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HOUSING QUALITY AND PERCEIVED HEALTH EFFECTS IN IJEBU ODE, NIGERIA

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ABSTRACT

Despite the mounting compendium of scientific evidence that has clearly documented the link between poor housing quality and health both locally and globally, poor housing quality has continued to be a significant concern in public health, especially in rural and sub-rural areas of emerging nations like Nigeria, where there is slight or no knowledge about the public health consequences of poor housing quality. As a result, the object of this work is to observe the housing quality and the perceived health impacts in Ijebu Ode, Nigeria. The work adopted a descriptive but cross-sectional approach, and data was obtained from four hundred (400) systemically sampled households through structured questionnaires, and analysed descriptively using a statistical tool for social scientists. According to the findings, a significant number of the residents 51.5% had no water in their houses, 44% had two windows in the room; out of which only 32% had windows on the two walls of the room, and 33% of the homes were overcrowded with over two people in a room. The findings further revealed that the vast majority of residents reported having cases of malaria with 67.5%, and cases of typhoid and cough with 15.5% and 4.5%, respectively. Consequently, the study has hitherto concluded that housing quality in Ijebu Ode is poor, which is a major predictor of the perceived health effects experienced by the residents.

Contribution/Originality: The current study therefore contributes to existing knowledge by practically demonstrating the need for an effective urban and rural housing intervention programme that incorporates provision of basic infrastructural facilities and essential housing services that will facilitate a reduction of the public health risks associated with poor housing quality.

1. INTRODUCTION

A mounting compendium of scientific proof has over the years documented the link between low housing quality and poor health, both locally and globally [1, 2] and these have been identified to have a deleterious effect on health, and according to Moloughney [3] scientific proof connected to housing of poor quality and ill health has been perhaps the most documented.

In the advanced and developed economy settings, the object has made a recent transition from dilapidation and poor sanitary conditions to issues related to indoor air quality and other physico-chemical threats, which can be discovered in residential areas. In terms of health impacts, the focus has also shifted from ill-health to psycho-social welfare. Conversely, in Nigeria, like other emerging countries around the world, the prevalent housing problems

include acute housing shortages, overcrowding, unsanitary living conditions, ill ventilation, and a sizable portion of housing of inadequate quality [4] and these are not without their attendant public health consequences.

Moreover, the attention placed on the issues of Nigerian housing conditions is a clear sign of the extremely deplorable states in which the populace, most particularly those with financial constraints, reside in the rural or sub-rural areas of the country [5] as evidenced by the unsanitary housing conditions, overcrowding, inadequate ventilation, and unhygienic housing facilities, causing poor health among the residents living therein. For instance, a research evaluation survey conducted by Bailie, et al. [6] proved that only 15.8% of Nigeria's housing has sanitary latrines within their compounds, while the outstanding proportions practise bush dumping. The research also found that unsanitary excreta disposal might cause contamination of the human environment with faecal matter and disease-causing organisms such as shigellia, E. coli, salmonella, and rotavirus, which can cause gastroenteritis, hepatitis A, and strongyloidiasis. A recent investigation on housing standards and bad health in Akwa Ibom by Udoh and Uyanga [7] shows that a significant number of households live in inadequate housing where essential and fundamental health amenities are not accessible to promote the health of the occupants. The buildings have leaked roofs, broken windows, cracked walls, and broken floors, which are likely to increase the risk of asthma and pneumonia owing to moisture and mould growth.

More so, in recent decades, an extensive number of empirical studies on housing and health have been carried out at local, regional, and global levels [8-11] revealing the increasing evidence base for the impacts of housing quality on health. The significance of housing to public health is evident based on the continued contact individuals have with their surroundings, which averages about 16 hours every day [12]. On account of this interaction, emerging nations all over the globe are concerned about improving housing quality in rural and sub-rural areas where lack of access to water, unsanitary conditions, contaminated food, uncollected waste, smoky kitchens, and a variety of pests and vectors combine to create health-threatening conditions [13].

Nonetheless, though housing development has witnessed the establishment of policies that have been put into action over the decades in Nigeria, housing conditions have continued to show features concomitant with poor housing quality, with deteriorated housing, overcrowding, inadequate ventilation, lack of adequate water supply, and toilet unavailability in many rural and sub-urban communities, and these, according to Amao [14] pose severe adverse effects on the health of the residents.

However, in light of the reality that housing quality and health are not entirely new topics of discourse, and in spite of the numerous studies offering great suggestions for improving Nigeria's housing situation and that of the rest of the world, poor housing quality has continued to be a huge global public health issue, especially in rural and semi-urban areas of developing countries like Nigeria, where there is slight or no understanding of the negative effects of substandard housing on public health. This study aims, therefore, to explore this expanding field of inquiry on quality of housing and the perceived health effects in Ijebu Ode, Nigeria, while envisaging that the study's findings will aid in the development of targeted interventions aimed at improving the overall quality of housing in the long term.

2. APPROACHES AND MATERIALS

2.1. Area of Research

This work took place in Ijebu Ode city, which is located some 60 kilometres north-west of Lagos, the second-most populated city in Nigeria's Ogun State, with a 192 km² land area and a population estimate of 154,032 [15], (see Figure 1).

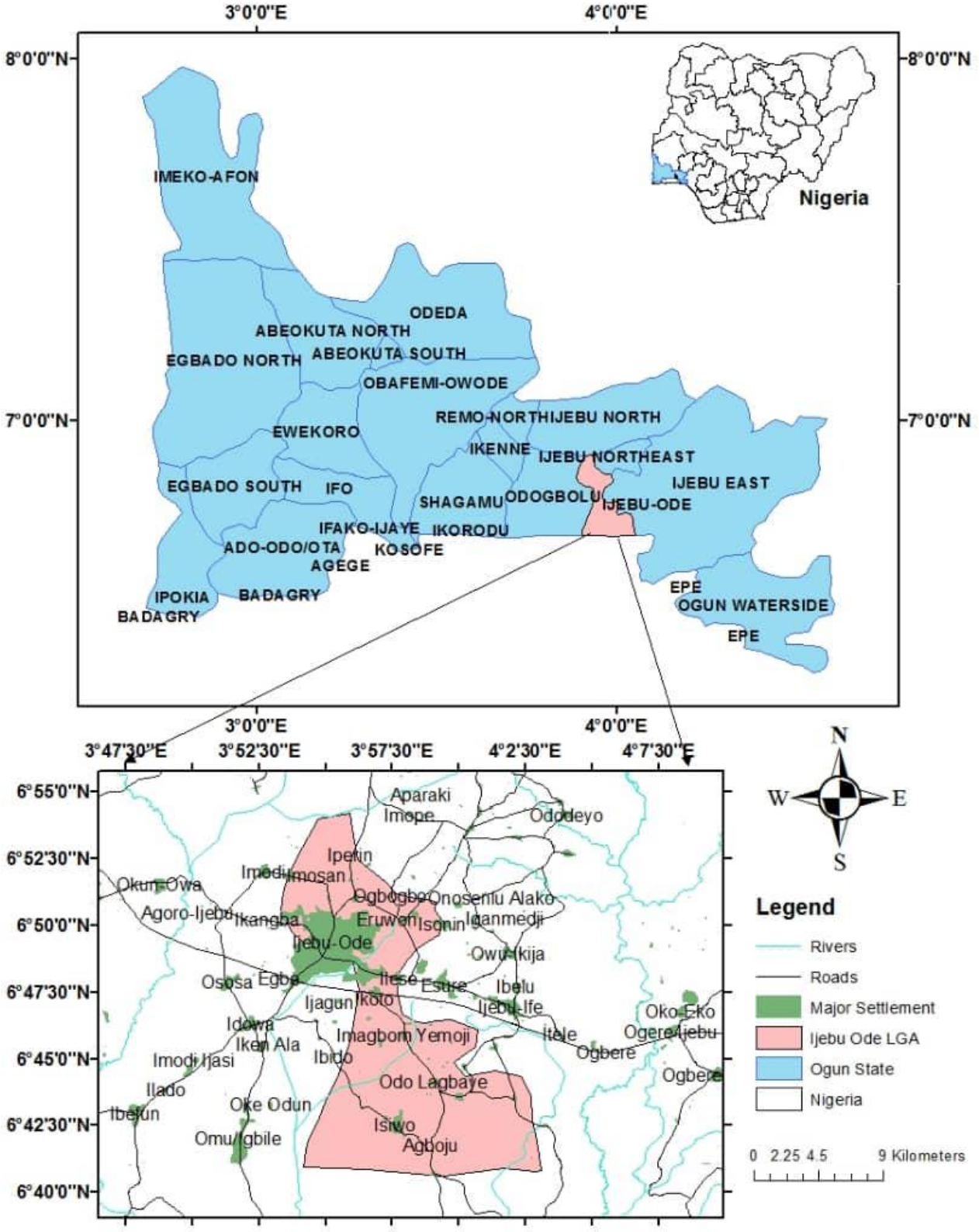

Figure 1. Ijebu Ode's Spatial Map [16].

2.2. Sample and Sampling Approaches

A sample size of four hundred (400) respondents was selected for this work and was determined using Slovin's formula for sample size determination (see Equation 1), at an error margin of 0.05 and at a 95% significant level;

$$n = \frac{N}{1 + e^2} \quad (1)$$ [17].

Interpretation;

n = Sample size.

N = Population size.

e = Error margin.

The sampling was achieved using simple random sampling in selecting five (5) wards from Ijebu Ode's eleven (11) political wards, with eighty (80) respondents sampled from each ward, making up the required four hundred samples, while a systematic random sampling technique was later used in the selection of residential households in each one of the selected wards at an interval of every fifth house.

2.3. Data Collection Method

The study's primary data were obtained by means of structured questionnaires administered on the systematically selected four hundred (400) households. The primary data includes four hundred (400) household questionnaires; these were used to obtain information from the people of Ijebu Ode about the quality of housing and health effects. The instruments for the survey were distributed with the help of some of the final-year Environmental Health Technology students who worked as trained study assistants.

2.4. Procedure of Data Analysis

The Statistical Tool for Social Sciences (version 20.0) was used to conduct a descriptive analysis, and the results were displayed using visual variables such as pie charts and histograms.

3. RESULTS

3.1. Adequacy of Ventilation

Table 1 reveals that all of the respondents 100% had windows in the room, out of which only 44% and 27% had two and three windows, respectively, while a moderate proportion, 29%, had only one window in the room. For proper ventilation, 32% had windows on two walls, while 32% lived in homes with bedrooms lacking windows on two walls. A majority of 87.5% also reported having a ceiling in the room, while 12.5% had none.

Table 1. Adequacy of ventilation.

Variables	Yes	%	No	%
Presence of Window	400	100	0	0
Number of Window in a Room	F	%		
One	116	29		
Two	176	44		
Three	108	27		
Total	400	100		
Variables	Yes	%	No	%
Window in two Walls	272	68	128	32
Fan in the Room	360	90	40	10
Ceiling in the Room	350	87.5	50	12.5

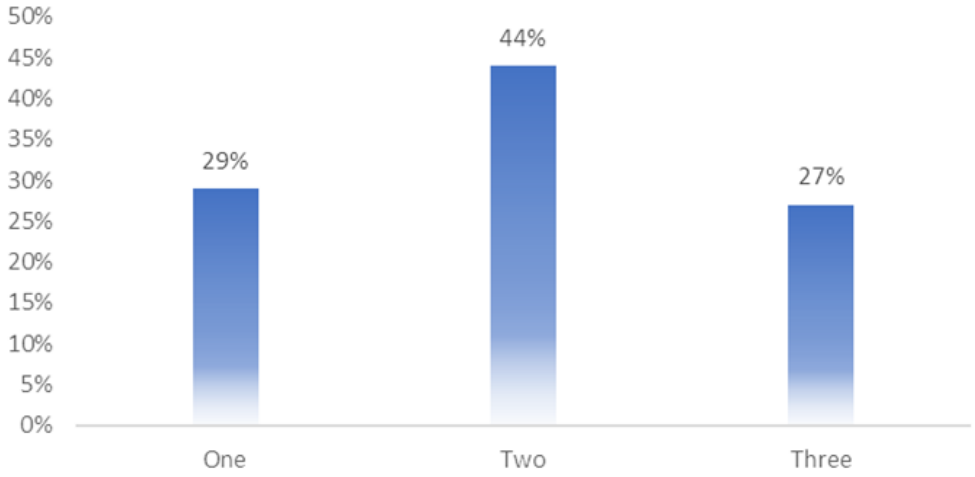

Figure 2. Number of window in a room.

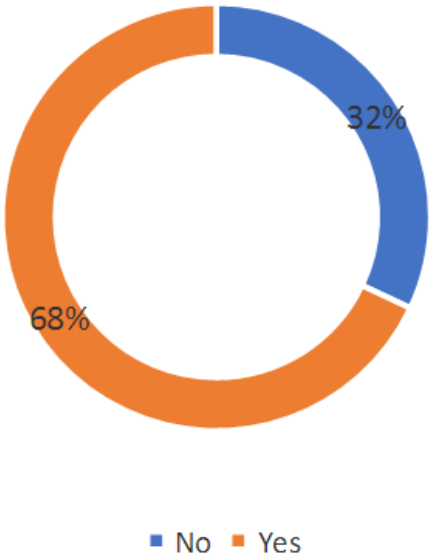

Figure 3. Windows in two walls.

3.2. Overcrowding and Structural Conditions

As is revealed in Table 2, 33% of the houses had over two individuals living in each room. Precisely, the data for building conditions found that 26.5% of families live in houses with a leaking roof, 22% in houses with fractured walls, and 18.5% in houses with broken floors.

Table 2. Overcrowding and structural conditions.

Number of Persons/Room	**F**	**%**		
One	128	32		
Two	140	35		
More than two	132	33		
Total	400	100		
Structural Conditions	Yes	%	No	%
Roof Leaking	106	26.5	294	73.5
Walls Cracked	88	22	312	78
Floor Broken	74	18.5	326	81.5
Ceiling Broken/Cracked	66	16.5	334	83.5

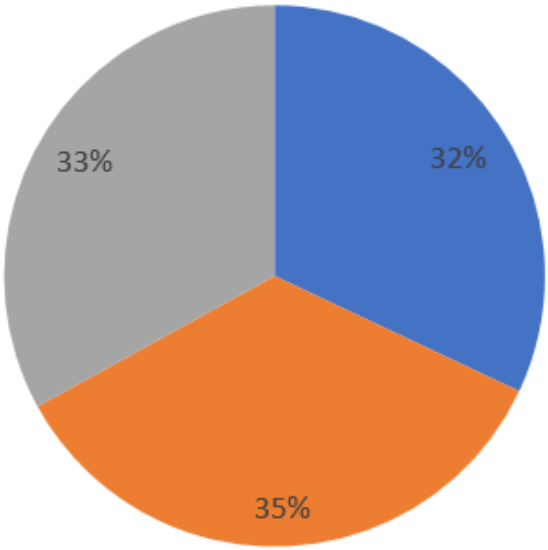

Figure 4. Number of persons/room.

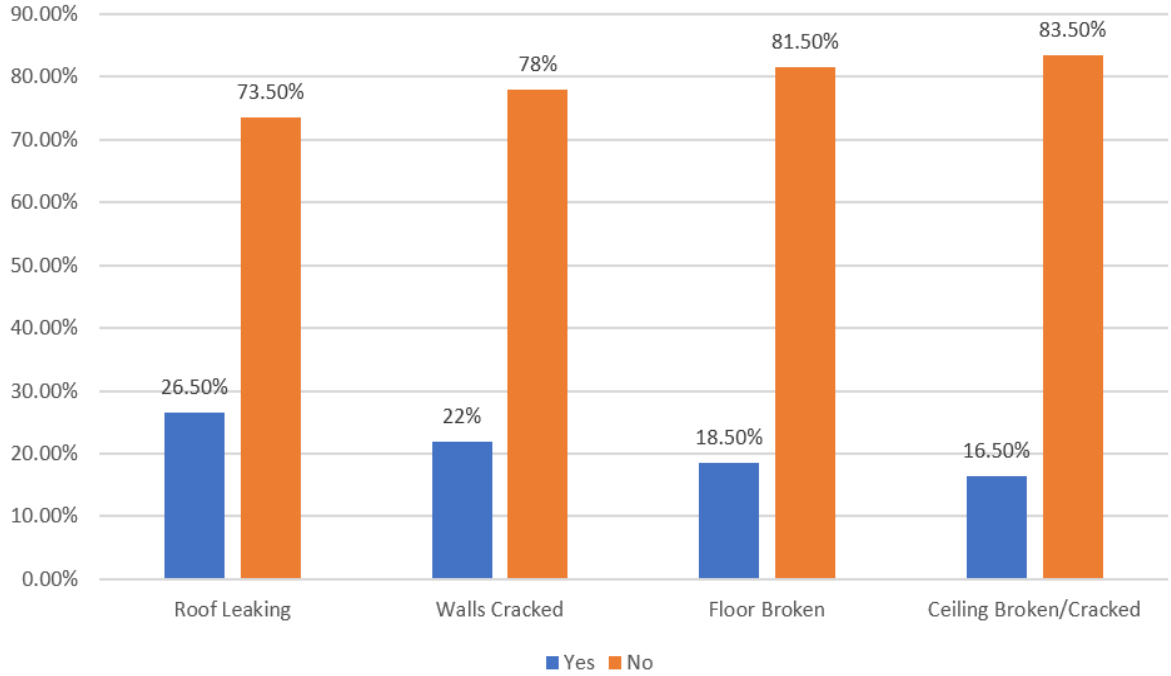

Figure 5. Structural conditions.

3.3. Sanitation and Hygiene Amenities

According to Table 3, the majority of the participants reported 51.5% reported water shortages for home chores, and 29% relied on public water taps. Bothering on availability of toilet, 6% of the houses did not have any toilet, while 62.2% reported using WC.

In addition, 47.5%, which is nearly half of households, reported the absence of a sanitary waste bin in their house, while 18% disposed of their waste by open dumping, 12% by open burning, and 6.5% by dumping their trash into the public drainage system Table 3.

Table 3. Sanitation and hygiene amenities.

Water Availability	Yes	%	No	%
Source of Water Available in the House	194	48.5	206	51.5
Type of Water Source	F	%		
Well	2	0.5		
Borehole	282	70.5		
Public Tap	116	29		
Total	400	100		
Toilet Availability	Yes	%	No	%
Toilet Available	376	94	24	6
Type of Toilet	F	%		
Pit Toilet	118	31.4		
Water Closet (WC)	234	62.2		
Ventilation Improved Latrine	24	6.4		
Total	376	100		
Waste Bin	Yes	%	No	%
Availability of Waste Bin	210	52.5	190	47.5
Waste Disposal Method	F	%		
Open Dumping	72	18		
Open Burning	48	12		
Com Waste Depot	254	63.5		
Public Drains	26	6.5		
Total	400	100		

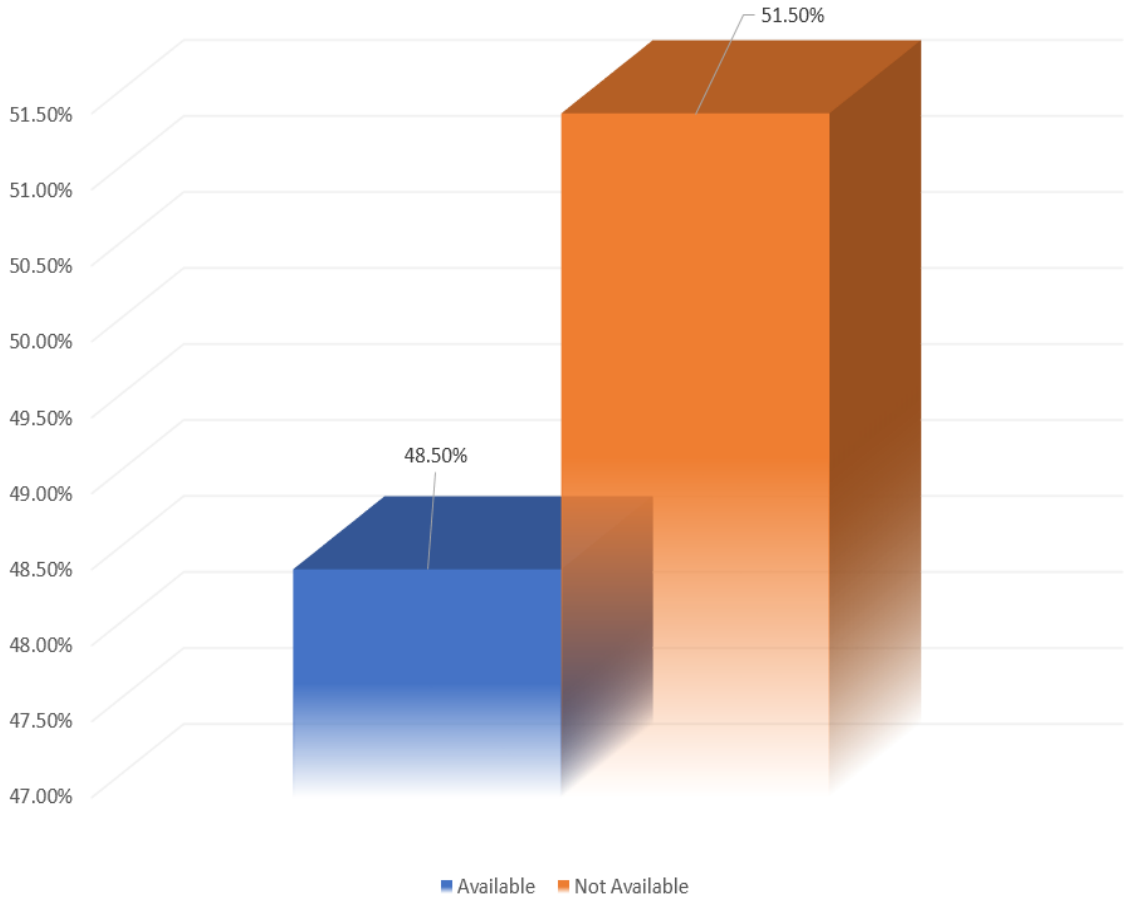

Figure 6. Availability of water source in the house.

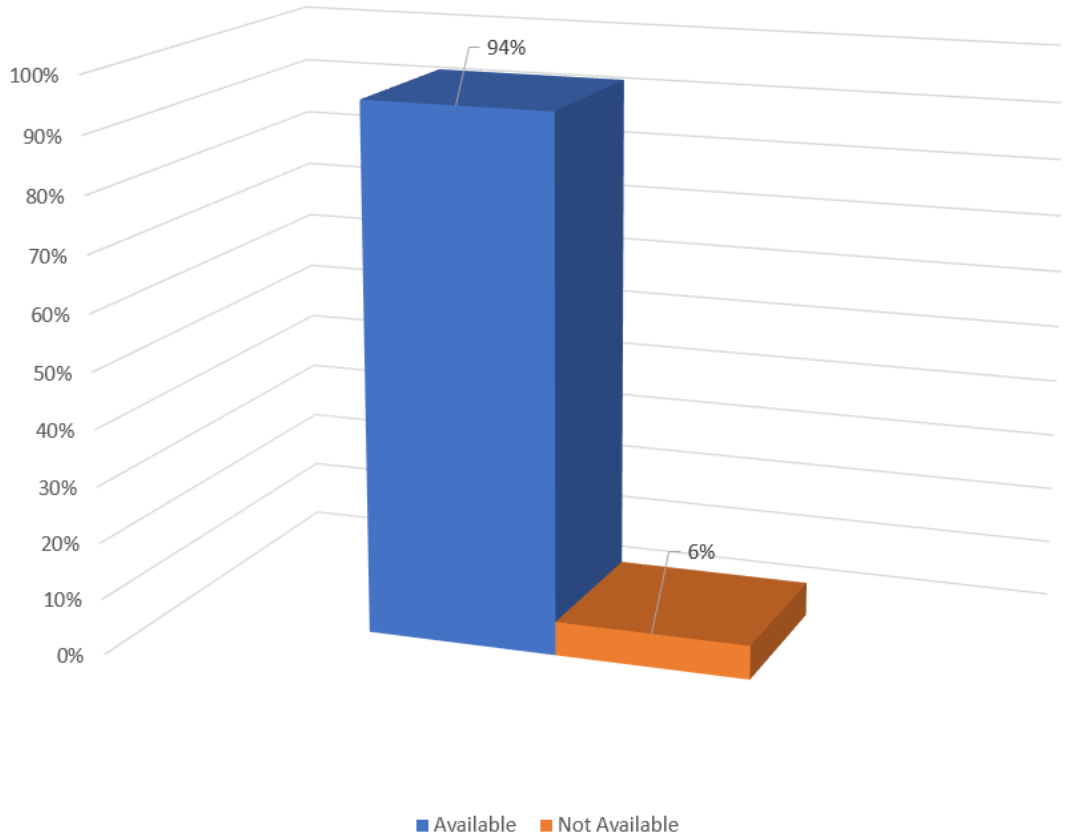

Figure 7. Availability of toilet facility.

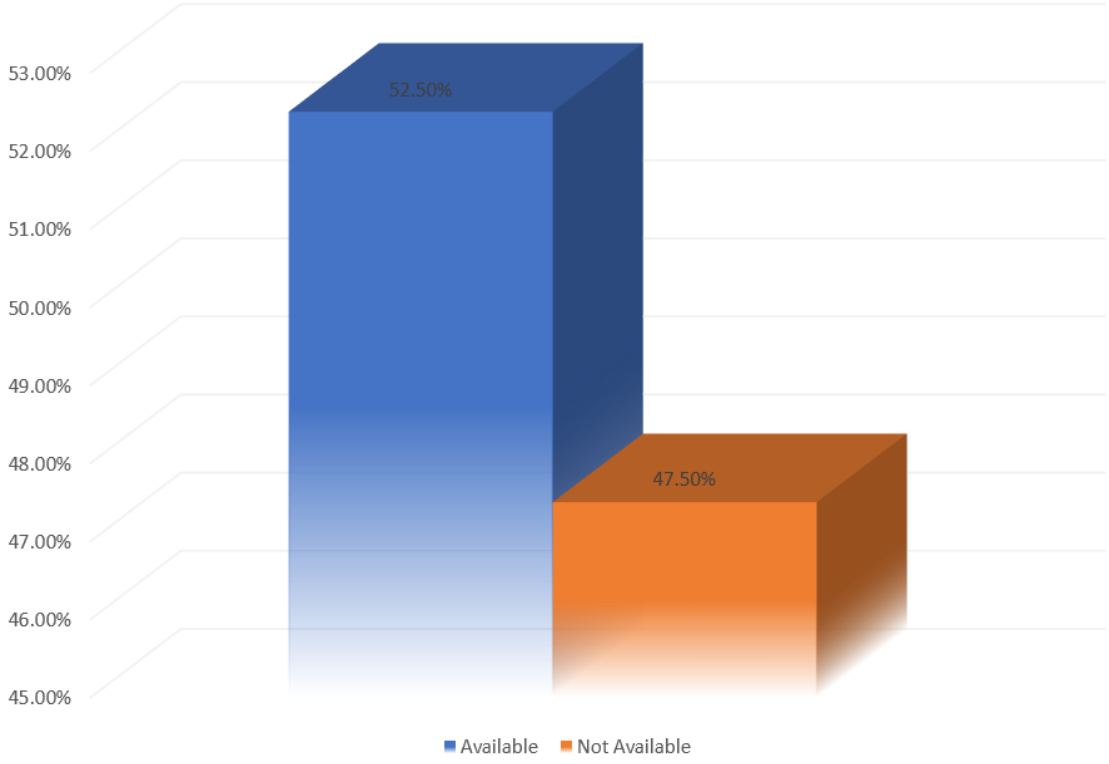

Figure 8. Availability of sanitary waste bin.

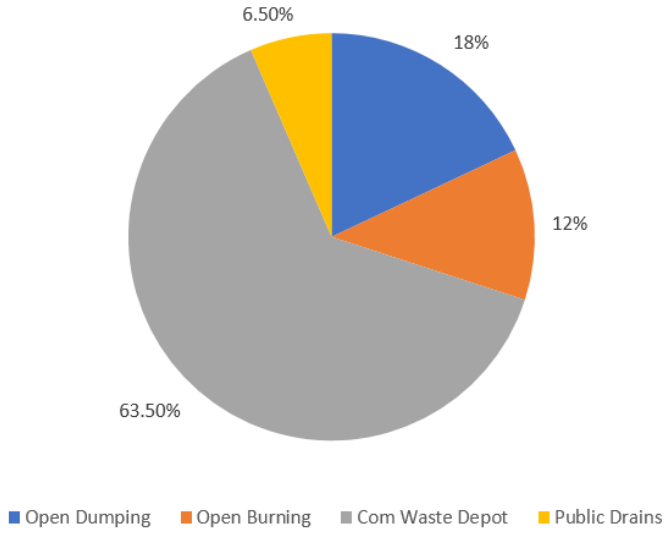

Figure 9. Waste disposal method.

3.4. Prevalent Health Conditions

Regarding the perceived health conditions of the people, the vast majority of the homes reported an illness, with 67.5% reporting malaria. The distribution of disease occurrences indicated that typhoid was prevalent in 15.5% of households; 4.5% of households reported cough occurrences; 4% of households had members who suffered from diarrhoea; and 8.5% of households reported other illnesses such as skin disorders Table 4.

Table 4. Prevalent health conditions.

Perceived Health Conditions	F	%
Malaria	270	67.5
Typhoid	62	15.5
Diarrhoea	16	4
Cough	18	4.5
Respiratory Illness	0	0
Others	34	8.5
Total	400	100

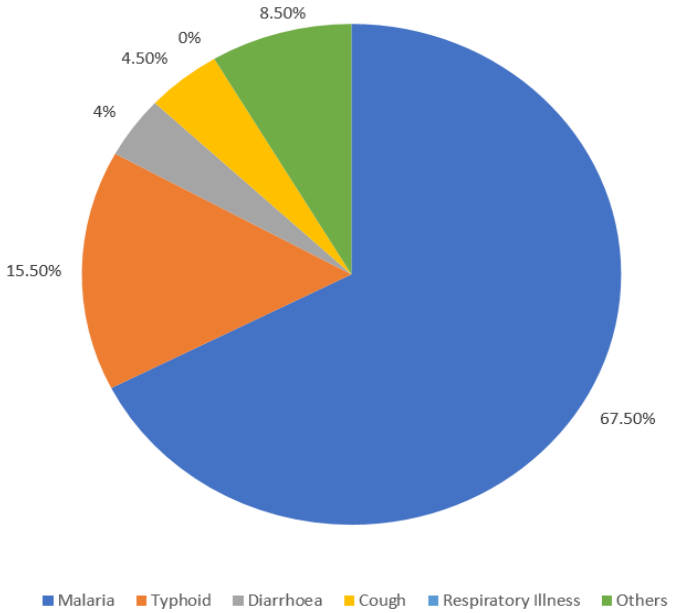

Figure 10. Prevalent health conditions.

4. DISCUSSIONS

The present study focuses on the assessment of housing quality and the perceived health effects in Ijebu Ode. The current study's findings revealed that all the respondents had windows in their rooms, which is encouraging, but further analysis revealed that of these, only 44% and 27% had two and three windows, respectively, which is necessary for adequate ventilation to take place in the room, while 29% of them only had one window in their room (see Figure 2).

In addition, for proper ventilation, 32% said their bedrooms lacked windows on two walls to allow for proper ventilation (see Figure 3). This, by implication, will likely induce discomfort owing to poor ventilation, which increases the likelihood of the spread of airborne diseases among the occupants. Similarly, to further enhance adequate ventilation, 10% of the houses reported an absence of fans in their houses, which is key in augmenting the already poor natural ventilation. Regarding overcrowding, 33% of the homes had over two individuals living in a room (see Figure 4). Overcrowding is generally seen as more of a public health threat owing to the increasing chances it creates for the spread of infectious diseases such as tuberculosis, scabies, and other diseases transmissible by contact. Among the predisposal factors related to the communicability of scabies are personal hygiene and overcrowding [18]. Other infectious diseases generally related to overcrowding include tuberculosis [19], meningitis [20], and measles [21]. Overall, these outcomes seem to be in sync with the study by Michael [22], who in his work on the effect of water supply, sanitation, and housing on health reported the rates of respiratory, eye, and skin disorders to be higher in crowded houses.

More so, data for building conditions revealed that 26.5 percent of occupants live in houses having leaking roof, 22% in houses with fractured walls, and 18.5 percent in houses with broken floors (see Figure 5). These conditions pose serious health implications with the threat of pneumonia owing to mould and dampness [23], which are due to excessive moisture occasioned by leaked roofs. Moreover, these discoveries are in sync with Udoh and Uyanga [7], who in a similar study on housing situations and health in rural Akwa Ibom documented that roof leakage, damaged walls, and broken floors affect 60% of the occupants. Further analysis on the sanitation and hygiene amenities indicated that a majority of 51.5% of the occupants had no provision for water for home usage, and 29% relied on public water taps (see Figure 6). In agreement with the current outcome, Udoh and Uyanga [7] reported that 78% of households in rural Akwa Ibom fell quite below the minimum requirement for water access. Similarly, a recent published work in Lokoja indicated that tap water was available to 59.2% of the city's residents [24]. The paper went further to show that 11.2% of the residents in Lokoja rely on well water for their domestic uses, which is subject to contamination if the sanitary conditions are not met. Similarly, Lindskog and Lundqvist [25] confirmed this observation, stating that unsafe water is a major source of cholera and diarrhoea in Malawi's rural areas. Regarding the availability of sanitary latrines, 6% of residences had no sanitary toilets (see Figure 7), and this has serious implications for open defecation with its attendant environmental and health consequences, especially the spread of faeco-oral infections. A comparable but much higher result was also well documented by Adetunji and Isah [24], who found that 82.8% of those surveyed have a toilet at their residences in a recently published study on quality of housing and the implications in Lokoja. Approximately 17.2 percent of the remaining respondents claimed that toilet facilities were inaccessible. Also, almost half (47.5%) of households reported the absence of a sanitary waste bin in their house (see Figure 8), while 18% disposed of their waste by open dumping, 12% by open burning, and 6.5% by dumping it into public drains (see Figure 9). This has ramifications for the health of the populace and the environment because open combustion pollutes the ambient air and dumping of waste into drains will only block and retain wastewater, thereby encouraging the breeding of vectors of malaria, while open dumping will provide breeding ground for pests and vectors of public health significance. A similar study has demonstrated that waste collection and disposal facilities were unavailable in 60% of houses [7]. Deplorable housing situations are linked to other contagious diseases, including skin infections [26], and diarrhoeal illnesses because of a lack of adequate and potable water supply as well as adequate sanitation facilities [27].

Following up on the data about the respondents' perceived health conditions, the majority of the families reported diseases, with 67.5 percent reporting malaria (see Figure 10). As a result, it is rational to think that the respondents' poor waste disposal practises, which encourage the development of malaria vectors, had a substantial influence on outcomes. The current observation is buttressed by a previous study by Sunday and Adebambo [28] on the impact of housing conditions on the health of residents in Ijeda-Ijesa and Iloko-Ijesa, which found that malaria was the most frequently reported illness, accounting for 53% of the total. The study posited that, 41% of inhabitants blamed the sickness on mosquito bites, while 20% blamed it on poor cleanliness and sanitation, both of which are linked to housing inadequacies. The disease prevalence indicated that typhoid occurred in 15.5% of the households, 4.5% of households reported cough, 4% of households had members who suffered from diarrhoea, and 8.5% of the individuals reported other illnesses such as scabies. In keeping with these findings, a similar study reported that, among notable ailments linked to poor housing, dysentery accounted for 20% of the total sample [28].

Similarly, in accordance with the current results, prior studies have found housing conditions as a key determinant of ill health [7]. The study further demonstrated that housing indicators such as building condition, indoor temperature controls, and crowding most notably influenced the occurrence of asthma, pneumonia, cough, and bronchitis among household members. The present findings appear to conform to other established investigations, which clearly document the impact of poor housing on health. Popular among these investigations is the work of Chadwick [29], which attempted to establish an association between poor people's living conditions and their ill health. Furthermore, [7] in their observation concluded that dilapidated building conditions, inadequate indoor temperature control, and crowding are the major determinants of the incidence of asthma, pneumonia, cough, and bronchitis among households. In his review on health and housing [30], he documented the strong linkage between respiratory illness in both kids and grown-ups and wet and mould, and further noted that research had proven that this link existed regardless of smoking, income, unemployment, or the presence of pets, based on investigations by Martin, et al. [31]; Platt, et al. [32], and others. Research evidence by Verhoeff, et al. [33] revealed that children's pulmonary illnesses were related to living in damp houses and found rationally strong evidence to suggest that allergic sensitization to moulds and dust mites were the causal factors. In support of the interplay of housing and well-being, Sunday and Adebambo [28] concluded that there is a notable interaction between the conditions of housing and residents' health in the research area. These discoveries are akin to earlier research' findings that proved that housing conditions did affect the health of residents [34-36].

The current study therefore contributes to existing knowledge by practically demonstrating the need for an effective urban and rural housing intervention programme that incorporates provision of basic infrastructural facilities and essential housing services that will facilitate a reduction of the public health risks associated with poor housing quality.

However, these observations are limited by the use of a cross-sectional approach, and there is an inadequacy of appropriate longitudinal investigations. Therefore, commitment to more all-inclusive longitudinal studies over time, which could provide crucial understandings of housing and health interplay, is an important issue for future investigation.

5. CONCLUSION

The research findings reveal inadequacies in housing quality such as leaked roofs, cracked floors and walls, inadequate ventilation, poor waste disposal, and an insufficient supply of water, with malaria, typhoid, cough, diarrhea, and skin disorders as the most perceived health conditions, which are empirically attributable to inadequate housing quality where the residents live. As a result, the investigation concluded that housing quality in Ijebu Ode is poor, which is a significant predictor of the perceived health conditions experienced among the residents. Thus, the study recommends a key policy priority that would focus on effective enforcement of essential

housing and health standards by Environmental Health Officers and public enlightenment on the impacts of housing qualities on health, for the improvement of housing qualities and promotion of the health of the populace in Ijebu Ode and the nation at large.

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Authors' Contributions: All authors contributed equally to the conception and design of the study.

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