-economic disparities in health.

The importance of housing to health is driven by the prolonged exposure people have to the home environment; an average of close to 16 hours daily (Baker, 2007). In realisation of this interrelationship, the challenge in the developing nations is to improve conditions in low-income homes and neighbourhoods, where poor access to water, bad sanitation, contaminated food, uncollected waste, smoky kitchens and a range of insect vectors combine to form a complex of health threatening conditions (McGranahan, et. al., 1999). The problems that aid the decay of homes and neighbourhood have been attributed to inadequate basic infrastructural amenities, substandard housing, overcrowding, poor ventilation in homes and work places, sanitation and non-compliance with building bye-laws and regulations (Ahianba et. al., 2008), and these impose serious adverse effects on environment and the health of city residents (Amao, 2012). 'Due to the complex and all-embracing interrelationships of housing with other sectors of the economy, the performance of the housing sector, especially that of the housing construction industry, is often the barometer by which the health or ill-health of a nation is measured or determined' (Agbola, 1998 in Olatubara, 2012; 4).

Results of a study on housing conditions and ill health in Akwa Ibom State Nigeria by Udon and Uyanga (2013) reveals that majority of households live in "inadequate housing" lacking facilities necessary to promote occupants health and wellbeing. Such buildings have cracked walls, leaked roof, broken windows and broken floor which are bound to increase the risk of asthma and pneumonia due to moisture and mould growth. Also, similar research carried out by Olukolajo et. al. (2013) in urban core of Akure reports that malaria fever is a major health challenge among the residents and the source of water for household use is mainly untreated water.

Another interrelationship of housing to health is in the area of crowding and psychological distress. Asiyanbola (2012) investigates urban household crowding as a chronic stressor in Ibadan and concludes that 'there is a positive relationship between household crowding and psychological stress. Investigation reveals that households with low-level psychological distress are more apprehensive with the houses they occupy which are manifested in the perception of crowding in the house and the sharing of facilities with other residents. However, households with high-level of psychological distress are more concerned with the neighbourhood conditions of their residence and this has to do with a wide variety of situations that cover neighbourhood qualities, in terms of roads network, security, neighbourhood social characteristics etc. (Olatubara, 2007). In a study which was reviewed by Thomson and Pettigrew (2005), it is obvious that poor housing conditions that cause most serious health hazards are poor air quality, inadequate heat, dampness, radon, trips and falls, noise, house dust mites, tobacco smoke, and fires. This corroborates Jackson (2003) remark which indicated 'that living and housing conditions are the basis of many factors influencing residential health'.

Meanwhile, observations revealed that implementation of the Nigerian Housing Policy 2006 based on the set goals and objectives are to ensure that Nigerians own or have access to decent, safe and healthy housing accommodation at affordable cost". The policy implementation has proven deficient vis-à-vis the objectives (Garba and Roosli, 2013). This is attested to by the study conducted by Aribigbola (2008) on the evidence of implementation of housing policy in Nigeria using Akure (State Capital) as case study. The study reveals that the majority of the city residents are low income earners which the policy supposedly deemed to address but cannot afford housing being produced under the programme. He (Aribigbola) concluded that the policy have not made much contribution to housing provision. The main constraints and challenges to affordable and healthy housing are related to the economic and political environment, the building cost, accessibility to land and lack of finance (Ayedun and Oluwatobi, 2011). Inference from this scenario is that the state of a nation's housing stock is a reflection of the state of its economy and the type of leaders in the helm of affair of the country which in turn determines the welfare of its people.

Aribigbola (2011) suggested that a significant proportion of householders in the city of Akure are facing housing affordability problem particularly with reference to quality of housing to the quality of the built environment. The shortage of affordable housing limits families and individuals choices about where they live, often relegating

lower-income families to substandard housing in unsafe, overcrowded neighbourhoods with higher rates of poverty and fewer resources for health promotion e.g., parks, bike paths, recreation centres and activities (Robert Wood Johnson Foundation, 2008). Agbola (2005) observes that the poor in the country (Nigeria) succumbed to living anywhere they can find shelter (and not necessarily a house), just as means to coping with the oppressive housing problems. This correlations suggest that housing alone does not exclusively cause good health (Doling et. al, 2013), but causal influence manifests with the other housing components such as neighbourhood infrastructures and services; available in affordable form. Examining the contribution of affordable housing to health, Cohen (2011) premise that affordable housing may improve health outcomes by freeing up family resources for nutritious food and health care expenditures, providing families with greater residential stability, reduce stress and related adverse health outcomes, positively impact mental health by increasing the control that homeowners have over their physical environment and minimizing the disruptions associated with frequent, unwanted moves. Also, he (Cohen) further hypothesis that well-constructed and managed affordable housing developments can reduce health problems associated with poor quality housing by limiting exposure to allergens, neurotoxins, and other dangers; improve health outcomes for individuals with chronic illnesses and others by providing a stable and efficient platform for the ongoing delivery of health care and reducing the incidence of certain forms of risky behaviour.

There are social-epidemiological factors that are also worth considering in the developing world. Montgomery (2009) noted that urbanites facing health threats from their unprotected physical environments, with the lack of services being a constant reminder of social exclusion, and lacking the incomes needed to counteract these daily threats, the urban poor may feel unable to take effective action to safeguard their health. Aluko (2012) indicates the following as the impact of poverty on housing condition: environmental deterioration, this can be seen in terms of the rate of generation of solid waste whose disposal is a major problem in the study area; overcrowding, due to the fact that people cannot afford to pay high house rent, therefore there is increase in the number of persons living in a room with squatters which further deteriorate the facilities in the house like toilet, bathroom, and creating other social and economic problems. Poor or very low economic status is the bane which have relegated significant proportion of Nigerian population to 'ground level status' and living in housing environment which is detrimental to a good health condition.

III. The Study Area

Ogbomosho is located in the South - West Geo-political zone of Nigeria. The town lies on latitude $8^{\circ} 10' N$ and longitude $4^{\circ} 10' E$ of the equator. A derived savannah, Ogbomosho is about 105km North-East of Ibadan, the capital of Oyo state, 58km North- West of Osogbo, the capital of Osun state, 53km South West of Ilorin the capital of Kwara state and 57km North -East of Oyo town. The town is the gateway to the western part of Nigeria from the North. The Lagos - Ibadan - Ilorin express road under construction spans across it. Ogbomosho region form the part of the Western Nigeria, the larger part of this region lies between 300m and 600m above sea level. The main water shed is located approximately 20km North and only 10km East of Ogbomosho. South- west of this water shed is the Oba River with its tributaries following Southwards of Ogbomosho. North and east wards of the water shed are the Moso and Asa rivers with their tributaries flowing Northwards through the heart of Ilorin to join the River Niger at Jebba. The longitudinal slope of the river valley lies within 0.2 & 0.5%. The Oba River takes its source from about 20km Northeast of the town and flows in South-western direction acting as a strong check on residential expansion. In the tributary of the river valleys, the slopes are often steeper than 1.0%. The average temperature is about $20.26^{\circ}C$. The lowest temperatures are experienced in August, which has an average temperature of $24.30^{\circ}C$ and the highest in March which has an average of $28.70^{\circ}C$.

IV. Methodolog

A descriptive research design was adopted for this study and a case study approach was utilized to achieve objectives of the study. This is because it is a more appropriate strategy for answering research questions which ask 'how' and 'what' and which did not require control over the events (Yin, 1994). In other words, the researcher has no control over the variables; he can only report what has happened or what is happening (Kothari, 2004). The study made use of data from both primary and secondary sources. The primary source relied on the use of field survey and observation, and structured questionnaire. The primary data gathered were supplemented by secondary data from journals, newspaper and websites. The study area Ogbomosho North LGA comprised of 10 political wards, out of which 6 wards were randomly selected. These are Abogunde, Aguodo Masifa, Isale Afon, Okelerin, Sabo Tarra and Saja/Isale Ora. In order to arrive at the sample size for the 6 selected wards, 1991 population figure for these wards was projected to 2013 using a growth rate of 3.0%. This resulted into 88, 002 and this represented the sample frame for this study (ref. table 1). In order to test the validity and reliability of the research questionnaire (Saunders et. al., 1997 cited in Yusuf, 2014), it was pre-tested and administered to a pilot group of 30 residents of buildings in the six political wards selected in Ogbomosho North LGA. The pilot group was, however, excluded from the final survey and their data were also not included in the final data for the study. The pre-tested questionnaire was successfully administered by trained field assistants to 220 respondents representing 25% of the population of residents (88002) in the six political wards selected in Ogbomosho North LGA (ref. table 1). According to Kothari (2004) a representative sample is one which is at least

10% of the population thus the choice of 25% was considered as representative of the population. In order to draw a representative sample, simple random sampling method was used. In this sampling method, each household was chosen at random and entirely by chance, such that each household in a building has the same probability of being chosen at any stage during the sampling process (Mugenda and Mugenda, 2003). The data gathered were on residents' health variables and housing conditions. Quantitative data collected were analyzed with descriptive and inferential statistics using the Statistical Package for Social Sciences (SPSS). The socio-economic variables used in the analysis included income, educational level, occupation, age and household size. The housing characteristics used in the analysis included housing type, housing value and condition of the housing.

Table 1: The Distribution of Questionnaires within Wards

S/No	Name of Ward	1991 Population	2013 projected Population (frame)	No. of Questionnaires (0.25%)
1	Abogunde	9547	18292	45
2	Aguodo Masifa	9227	17679	44
3	Isale Afon	5774	11063	26
4	Okelerin	7539	14445	36
5	Sabo Tarra	5765	11046	28
6	Saja / Isale Ora	8078	15477	39
	TOTAL		88002	220

Source: Author survey, 2014

V. Analysis and Results

To test the hypothesis of the relationship between housing conditions and household health, multiple regression was used to test the predictors (general housing characteristics and conditions) against health status of the respondents. Table 2 summarises the relationship existing between housing condition and health of respondents. Fourteen variables (criteria) were used to determine the health of the residents while the predictor variables were their housing conditions; general building condition, condition of floor, door, bathroom, wall, window, kitchen, roof and toilet. With F-value of 9.901 and P-value of 0.000 as indicated in Table 3, the relationship between housing condition and health is significant. Moreover, with a correlation coefficient (R) of 0.546 and coefficients of Multiple Determination (R²) of 0.298 as shown in the table 4, this confirmed that about 30% of variability in the incidence in the outbreak of diseases might be attributed to increase in incidence of poor housing condition, while 70% are not attributed to the increase in incidence of poor housing conditions.

Table 2: Summary of Multiple Regression Table for the relationship between housing conditions and the health of respondents

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.546 ^a	.298	.268	.772

Source: Author survey, 2014

Table 3: Relationship between housing conditions and the health of respondents

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9	5.894	9.901	9.901	.000 ^a
	Residual	210	.595	.595		
	Total	219	219			

Source: Author survey, 2014

Table 4: Correlation Coefficients of the Multiple Regression Table for the relationship between housing conditions and the health of respondents

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.198	.204		15.665	.000
	Door condition	-.243	.103	-.210	-2.365	.019
	Wall condition	-.318	.106	-.301	-2.996	.003
	Floor condition	.099	.131	.088	.757	.450
	Roof condition	-.012	.103	-.013	-.120	.904
	Window condition	-.102	.112	-.095	-.912	.363
	Bathroom condition	-.212	.109	-.254	-1.951	.052
	Toilet condition	.281	.091	.352	3.070	.002
	Kitchen condition	.251	.074	.367	3.392	.001
	General condition of the building	-.412	.094	-.374	-4.407	.000

Source: Author survey, 2014

To determine the weight of each of the components/factors of housing condition, reference is made to their regression coefficients as shown in the correlation coefficient. Table 4 result shows that health status of households is attributed to condition of houses they occupied. However, using the unstandardized coefficients, the results imply that the most effective way to reduce un-healthiness among the households would be to improve the general housing conditions (-0.412). Other paramount measures would be to ensure provision and availability in good condition of house components; wall (-0.318), door (-0.243), bathroom (-0.212), window (-0.102) and roof (-0.012) to abate poor residents' health.

To determine the households' level of hindrance to healthy housing environment, Likert scale was used to calculate Residents' Obstacle Index (ROI) by classifying levels of impact into five. Six variables were used in determining residents' level of obstacles to healthy environment. Each scale was rated using Likhert's scale as either "Strongly Agree", "Agree", "Somewhat Agree," "Disagree", "Strongly Disagree".

Table 5: Level of Obstacles to Healthy Environment

Level of Obstacles	Residents' Option					Total (t)	SWV (a)	x=a/t	(x -)	(x -
	5	4	3	2	1					
Bad road	46	106	56	8	4	220	842	3.83	0.1	0.01
Bushy area	22	91	44	55	8	220	724	3.29	-0.44	0.1936
Dilapidated building	49	71	61	30	9	220	781	3.55	-0.81	0.6561
Air pollution	58	131	8	10	13	220	871	3.96	0.23	0.0529
Noise pollution	83	75	21	18	23	220	837	3.80	0.07	0.0049
Water pollution	89	88	4	26	13	220	874	3.97	0.24	0.0576
Total								22.4		0.9751

Source: Author survey. 2014

As shown in Table 5, considering the obstacles to healthy environment, the highest mean (\bar{x}) is 3.97 while the least is 3.29. The average mean is 3.73. The range of ROI variables is 0.68. Some of the obstacles that have high positive deviation about their mean include "air pollution" (3.96), "bad road" (3.83), "noise pollution" (3.80). It could be observed that the obstacle indices for these variables are greater than the average mean; therefore this implies that the respondents are satisfied that these variables constitute more obstacles to the environment. However, the residents seem not to be satisfied with the obstacles in some other aspects. Such variables have negative deviation about their mean and they include: dilapidated building (3.55) and bushy area (3.29). All these are considered not to obstruct the environment. The scatter around the mean (SD) of the ROI was found to be small (0.0980). This implies that the values of ROI for all the variables cluster around the mean and the more reliable the mean is.

VI. Conclusion and Recommendations

In this study, the relationship between residents' health and housing conditions in indigenous settlement of Ogbomosho has been analyzed. The conditions of housing environment where residents dwell happen to be deficient of requirements that ensured a safe and sound health. The study highlights general building condition, condition of floor, door, bathroom, wall, window, kitchen, roof and toilet as the major predictors of health infirmities among households. Also, major hindrances which deter household from enjoying quality homes are found to be air, water, and noise pollution. In addition, dilapidated building, bushy area and bad road within the neighbourhood contributed to deterrent from healthy livelihood. Based on the result of the study, it is recommended that data from the research works on public health, housing condition and characteristics, environmental situations and availability of disease causative organisms should be made available for policy makers, public health institutions, governmental and non-governmental agencies for effective and more efficient way of developing strategies for ensuring quality health of the populace.

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