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## THE IMPACTS OF HOUSING ON HEALTH IN NIGERIA

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### Abstract

*The interplay between housing and health has long been a grey area of much interest among social scientists and public health researchers. The quality of housing and the environment in which people live has a direct impact on the health and socio-economic well-being of a nation. While health may not be absolutely classified as a dependent variable on housing, housing however remains a major determinant of health. The direct impacts of housing on the health of individuals and families hinge on varied factors ranging from stability, the quality of housing and safety, affordability of housing, the aesthetics, and safety of the common environment. While emphasizing the need for good structural designs and planning of housing, the psychosocial space within the home environment also plays a very important role in determining health outcomes. The deteriorating health status of Nigerians has remained a source of major concern for both government and the citizens; however, the impacts of housing as a determinant in this outcome is yet to be fully understood. Major research databases were searched and secondary data sourced for this study. Eighteen (18) papers were identified based on the various search terms explored; but only three papers met the inclusion criteria for the study. The Meta-analysis conducted on the available data using Pearson's Correlation and Regression Analysis and the ANOVA yields a strong positive correlation between housing and the health outcomes of Nigerians. A p-value of  $\leq 0.009$  was obtained with an  $R^2$  value of 99%, and a 1% margin of error. A Significance F value of 0.0099 and a Multiple R value of 0.99 were also obtained after analysis. The Coefficient point of Interception between housing and health in this study gives a positive relationship at 2.869 with a Correlation of 0.99 obtained. Thus, housing has a positive and direct impact on the health outcomes of Nigerians. Factors impacting the health of Nigerians in relation to housing include structural building standards, poor environmental designs and sanitation, poor hygiene practices, and the lack of basic social amenities. It is therefore recommended that experts in socio-economic and public health policies be engaged to help proffer evidence-based solutions to the country's housing challenge. With little progress made at closing the Nigerian housing deficit over several decades, and with the continued deleterious impacts of housing on health in Nigeria, some basic recommendations were made on future policy directions. These recommendations were aimed at providing better housing policies that can help safeguard the health of the Nigerian populations.*

**Key Words:** Housing and Health, Housing Policy, Housing Deficit, Environment, Population, Nigeria.

## Introduction

The intricate association between housing and the health of individuals does not make for a binary occurrence (Lubell, *et.al.*, 2007). This dependent and yet complex relationship between housing and health is now of major interest to policy makers, as nations and world leaders are now seeking ways to improving the health and well-being of their citizens (WHO, 2018). The multidimensional and complex determinants of health span both the social, economic, psychosocial space, and the physical environments. Housing constitute one of the main determinant of health in the physical environment (Rolfe, *et.al.*, 2020); and humans require safe housing and healthy workplaces to thrive. Humans require safe communities, safe neighborhoods, and a social-economic balance that can support healthy life choices. Staying healthy therefore involves many interrelated factors of which housing is a major component. Studies have shown that people with tangible housing security have lesser health problems; and many more have better health outcomes compared to those without housing security (Gilbertson, *et.al.*, 2006; Leaver, *et.al.*, 2007; Tinson & Clair, 2020; De Wet, *et.al.*, 2011). The deleterious impacts of not having a home when practically in need of one engenders many morbid conditions that may lead to early mortality (Ahmad, *et.al.*, 2020; Dedman, *et.al.*, 2001). The anxiety occasioned by the lack of a stable or steady home can have direct impacts on the physical and mental health of individuals. The trauma and psychological disorientation caused by this constant fact can lead to drug abuse, increased alcohol intake, child abuse, and domestic violence. The culmination of all these morbid state can lead to decrease effectiveness at work, higher healthcare costs on the household, disruption of employment and education, and a disruption of access to social services (Taylor, 2018; Pevalin, *et.al.*, 2017; Evans, *et.al.*, 2003; Bentley, *et.al.*, 2012).

In many low and middle-income countries (LMICs) like Nigeria, there is the lack of basic social amenities like electricity, treated portable water, good and safe roads, and access to basic healthcare services in many deprived areas (Thompson, *et.al.*, 2020). The indiscriminate dumping of refuse and wastes in the environment have been shown to have negative impacts on the health outcomes of individuals and families (Regmi, *et.al.*, 2019; Wizer & Anthony, 2020; Fakere, *et.al.*, 2012). Due to the lack of treated portable water, individuals and households often use and drinks untreated water that could harbor pathogenic agents. The contamination of the environment with waste materials also encourages the spread of infectious diseases (Otiwaa-Borketey, 2017). Studies on the Nigerian Housing Policy have shown an abysmal housing deficit in Nigeria; and despite the many laudable policies of government at making affordable housing available to the Nigerian population, the government has thus far failed in keeping to these promises (Moore, 2019; Ayedun & Oluwatobi, 2011). The majority of the Nigerian housing policies lacks components that directly relates to health. Hence, with large policy gaps existing in the Nigerian housing sector as it relates directly to the health of individuals and families, policy experts, the government, philanthropic individuals, groups and societies, funders, and non-governmental organizations (NGOs) all have a role to play at helping to improve the health of the nation. Governments and well-meaning individuals and organizations can help build and provide massive housing and related amenities at affordable costs to the average Nigerian citizens. Government can help provide foreclosure interventions for citizens with default housing mortgages. The government, policy experts and humanitarian agencies can help evolve programs and policies that could mandate the provision of free housing to the homeless and their health needs. In addition, long-term housing subsidies can be made available to Nigerian citizens contributing to the National Housing Fund (NHF) (Adeniji, 2005; Aribigbola, 2008).

The conditions of houses are generally associated with a wide range of human disease conditions. These disease conditions include malaria, typhoid, cholera, Chronic Obstructive Pulmonary Diseases (COPDs) such as asthma, bronchitis, and emphysema, mental health, physical injuries due to falls, and lead poisoning. Issues relating to housing and health are not binary; thus, tackling housing issues gives us an opportunity to addressing one important determinant of health (Krieger & Higgins, 2002). As far back as the 19th century, social scientists and public health specialists collaborated at addressing issues relating to poor sanitation, overcrowding, poor housing ventilation, environmental pollution, and fire hazards. These interventions led to the reduction in the transmission of infectious diseases and it helps in reducing physical injuries (Howden-Chapman, 2004).

Today, both the World Health Organization (WHO) and individual national governments have Building Codes and Guidelines as it regards standards for safety and the maintenance of good health. High priorities are given to housing designs and planning in order to assure the safety and health of individuals and families. Considering the huge housing deficit being experienced globally, each national government are now in a race to providing affordable housing for its citizens. While many governments especially in the advanced nations of the world have seen the need to ensuring that adequate provisions are made for the health of the individuals and families in housing planning, designs, and buildings, many LMICs are yet to come into terms with this essential element in their housing efforts. The health of the individuals and families though seemingly isolated have a larger impact on the overall socio-economic dynamics of a nation (Okedele, 2008; Ogunbiyi, 2014; WHO, 2018).

In a LMIC like Nigeria, many housing policies have been made by governments both at the State and at the National levels. However, the housing deficit existing in the country is estimated to be between 17 – 23 million with a corresponding cost of about 363 billion US dollar, according to the National Bureau of Statistics (NBS) and many other experts (Moore, 2019). The many laudable programs and policies initiated by the different Nigerian governments from the early 1980s to the year 2012 have thus far failed to meet the housing need in the country. In addition, while much efforts are being made to making affordable housing available to Nigerians, adequate provisions are not being made to addressing the health needs and challenges occasioned by the poor housing standards in the country. An increasing body of evidence now points to the facts that housing has direct impact on the health and well-being of individuals and families (Olukolajo, *et.al.*, 2013; Adebowale, *et.al.*, 2017; Udoh & Uyanga, 2013). Homes, either owner occupied or rented has impacts on health; and the social-economic standings of the individuals and families affect the quality of housing. Studies have shown less report of ill health among homeowners without any burden of mortgage in contrast to those who stays in rented apartments (Hiscock, *et.al.*, 2003). Nigeria still has a long way to go in addressing its housing deficit and the attendant health impacts of its housing quality on her citizens.

### ***Theoretical Framework***

Housing is a basic human need; and the Nigerian government housing policies are directed towards providing mass low-cost housing to her citizens. However, an intricately significant aspect of human housing needs is the health-related impacts of housing and its attendant components. Housing remains a major determinant of health; nonetheless, key elements and provisions directly relating to health are missing in each of the Nigerian Housing Policies. Thus, engendering a vicious array of ill health and hospital visits occasioned through exposures to elements within and outside the home environment. The unintentional exclusion of health-related components and provisions from these policies not only has deleterious

impacts on the health outcomes of the citizens; it also affects the socio-economic dynamics of the individuals, families, and the nation at large.

**Study Objectives** - to ascertain the impacts of housing on the health of Nigerians, and to suggest some ideas that could help cater for the health of Nigerians in relation to housing.

**Problem Statement** – the gross level of housing deficit in Nigeria has exposed many of the citizens to various health risks relating directly to poor housing.

**Research Question** – are there evidence to support the impacts of housing on the health of Nigerians?

## **Materials and Methods**

### ***Study Design and Study Area***

This study is a Meta-Analysis of secondary data on Public Housing Studies that measures the Quantitative Health Outcomes (QHOs) of Nigerians as it relates directly to housing and its varied components. The materials sourced spans the entire country and cuts across all the geo-political zones in Nigeria. A web search on research databases such as Google Scholar, Academic Search Premier, and Family & Society Studies Worldwide was carried out on the following search terms: [1] Housing Policies in Nigeria [2] The impacts of housing on health in Nigeria and [3] Health-related policy gaps in the Nigerian Housing Programs. The studies used in this analysis also cuts across the thirty-six (36) federated states in Nigeria including the Federal Capital Territory (FCT), Abuja. This study lasted for a period of seven (7) weeks between the months of August 2021 and September 2021.

### ***Target Population and Sample Size***

Household with individuals and families were the main target in this study. 19,464 individuals participated in this study by answering structured questionnaires.

### ***Method of Data Collection***

Only studies that measure the QHOs of housing on the health of Nigerians were included in this study. Basic data relating directly to health outcomes from these studies were pooled and structured for Statistical analysis. The analysis was based on the association and correlation between housing and the health outcomes of Nigerians.

### ***Data Analysis and Management***

Data collected in this study was analyzed with simple descriptive statistics, Pearson correlation and regression analysis and ANOVA, using the Excel® Data Analysis Tool Pack. All data were securely kept in an encrypted format and duly archived in a backup folder. A correlation value of  $r \leq 1$  was considered as strongly positive, while a P-value of  $p \leq 0.05$  was considered as statistically significant.

### ***Ethical Consideration***

This study involves the use of secondary data and it does not involve any invasive medical procedures; hence, there was no need for ethical clearance. All necessary ethical clearance and participants' consents have been sought and granted during the collection of the primary data.

**Limitation of this Study**

The limitation of this study stems from the fact that only secondary data were used for this analysis. The samples to be used also seem small because only three (3) relevant papers out of the eighteen (18) studies found were able to fulfill the inclusion criteria.

**Results and Study Findings**

The table below gives a summary of the eighteen (18) papers identified for this this study:

*Table 1: List of Papers Identified for this Study*

<i>S/No</i>	<i>Study Title</i>	<i>Author</i>	<i>Journal Name</i>	<i>Year of Publication</i>	<i>Volume No.</i>	<i>Issue No.</i>	<i>Meet Inclusion Criteria (Yes) or (No)</i>
1	Influence of housing condition on the health status of residents of urban core of Akure, Nigeria.	Olukolajo, M.A., et al.	International Journal of Development and Sustainability	2013	2	2	Yes
2	Housing materials as predictors of under-five mortality in Nigeria: evidence from 2013 demographic and health survey.	Adebowale, S.A., et al.	BMC Pediatrics	2017	17	1	Yes
3	Housing conditions and health in rural Nigeria: A study of Akwa Ibom State.	Udoh & Uyanga	Research on Humanities and Social Sciences	2013	3	18	Yes
4	Challenges of urban housing quality and its associations with neighbourhood environments: Insights and experiences of Ibadan City, Nigeria.	Coker, A.O. et al.	Journal of Environmental Health Research	2008	7	1	No

5	An assessment of housing condition and socio-economic life styles of slum dwellers in Akure, Nigeria.	Omole, K.F.	Contemporary Management Research	2010	6	4	No
6	Housing, neighbourhood quality and quality of life in public housing in Lagos, Nigeria.	Ilesanmi, A.O.	International Journal for Housing Science and Its Applications	2012	36	4	No
7	Sustainable housing provision for the urban poor: a review of public sector intervention in Nigeria.	Olotuah & Bodadoye	The Built and Human Environment Review	2009	2	1	No
8	Evaluation of public housing programmes in Nigeria: A theoretical and conceptual approach.	Ibem & Amole	The Built and Human Environment Review	2010	3		No
9	A review of Critical Project Management Success Factors (CPMSF) for sustainable social housing in Nigeria.	Ihuah, P.W. et. al.	International Journal of Sustainable Built Environment	2014	3	1	No
10	Analysis of Nigeria's Policies on Housing.	Adeshina & Idaeho	JEE Sector Thought Leadership Series	2019			No
11	Challenges to providing affordable housing in Nigeria.	Akeju, A.A.	Proceedings of 2nd Emerging Urban Africa International Conference on Housing Finance in	2007			No

			Nigeria				
12	Public housing delivery strategies in Nigeria: A historical perspective of policies and programmes.	Ademiluyi, I.A.	Journal of Sustainable Development in Africa	2010	12	6	No
13	Housing policy in Nigeria: An overview.	Ibimilua & Ibitoye	American International Journal of Contemporary Research	2015	5	2	No
14	Exposition of Housing Policies and Programs in Nigeria.	Umoh E.U.	Shared Seasoned International Journal of Topical Issues	2016	6	1	No
15	Review of the Housing policies and programmes in Nigeria.	Bello, A.	International Journal of Contemporary Research and Review	2019	10	2	No
16	National housing policies and the realisation of Improved housing for all in Nigeria: An alternative approach.	Kalu, I.E. et al.	Asian Developing Policy Review	2014	2	3	No
17	The Nigerian national housing policy in perspective: A critical analysis.	Ibimilua, A.F.	Journal of Social Development in Africa	2011	26	2	No
18	Housing policies and programmes in Nigeria: A review of the concept and implementation.	Waziri & Roosli	Business Management Dynamics	2013	3	2	No

The table below gives a general breakdown of the collated data from the three studies that fulfill the inclusion criteria:

**Table 2: Breakdown of Participants Responses**

<i>S/N</i>	<i>Study Title</i>	<i>Location of Study</i>	<i>No. of Participants</i>	<i>Participants with Poor Building Standards</i>	<i>Participants Living in Poor Environments</i>	<i>Participants with Poor Hygiene Practices</i>	<i>Participants Lacking Basic Amenities</i>	<i>Participants with Reported Health Challenges Associated with Housing</i>	<i>% of Participants with Reported Health Challenges Associated with Housing</i>
1	Influence of housing condition on the health status of residents of urban core of Akure, Nigeria.	South-West Nigeria	408	262	305	395	318	320	78.40%
2	Housing materials as predictors of under-five mortality in Nigeria: evidence from 2013 demographic and health survey.	National Survey	18,516	8,067	9,426	15,179	8,177	6,685	36.10%
3	Housing conditions and health in rural Nigeria: A study of Akwalbom State.	South-South Nigeria	540	391	396	406	406	480	89.00%
	<b>Total</b>		<b>19,464</b>	<b>8,720</b>	<b>10,127</b>	<b>15,980</b>	<b>8,901</b>	<b>7,485</b>	<b>38.50%</b>



**Table 3: Summary of Data Statistics**

Regression Statistics								
Multiple R	0.9998766							
R Square	0.9997533							
Adjusted R Square	0.9995066							
Standard Error	231.38202							
Observations	3							
ANOVA		df	SS	MS	F	Significance F		
Regression		1	216964350.4	2.17E+08	4052.557391	0.009999535		
Residual		1	53537.63794	53537.64				
Total		2	217017888					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-671.7782	174.6289789	-3.84689	0.161906137	-2890.649723	1547.0934	-2890.64972	1547.0934
X Variable 1	2.8696506	0.045077978	63.6597	0.009999535	2.296880546	3.4424206	2.29688055	3.4424206

Eighteen (18) papers were identified as relevant to this study after a thorough search of Google Scholar, Academic Search Premier, and Family & Society Studies Worldwide databases. Of the eighteen (18) papers relating to housing and health, and housing policies in Nigeria, only three (3) papers meet the inclusion criteria of measuring the QHOs of the studies participant. 19,464 individuals participated in this study with two of the studies conducted at South-West and South-South geo-political zones of Nigeria respectively. The third study was a national survey which gives a representative sample from all the geo-political zones in Nigeria.

**Poor Structural Building Standards**

From the data analyzed, 44.8% (n=8,720) of the study population agrees to living in houses with poor structural qualities. Some of these structural defects includes cracked walls and floors, poor or peeled paints with fungal growths either on the inside or outside the walls of the building. Leaking roofs, broken windows, broken ceilings, and broken doors were also reported among this group of participants.

**Poor Sanitation and Environmental Condition**

From the reported data, 52% (n=10,127) of the study participants live in areas with poor environmental sanitation. Poor water drainage and sewage systems, bushy environment, presence of rodents and cockroaches, the lack of proper road networks, and overcrowding were reported among this group of participants.

**Poor Hygiene Practices**

From the analysis conducted, 82% (n=15,980) of the study population lacks good hygiene practices. The participants in this group reported the use of pit toilet or a complete lack of toilet facilities. There is the indiscriminate dumping of refuse in the environment. The absence of good drainage systems also favors the growth of mosquitoes. The use of opened refuse dumps and toilets largely favors the spread of infectious diseases like diarrhea, cholera, and typhoid among this group of participants.

**Lack of Basic Social Amenities**

About 46% (n=8,901) of the study population lacks basic social amenities such as treated pipe-borne water and easy access to healthcare services. The lack of pipe-borne water leads participants to resort to the use of stream water for both cooking and drinking. Apart from the lack of electricity and primary healthcare services, the use of stream water poses the danger of being infected with various enteric infectious diseases such as typhoid, cholera, and diarrhea.

### ***Reported Health Challenges Relating to Housing***

As much as 38.5% (n=7,485) of the study population reported one or more form of health challenge directly attributed to the quality of housing in which they live. The Housing and Health related challenges reported includes Malaria, Typhoid, Cholera, Diarrhea, and many pulmonary or respiratory disease conditions such as pneumonia, asthma, bronchitis, nasal congestions, and allergic reactions to household molds.

### ***Statistical Analysis and Hypothesis Testing***

The data analysis conducted using simple descriptive statistics, analysis of variance (ANOVA), and the Pearson's correlation and regression analysis indicates a significant relationship between housing and its impacts on health ( $r=0.99$ ,  $p\text{-value}=0.009$ ). Further analysis also shows a strong positive relationship with the  $R^2$  at 99% and a **Significance F** at **0.0099**. In addition, the **correlation coefficient** at the point of Interception indicates a **Positive Relationship** at **2.869**. Thus, this results shows a very strong positive and significant correlation between housing and its impacts on health ( $r=0.99$ ,  $p\text{-value}=0.009$ ). The **Margin of Error** stands at only **1%** probability. Based on these findings, it is concluded that **Housing and its attendant components has a direct impact and strong positive correlation on the health of the Population in Nigeria.**

### **Discussion**

Poor housing and an unhealthy environment has long been used as a measure of economic status and health inequities among populations (Warr, *et.al.*, 2009; Braubach & Fairburn, 2010; Briggs, *et.al.*, 2008). This approach has also been used for strategic public health interventions as the spread of infectious diseases mostly starts from vicinities with poor housing and environmental standards. Researchers have endeavored over the years to identifying the association between housing and health; and to specifically identify the impacts of social interventions on housing (Egan, *et.al.*, 2010). The increasing body of evidence now available have overwhelmingly points to the fact that housing has major impacts on the health of individuals and families (Baker, *et.al.*, 2017). Some of the health challenges experienced directly in relation to housing may seem circumscribed and isolated, this however have greater impacts on the larger population. Several studies at different parts of the world has directly linked housing tenure as a measure of socio-economic standing to mortality, cardiovascular heart diseases (CVD), and mental health issues among studied populations (Park & Jung, 2019). The use of housing tenure however does not speak directly to the working and living conditions of individuals and families. Thus, researchers are now concerned with identifying the key impacts of the psychosocial environment within the home and the quality of the physical environment in which people live. Staying healthy is dependent on many factors among which housing is key. Myriads of elements and factors both within and outside the home affects health; and the space and environment in which people live plays a vital role in shaping their well-being. A healthy population produces a productive society, which directly translates into higher economic values and returns on the part of government. It has been reported that the sheer size and population of Nigeria presents a huge challenge due to its diverse ethnic and religious groups (Ayedun & Oluwatobi, 2011). This monstrous challenge is mirrored in the country's varied patterns of housing structures and qualities, varied coverage in healthcare facilities and services, varied availability of social amenities, and varied health outcomes of the population. The weak system of governance in the country and the ethno-centric nature of political leadership has largely remained a major setback for the country in its universal housing and health coverage drive (Yagboyaju & Akinola, 2019).

From the analysis conducted in this study, 44.8% of the population live in buildings with poor structural standards. These buildings are characterized with poor foundations and cracked walls, dampened floors with leaky roofs, broken windows and doors, moldy paints both within and outside the building, and broken or moldy ceilings. All these elements combined have a negative collateral effect on the health of the house occupants. Both physical illnesses relating to upper and lower respiratory tracts infections and mental health issues are occasioned due the constant exposure to unfavorable elements within the home space. Several studies have linked poor housing environment to ill health, and the case in Nigeria is not different (D'Alessandro & Appolloni, 2020). Studies have also shown that an improvement or social interventions to improve the housing environment has tremendous effects at improving the health outcomes of the affected population (Lubell, *et.al.*, 2007; Thomson, *et.al.*, 2001).

Poor environmental sanitation has been associated with poor health outcomes in all parts of the world. The physical environment outside the physical building structure accommodates a host of agents that directly affects the health of individuals and families. From the data analyzed in this study, 52% of the study participants live in environments with poor sanitation. These environments are characterized with poor water drainage and sewage systems, bushy environments, public dumping of refuse in open spaces, and poor road networks (Udoh & Uyanga, 2013). These combined elements largely favor the spread of infectious diseases such as Cholera and Malaria. The indiscriminate dumping of refuse causes environmental pollution with the attendant growth of diseases carrying vectors and rodents. A proper regulation on the disposal of community wastes and sewage is urgently needed in Nigeria in order to protecting the health of the citizens.

Historically, the lack of good hygiene practices has led to the spread of infectious diseases causing pathogens that has led to many epidemics in the past (Bartram & Cairncross, 2010). From the data analyzed in this study, a staggering 82% of the study participants indicate that they do not practice good hygiene. This was largely occasioned by the lack of water system toilets and the lack of portable drinking water. The study participants' reports on resorting to the use of contaminated and untreated stream water for cooking, washing, and drinking. The participants make use of the available open spaces in the environment for defecation and the disposal of other hazardous wastes. Little wonder when it was reported in the National Strategic Health Development Plan (NSHDP) for the period between 2010 and 2015 that the health status of Nigerians is among the worst in the world; and that the health status of the Nigerian population has declined (Uzochukwu, *et.al.*, 2015). Several studies have linked poor hygiene to infectious disease spread. Diseases such as Typhoid, Cough, Tuberculosis (TB), and Cholera are easily spread within communities when there are no good hygiene practices.

Many rural and urban settlements especially in LMICs as Nigeria lacks many basic social amenities such as treated pipe-borne water, good road networks, electricity, and healthcare facilities (Lanrewaju, 2012). 46% of the participants in this study lack one or more of these basic social amenities. The ethnic disparity and the bigoted nature of political needs assessments in Nigeria has made for a spread of basic social amenities that are not even. Politicians sometimes use their political influence to locate important social amenities in proximities to their local ethnic settlements. The ethno-centric incline guiding the political leadership space in Nigeria remains one of the major challenges to poor housing and poor healthcare coverage. With almost half of the study population (46%) not having access to basic social amenities such as good roads and healthcare facilities, the citizens are left to wallow in pain before they can get help. The economic cost of providing individual power for

basic electrical uses further dampens the chances of the citizens from being able to obtain their own homes. The power generators used to produce electricity by these participants also releases carbon dioxide into the environment; thus, leading to environmental pollution. The inhalation of the released carbon dioxide can cause lung diseases and sometimes-instant mortality resulting from carbon monoxide poisoning (Ede, *et.al.*, 2013). It is therefore imperative that government makes the necessary provisions for a mandatory construction of standard healthcare facilities in proximity to every community.

The health impacts of housing on health cannot be overemphasized. From the data analysis carried out in this study, 38.5% of the participants reported one or more form of ill health within the study period. The majority of this participants reported suffering from Malaria, Cough, Skin Rashes, Asthma, Bronchitis, Typhoid, Cholera, and Diarrhea etc. The study which cuts across the six (6) geo-political zones in Nigeria gives a fair representation of the entire Nigerian population; thus, making room for an acceptable level of generalization of the findings of this study. An important aspect of the impacts of housing on health that is yet to be explored in Nigeria is the impact that housing has on mental health. Further studies are required to fully explore the ramifications of the mental health challenges occasioned due to poor housing. Studies to understand the psychosocial impacts on housing interventions and the health outcomes of Nigerians are also urgently needed to help inform and guide future housing policy formulations (Opoko & Oluwatayo, 2014). More studies are also needed in all parts of the country to fully understand the dynamics and confounding factors existing within the complex intercept between housing and health.

The data analysis conducted using simple descriptive statistics, analysis of variance (ANOVA), and the Pearson's correlation and regression analysis indicates a significant relationship between housing and its impacts on health ( $r=0.99$ ,  $p\text{-value}=0.01$ ). Further analysis also shows a strong positive relationship with the  $R^2$  at 99% and a Significance F at 0.0099. In addition, the correlation coefficient at the point of Intercept indicates a Positive Relationship at 2.869. Thus, this results shows a very strong positive and significant correlation between housing and its impacts on health ( $r=0.99$ ,  $p\text{-value}=0.01$ ) in Nigeria.

## **Conclusion**

Housing and Health are interrelated; and living in houses that are poorly built affects the health of individuals and families negatively. The socio-economic impacts and costs of assessing healthcare though seemingly circumscribed always have a larger impact on the economy and well-being of the nation. Social interventions to improve housing for citizens at different parts of the world has yielded very good results with improved health outcomes (Jacobs, *et.al.*, 2010; Butler, 2018). Homes, either owner-occupied or rented does not improve health outcomes especially if the physical environment in which such housing are located does not make for a harmonious environment conducive to health and wellness. The health status of Nigerians has been on a steady decline due many intrinsic and extrinsic factors directly relating to housing. The psychosocial space within the home and the physical environment in which people live affects their health and well-being. As can be seen in this study, many factors such as structural building standards, the quality of the environment and its sanitation, the level of individual and family hygiene, and the availability of basic social amenities all have direct impact on the health of individuals and families. As indicated by Taylor(2018), stability as to having a home, quality and safety of the building, affordability as to being able to afford a home, and the quality of the neighborhood and the physical environment with the attendant requisite infrastructures all combines to affecting healthcare costs and health outcomes. While housing is a basic human need, health remains a basic human right; as without health, the burden, loss and cost incurred in productivity will

invariably be translated to the national economy. The Nigerian government though has made tremendous efforts over the past decades at closing the housing deficit gaps in Nigeria; the government still has a long way to go at ensuring equity in the distribution of basic social amenities, including housing among its citizens. The ethno-centric leadership styles with skewed allocation of available resources should be jettisoned for a more inclusive style of leadership where equity and justice for all will be guaranteed. The health of Nigerians is being impacted negatively due to the quality of housing and the physical environment in which they live (Olukolajo, *et.al.*, 2013; Udoh & Uyanga, 2013). Government should put in more efforts at coming up with housing policies that incorporate the health and safety components of housing projects. More housing and health policy experts are also needed to help in ratifying proposed housing policies in Nigeria. And while stricter adherence to the WHO Housing Guidelines and the Nigerian National Building Code is strongly advocated, large-scale Social and Epidemiological studies are needed in Nigeria to fully understand the ramifications of the impacts of housing on the health of the citizens.

### **Recommendations/Suggestions**

In view of the findings in this study, the followings recommendations/suggestions are given to the government of Nigeria:

- [1] Policy on the Structural and Design standards of housing units
- [2] Regulatory provisions on the mandatory use of Standardized and approved Building Materials
- [3] Policy on the provisions of Environmental Standards for Waste Disposal and Management
- [4] Policy Provisions for the regulation and control of Noise Pollution
- [5] Regulatory provisions for the Prevention of Fire Hazards by Individuals and Families
- [6] Regulatory provisions on the Standards for Environmental and Neighborhood Designs
- [7] Mandatory Regulatory Standards for the creation of neighborhood recreational centers and Walkways
- [8] Mandatory Regulatory provisions for Periodic Public Housing Inspections and Maintenance Checks
- [9] Mandatory Regulatory standards for School Structural Planning, Locations and Designs
- [10] Mandatory Regulatory standards on the provision of Community Healthcare Centers

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### **Conflict of Interest**

The author declares no conflict of interest.

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