

Full Length Research Paper

Knowledge of quality of housing and practice among residents of an urban community in north-central Nigeria

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The study was aimed at evaluating the knowledge of and quality of housing among residents of Tudun-Wada, an urban high density area in Jos, Plateau State, Nigeria. Using a multi-stage sampling technique, household heads or their representatives were interviewed using interviewer administered questionnaires. Knowledge of housing standards, practice and effects of housing quality on health was assessed. Data collected was analyzed using EPI Info version 3.5.1 software. A total of 80 household heads were studied and more than half of them (45) 56.2% were males and most were within the 20-29 year age group. Knowledge of housing was fair as 61.3% and 62.3% of them knew a good house should provide accommodation and be able to withstand the elements respectively. Source of water among the respondents was mainly from shallow wells (43.8%) while only a third (37.5%) boiled their water before drinking. Pit latrine was used by half (50%) of the respondents for sewage disposal and 5% used buckets. Half of the houses employed burning as their main refuse disposal method. Flies were noted to be a problem in about 42.5% of the houses studied. More than half (55%) of the houses had holes and cracks on the walls while 80% of the household heads admitted to having a problem of rodent infestation in their buildings. Even though knowledge of housing quality was fair among the respondents, sanitary waste disposal practice and housing maintenance was poor. Government agencies responsible for the enforcement of town planning policies should be urged to improve their activities in order to improve the standard and quality of housing in the metropolis.

Keywords: housing, knowledge, practice

INTRODUCTION

Housing is one of the basic needs of human beings, and a house provides not only shelter from the elements, but also a place of daily dwelling and protection, providing a private enclosure or space for rest and social interactions amongst the members of the dwelling family. (Park K 2007) "Housing" as a modern concept includes not only the 'physical structure' providing shelter, but also the immediate surroundings, and the related community services and facilities. (Park K 2007; World Health Organization 2011) While the home is important for psychosocial reasons as well as its protection against the elements, it can also be the source of a wide range of physical, chemical and biological hazards. This is

because it is the environment in which most people spend the majority of their time and as such, the relationship between housing and health is multi-faceted. (Mundo-Hernandez JJ, Hernandez-Alvarez J et al. 2014)

A healthy home needs to have a sound structure, to be free of hazards, to provide adequate facilities for sleeping, personal hygiene, the preparation and storage of food, to be an environment for comfortable relaxation, for privacy and quiet, and to provide the facility for social exchange with friends, family and others. It should also provide economic stability since the house is a form of investment and personal savings. The local environment is important in determining such factors as fear of crime, access to local services and facilities such as health services, schools, shopping areas, places of worship; as well as in promoting social interaction. (Park K 2007;

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Kullberg A 2010) A house is one of the major determinants of the health of its inhabitants, as it is basically a micro-environment that they are constantly exposed to. It should satisfy the basic physiological needs of its inhabitants by guaranteeing adequate ventilation, lighting, and sleeping quarters, as well as space for food preparation and consumption.

A house should protect against communicable diseases by ensuring sanitary disposal of solid waste and sewage; and adequate supply of potable water. It should prevent domestic accidents and meet psychological needs of its inhabitants by preventing overcrowding.

Poor housing can have adverse effects on health and these can include transmission of communicable diseases such as diarrhoeal diseases, respiratory infections and skin diseases.(Huttly, Blum et al. 1987; Thomson, Petticrew et al. 2001; Riley, Ko et al. 2007; Mara, Lane et al. 2010) Poor housing can also contribute significantly to the burden of non-communicable diseases such as indoor air pollution, domestic accidents and injuries, poor mental health, noise-induced disorders, heavy metal poisoning and carcinomas.(Riley, Ko et al. 2007; Aribigbola A 2008; Humanity 2008; Organization 2010; Mariana Gutierrez Arteiro da Pazl, Márcia Furquim de Almeida et al. 2012) Poor housing are often found in poorly planned rapidly developing low-cost urban areas of developing countries like Nigeria. Factors responsible for poor housing include lack of or non-implementation of housing policies, low socio-economic status, rapid urbanization, large household size, poor knowledge of housing guidelines and lack of access to appropriate building materials.(Unger A and Riley LW 2007; Aribigbola A 2008; David 2010)

The United Nations (UN) projects the world's urban population to grow by two million before the year 2030.(Riley, Ko et al. 2007) More than 90% of this growth is expected to take place in the least developed countries, and will be concentrated in the bleakest parts of cities. Already, nearly a third (32%) of the world's population and more than three-quarters (78%) of the least developed countries' urban population live in slums.(Riley, Ko et al. 2007; Unger A and Riley LW 2007)In sub-Saharan Africa, 71.8% of urban dwellers live in slums, the highest proportion in the world and the proportion of urban dwellers in Nigerians living in slums is about 75%.(Olotuah AO and Bobadoye SA 2009; Ramin 2009) Slums are communities characterized by insecure residential status, poor structural quality of housing, overcrowding, and inadequate access to safe water, sanitation and other infrastructure.(Unger A and Riley LW 2007)Today's slums are unprecedented in their sheer magnitude, rapidity of growth and worldwide distribution. Slums represent a fundamental transformation of the physical and social environment of urban life and human health.

Quality of housing has been shown to be determined by aesthetics, ornamentation, sanitation, drainage,

access to basic housing facilities, spatial adequacy, noise level within neighbourhood, air pollution, sewage and waste disposal, age of building and ease of movement among others.(David 2010) The aim of this study was therefore to assess knowledge and practice of good housing among the residents of a low-income urban settlement in Jos metropolis. Variables considered in assessing good housing in this study include location, building materials used for construction and environmental sanitation.

METHODOLOGY

Study Area

This study was conducted in Tudun-Wada, Jos, Plateau State. It is one of the 20 political wards of Jos North Local Government Area (LGA). Tudun-Wada has an estimated population of 61,046 and about 6,386 households.(National Population Commission 2006)Tudun Wada Community is an urban-slum area situated within the cosmopolitan area of Jos, the Plateau State capital. The area is famous for its tourist potentials as it houses a wild life games reserve and recreational facilities like an amusement park and the Mado Tourist Village. Government owned facilities/structures in the area include the Federal Government Secretariat, The State Governor's Office, police stations, a Primary Health Care facility and several primary and secondary schools. Most of its inhabitants are of the middle and low social class, engaged majorly in trading and skilled labour (Artisan) activities.

Study Population

The study population consisted of household heads in Tudun-Wada.

Study Design

This was a cross-sectional descriptive study of households in the study area.

Sample Size Determination

The sample size for this study was calculated using the formula for descriptive studies, $n = z^2pq/d^2$ where n = calculated sample size, z = standard normal deviate at 95% confidence interval = 1.96, p = prevalence rate of quality housing, $q = 1-p$, and d = precision level of 5% = 0.05. Using a prevalence rate of quality housing of 5%, therefore if $p= 0.05$, $q = 1-0.05 = 0.95$,

$$n = \frac{1.96^2 \times 0.05 \times 0.95}{(0.05)^2} = 73$$

Table 1: Socio-demographic data

Variable	Frequency	Percentage (%)	N=80
Age (years)			
<19	6	7.5	
20-29	30	37.5	
30-39	20	25.0	
40-49	15	18.5	
50-59	8	10.0	
60-69	1	1.3	
Sex			
Male	45	56.3	
Female	35	43.7	
Educational Status			
None	10	12.5	
Primary	1	1.3	
Secondary	29	36.3	
Tertiary	40	50.0	
Monthly Income			
<N5,000	14	17.5	
N5,000-10,000	15	18.8	
N10,000-15,000	17	21.3	
>N15,000	34	42.5	

An adjustment of the estimate of the sample size to cover for non-response rate was made by adding 10% of the sample size calculated to the sample to give 80.

Sampling technique

Multi-stage sampling technique was used to select respondents. Jos North LGA was selected via simple random sampling technique by balloting from the four LGAs that make up the Jos metropolis. Tudun-Wada Ward was selected by simple random sampling by balloting from the 16 wards in Jos North LGA. AngwanMiango community was also selected and studied via balloting from the communities that make up Tudun-Wada Ward. There were a total of 310 households in this community and a sampling interval of four was obtained by dividing the number of households by the calculated sample size. Thus questionnaires were administered to the household head in every fourth house. In the instance that the household head was absent at the time of the survey, an equally knowledgeable member of the household was interviewed.

Data collection

Written permission for the study was gotten from the Department of Community Medicine, University of Jos. Verbal permission was also sought and obtained from the Ward Head of the study area as well as from all the respondents. Anonymity and confidentiality of all the information obtained were assured and maintained. A

semi-structured, interviewer administered questionnaire was used for the data collection. Information collected included socio-demographic data, knowledge of housing and housing practices. Data collected was entered and analyzed using EPI Info 3.5.2, a statistical package developed by the CDC, Atlanta, USA. Frequencies and proportions were computed for qualitative variables while mean and standard deviation were reported for quantitative variables. Chi square was used to test for association between categorical variables. Statistical significance level was set at $p \leq 0.05$ at 95% confidence interval.

RESULTS

Majority of the household heads studied were males 45 (56.3%) and aged between 20-29 years (37.5%), with half of them having attained tertiary education. More than a third of them (42.5%) earned more than N15,000 monthly.

Among the respondents, 49 (61.3%) of them were aware of the fact that a good house should provide accommodation, 50 (62.5%) knew it should be able to withstand the elements, 28 (35.0%) knew it should provide potable water and only 24 (30.0%) mentioned that a good house should confer protection against accidents. About a third (66.3%) knew that quality of housing had an effect on health. Most of the respondents were quite knowledgeable about building materials; 73 (91.3%) and 47 (58.8%) mentioned cement blocks and mud bricks as building materials. Knowledge of roofing materials was also high among the respondents as 71 (88.8%), 33 (41.3%) and 30 (37.5%) of them mentioned

Table 2: Knowledge of standard of housing among respondents

Variable	Frequency	Percentage (%) N=80
Knowledge of function of housing*		
Provide accommodation	49	61.3
Withstand elements	50	62.5
Provide potable water	28	35.0
Protection against accidents	24	30.0
Housing quality has an effect on health		
Yes	53	66.3
No	27	33.7
Knowledge of building materials		
Building materials*		
Cement blocks	73	91.3
Mud bricks	47	58.8
Wood	27	33.8
Clay	27	33.8
Roofing materials*		
Thatch	33	41.3
Corrugated Zinc	71	88.8
Aluminium Roofing	30	37.5
Others	5	6.3

*Multiple responses allowed

Table 3: Standard of Housing of Respondents

Variable	Frequency	Percentage (%) N=80
Distance between the house and the road (setback) (metres)		
<20	30	37.5
20-30	11	13.8
30-40	7	8.8
40-50	9	11.3
>50	23	28.8
Source of electricity		
Public power supply (PHCN) only	28	35.0
Both PHCN and Generator	40	50.0
Solar power	2	2.5
No power supply	10	12.5
Building Materials*		
Cement blocks	64	80.0
Mud blocks	19	23.8
Roofing materials		
Corrugated zinc	60	75.0
Aluminium roofing	10	12.5
Thatch	7	8.8
Number of rooms per household		
One	10	12.5
Two	17	21.3
Three	19	23.8
Four	20	25.0
>Four	14	17.5
Number of persons sleeping in a room		
One	24	30.0
Two	38	47.5
Three	13	16.3
Four	5	6.3

Number of windows per room		
One	36	45.0
Two	32	40.0
Three	2	2.5
Four	5	6.3
>Four	5	6.3
Source of water		
Well	35	43.8
Municipal	21	26.3
Borehole	16	20.0
Water purification methods of households		
Boiling		
Filtration	30	37.5
Disinfection	29	36.3
Sedimentation	9	11.3
None	3	3.8
	9	11.3
Types of sewage disposal methods used		
Pit Latrine	40	50.0
Septic tank	31	38.8
Trench	5	6.3
Bucket	4	5.0
Proximity of sewage disposal point to source of water		
>30m	11	13.8
<30m	69	86.2
Solid waste disposal method		
Burning	40	50.0
Open dumping	22	27.5
Burying	5	6.3
Otherst	13	16.3
Frequency of solid waste disposal		
Daily	36	45.0
Twice weekly	20	25.0
Weekly	10	12.5
>Weekly	14	17.5
Presence of flies around the house		
Yes	34	42.5
No	46	57.5
Presence of cracks on the walls of the house		
Yes	42	52.5
No	38	47.5
Presence of holes on the walls of the house		
Yes	44	55.0
No	36	45.0
Presence of rodents in the house		
Yes	64	80.0
No	16	20.0

*Multiple responses allowed

corrugated zinc, thatch and Aluminium respectively as roofing materials.

Distance between the houses and the road was found to be less than 20 metres in more than one-third (37.5%) of the houses studied. Half (50%) of the houses studied got their power source from both the public power supply (PHCN) and generators while 10 (12.5%) houses had no source of power at all. Cement blocks were used in building 64 (80.0%) of the houses while mud bricks were reported to have been used in 19 (23.8%) of the houses.

Roofing materials reported to have been used include corrugated zinc 60 (75.0%), aluminium 10 (12.5%) and Thatch 7 (8.8%). Only 25% of the houses studied had four rooms and 22.6% of the houses had at least three people sleeping in a room. Most (85%) of the houses had one or two windows per room. Source of water among the respondents was mainly from shallow wells (43.8%) while only a third (37.5%) boiled their water before drinking. Pit latrine was used by half (50%) of the respondents for sewage disposal and 5% used buckets.

About 86.2% had their source of water supply less than 30 metres away from refuse disposal site. Half of the houses employed burning as their main refuse disposal method. Flies were noted to be a problem in about 42.5% of the houses studied. More than half (55%) of the houses had holes and cracks on the walls while 80% of the household heads admitted to having a problem of rodent infestation in their buildings.

Composting, discharge into a water body, public sanitation service

DISCUSSION

Majority of the household heads studied were males 45 (56.3%) and aged between 20-29 years 30 (37.5%), with half of them having attained tertiary education. More than a third of them (42.5%) earned more than N15,000 monthly. Knowledge of quality of housing was found to be fair among the respondents studied as more than two-thirds of them knew that a good house should provide accommodation and be able to withstand the elements. This level of knowledge could be because many of the respondents were educated with about 50% having attained tertiary education.

This is similar to the findings of a study carried out in Indonesia which revealed that higher educational status was found to be associated with better knowledge of housing. (Sudarmadi S, Suzuki S et al. 2001) However, only about a third (35.0%) mentioned provision of potable water and protection against accidents as functions of housing. Implications of this may be that house owners may not be very concerned with provision of potable water for their households. Most of the respondents were quite knowledgeable about building and roofing materials; this is not surprising since most of them must have been involved in the construction of their buildings as majority of house owners in Nigeria acquire their properties by building it rather than purchase or mortgage. (Ezinwanne Udechukwu 2008) Knowledge of housing quality was fair among the respondents in this study and it increased with increasing education. This is in keeping with a study carried out in South Africa which observed that the lack of education among adults in the study contributed to homeowners lack of knowledge on how to keep their homes. (Govender T, Barnes JM et al. 2011)

Practice of good housing was assessed in this study in terms of location, building materials used for construction and environmental sanitation. Distance between the houses and the road was found to be less than 20 metres in more than one-third (37.5%) of the houses studied. This is a violation of the Nigeria Building Code which specifies for a setback of at least 30meteres. (Federal Ministry of Lands 2006) Half (50%) of the houses studied got their power source from both the public power supply (PHCN) and generators while 12.5% of the houses had

no source of electric power at all except for hurricane lanterns.

This is similar to the findings from a study on housing conditions carried out in the south-western region of Nigeria where 7.4% of the respondents did not have access to electricity. (Owoeye JO and Omole FK 2012) The 2013 National Demographic and Health Survey (NDHS) also reported that only about 56% of Nigerian households had access to electricity. (NPC 2014) Majority of the houses studied used cement blocks for their building and corrugated zinc for roofing which is commendable. Only 25% of the houses studied had four rooms and 22.6% of the houses had at least three people sleeping in a room. Most of the houses had one or two windows per room.

With regards to sanitation, the main source of water among the respondents was from shallow unsanitary wells (43.8%), while only a third (37.5%) boiled their water before drinking. This situation does not guarantee adequate supply of good quality water in the area. These findings are however higher than the 2013 NDHS result of 26.5% and 2.6% respectively. Pit latrine was used by half (50%) of the respondents for sewage disposal and 5% used buckets. About 86.2% had their source of water supply less than 30 metres away from refuse disposal site. Half of the houses employed burning as their main refuse disposal method. Flies were noted to be a problem in about 42.5% of the houses studied. More than half (55%) of the houses had holes and cracks on the walls while 80% of the household heads admitted to having a problem of rodent infestation in their buildings.

Collectively, housing quality in this study while better than the recent NDHS of the country is still low and there is need to conduct more studies to relate it to the health of the general populace. Maintaining clean dwellings is necessary for good health. (Shah 2012)

CONCLUSION

This study has demonstrated a fair knowledge of housing quality among the respondents as most of them were aware of the functions of a house as well as building and roofing materials. However, practice was not as good as most of them employed unsanitary methods of sewage and refuse disposal. It is imperative to educate the public on the intimate association between housing and health, in order to improve the public's knowledge on the subject. This will also help to instigate better housing practices, ultimately promoting good health.

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