The Pattern of Housing-Health Status among Residential Zones in Uyo Metropolis, Akwa Ibom State, Nigeria

James, E. E.
Department of Urban and Regional Planning
University of Uyo, Uyo, Akwa Ibom State, Nigeria

Akpan, P. A.
***Essien, A. U.**
Ekpo, K. J.
Department of Geography and Regional Planning
University of Uyo, Uyo, Akwa Ibom State, Nigeria
**E-mail: aniediudoessien@yahoo.com*

ABSTRACT

This research was conducted in order to examine the pattern of housing-health status among residential zones in Uyo metropolis, Nigeria. A cross-sectional survey in Uyo Metropolis was based on 400 randomly sampled households stratified into 40 residential zones. The study used structured questionnaire administered during a face-to-face interview with heads of household. Housing-health status was measured using indices of physical support, accident/safety, crime/security, indoor temperature/ventilation, household hygiene/sanitation, lighting, crowding, building material type, refuse disposal and environmental quality. Data analysis was done using Chi – square test to examine the "goodness of fit" between observed distribution of housing-health indicators and the WHO theoretical standards. One way ANOVA was also used to examine variation in housing – health status among residential zones. Results showed significant difference between observed distribution of housing – health indicators and theoretical expectation. Housing – health indicators fell quite below WHO standards. Housing - health status was also found to vary significantly among residential zones. These findings provide the needed platform for improving housing -health status by enforcing stringent housing regulatory frameworks and accelerating the distribution of critical housing infrastructure in cities of developing economies.

Keywords: *Housing-health status, health indicator, Residential zones*

INTRODUCTION

Inadequate housing has been identified as one of the most challenging issues of third world development (Turner, 1991). In most of these countries, informal urbanization is dominant with its attendant problem of sub-standard housing established in violation of urban regulation and property rights (Eckstein, 1990). "Healthy or Adequate housing" means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security; adequate lighting; structural stability and durability; heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities, suitable environmental quality, and adequate and accessible location with regards to work and basic facilities of all which should be at an affordable cost (WHO, 1996).

A number of studies have assessed housing-health situation in both developed and developing nations. Work by Flannigan and Morey (1996) generate result linking 40% of sampled housing units to mould/moisture defects. In Finland, studies by Kostinen Husman, Meklin and Nevalainen (2001) indicate that 52% and 32% of houses sampled had moisture and mould problems respectively. Studies in Scotland revealed that structural defects, lack of heating and ventilation, ineffective waste disposal, inadequate facilities for food storage and household pests are among the critical housing-health problems (Wilkinson, 1999). In Beirut, Lebanon, 62.3% of households were found to habour more than four aspects of housing defects such as lighting, crowding, lack of drinking water, solid waste disposal, indoor temperature/ventilation, wall/ceiling cracks and residential environmental quality (Habib, Bosma and Yevetzian, 2006).

Seeking to contribute to knowledge in third world housing – health situation, this study examined the pattern of housing – health status in Uyo metropolis, a fast growing, oil-rich Nigerian city. To the authors' knowledge not much has been done in the area of housing – health in Uyo in particular and Nigeria in general. Uyo is a rapidly developing city situated in the Niger-Delta, South-South Nigeria. Its locational latitudes and longitudes are between $7^{o}47^{l}$ and $8^{o}03^{l}$ North and between $4^{o}52^{l}$ and $5^{o}07^{l}$ East respectively. Politically, Uyo is the State capital of Akwa Ibom State created in 1987. The city is currently undergoing major infrastructure and economic renaissance anchored on oil proceeds accruing to it from the federation account. Demographically, Uyo is a home to more than 150,177 people (NPC, 1991) with steady influx of people from neighbouring States. The sub-equatorial South climatic condition of the area affords it a mean annual rainfall of 248cm and mean annual temperature of $27^{0}C$.

The urbanization process in Uyo has been quite informal. Having metamorphosed from the status of an administrative centre in 1905 to that of a "third class township" and a district headquarter in 1919, Uyo attained the status of a provincial headquarters in 1959, a divisional headquarter in 1970 and finally a capital city in 1987. At its different stages of development, the city has been grappling with the issue of a master plan befitting her status. This of course forms the bottom line of this research on housing – health status.

METHOD

A cross-sectional survey in Uyo Metropolis was based on 400 randomly selected households stratified into 40 residential zones. The data used in this analysis were collected as an integral part of the Geographical analysis of Housing-health study carried out by the authors in the department of Geography and Regional planning at the University of Uyo in 2012. The study used a structured questionnaire that was administered during a face – to -face interview with heads of household. The questionnaire comprised sections on household demographic/socio-economic characteristics and housing-health indicators. All respondents were informed of the objective of the study and oral consent was obtained. The overall response rate was 100%. Ten separate indices, physical support, accident safety, crime/ security, indoor temperature/ventilation, household hygiene/sanitation, lighting, crowding, building material types, refuse disposal and environmental quality were used to assess

housing-health status. The physical support devices comprised three items: wheel chair, stretcher and clutches. Accident safety index included fire alarm, sprinkler installation, wet rinser, hose reel, water tank, fire hydrant, heat detector and insecticide treated nets/mosquito nets. Items on crime and security index included: electronic security devices, burglary proofs, fence with wire on top, security guards and dogs. The indoor temperature/ventilation index consisted of the following items: floor/wall tiles, ceilings in all rooms, functional fans, double window per room and air conditioner. Items considered on household hygiene/ sanitation index included: toilet, bathroom, kitchen, store, source of water supply, access to water supply and refrigerator. Lighting indicators were electricity, rechargeable lamp, gas lamp and torchlight. Refuse/waste disposal indicators were sanitary waste bin, average distance between house and waste receptacle, frequency of evacuation of waste from receptacle. Crowding was measured by the number of persons sleeping per night less than 2 persons; capacity of living room greater than 16.00m^2 and capacity of bedroom 12.00m^2. Environmental quality indicators were gauged using distance between house and property boundary 1.5m; distance between one building and another 3.0m and distance between house and stagnant water 50m. Building materials indicator included long span roofing sheet and bricks. Descriptive statistics, mainly mean and frequency distribution were computed. At the non – parametric statistical level, the chi-square statistics testing for the "goodness of fit" between the observed frequency of housing-health indicators in the study area and the expected theoretical values (that is, WHO standards) were conducted. At the parametric level of the analysis, a one way analysis of variance (ANOVA) was performed to examine whether there is significant variation in housing-health status among residential zones.

RESULTS AND DISCUSSION

Demographic and Socio-Economic Profile: The age distribution of the sample heads of household indicated a relatively young population with 81.1% between the age of 21 and 60 years and only 18.50% are over 60 years. The majority of households were male headed (76.75%), with an average household size of five persons per household. While 9.0% of household heads attained primary education, 26.75% attained secondary education. Majority of household heads (64.2%) had attained the tertiary education level. All the heads of household were economically active; with 40.5% of them involved in service and sales; 18.75% were clerks and technicians; 6.25% were in craft and related trades; 24.25% were professionals and only 10.25% were not classified. Financially, majority of the households earn an average monthly income of 21,470 Nigerian Naira (an equivalent of 143 U.S. Dollars).

Housing-Health Condition in Uyo Metropolis: The WHO standards as earlier discussed in this work prescribed that healthy homes should possess all the housing-health indicators presented on table 2 above. However, the chi-square (using SPSS version 13.0) test of 'goodness of fit' between observed housing-health indicators and the expected results indicated significant difference with 60 degree of freedom at $P < 0.05$ significance level.

Variation in Housing-Health Status in Uyo Metropolis: This study proposed a hypothesis which states that "there is no variation in housing-health status among residential zones". Essentially, analysis of variance (using the SPSS version 13.0) was conducted to test this hypothesis. The result showed a significant variation in housing-health status between zones (table 3).

Demographic and Socio-Economic Profile: Like other emerging cities in Nigeria, Uyo has retained some of its traditional values such as male headed, relatively large households, while acquiring a series of more urban characteristics such as a younger population most of whom are economically active with tertiary education levels and moderate income levels. Uyo metropolis is considered poor by international standards; the mean household income was ₦21,470 ($143.00) in January, 2012. This implies that majority of the population live below Five Dollar per day.

Housing-Health Indices: The housing-health situation in Uyo metropolis are similar to those reported in a number of less affluent cities in developing countries such as Dar es Salem in Tanzania and Goiania in Brazil (UN – Habitat, 2003). Along with poverty, several factors contribute to the relatively poor housing-health status in Uyo metropolis. These include inadequate urban planning, inconsistency in administrative policies and physical factors. The results on table 2 indicate that Uyo as an urban community suffers from gross inadequacy in physical support, security and accident/safety facilities (wheel chair, stretcher, clutch, portable fire extinguisher, first aid box, automatic fire alarm, electronic security device, fence wall with wire on top and long-lasting insecticide treated net). The indispensability of these facilities needs no stressing. An average person spends more time at home (up to 14 hours) than outside the home. Therefore security and safety at home is as important as that outside the home. Though economic reasons can explain the lack of these facilities in most homes, the cost of not having them (in terms of risk exposure, anxiety, restlessness, etc) far outweighs their actual cost.

Regarding hygiene, sanitation and lighting, although most households had their private toilets, bathrooms, kitchens, stores, and are connected to the national grid for power supply, access to pipe-borne water and actual utilization of power from the national grid remains a major problem. Consequently, majority of households resorted to borehole water and private generator for power. From health and economic point of view, borehole water and use of private generator portends great health risks ranging from Typhoid fever, cholera, fire burns, and severe respiratory problems (Shaw, 2004). More so, the utilization of boreholes and generators add more financial burden to an already dwindling household income. For refuse disposal, environmental quality and building material, this study found that the majority of households suffered from infrequent evacuation of waste from receptacle, lack of quality building material such as long span roofing sheets/bricks and the problem of stagnant water. In Uyo metropolis the waste management activities are the responsibility of the municipal authorities. However, issues of manpower, equipment and general funding seem to render the agency ineffective. Most households reported to have resorted to self-help measures such as burning and dumping into gutters in spite of the grave environmental consequences. The lack of quality building materials is essentially an economic factor just

as the problem of stagnant water is attributable to violation of urban control mechanisms by developers.

Pattern of Housing-Health Status: The study findings indicated that housing-health status in Uyo metropolis differs significantly from WHO standards. The chi-square value obtained as 4618 is high enough to reject the null hypothesis. It was earlier discussed in this work that the WHO standards requires all healthy houses to possess all the items considered in this study. However, findings in Uyo metropolis indicated that most households lacked most of these indicators and therefore failed to conform with WHO housing standards. At the residential zonal level of analysis, findings indicated statistical significant variation in housing-health status between the sampled zones. The pattern of housing-health status showed remarkable skewness. The distribution of housing-health facilities appeared to favor few residential zones. These zones are the residential areas of the political class, professionals and the academics. Income and social groupings are the main determinants of this pattern. The findings brings to fore the need to address housing issues affecting the low-medium income group.

CONCLUSION

This study is the first to explore the pattern of housing-health in a typical Nigerian city using primary data. Uyo is a rapidly growing urban community with great potential for further expansion. The housing-health situation departs significantly from existing standards. The existing literature indicates general improvements in housing-health with socio-economic and legislative controls for the population. The results of this study therefore urge the Government and Municipal authorities to propose adequate solutions for some of the pressing housing-health issues in Uyo metropolis as well as other emerging cities of the developing world.

Table 1: Household Demographic/ Socio-economic Characteristics In Uyo Metropolis, Nigeria,

Household Characteristics	**Frequency**	**Percentage**
Gender (Head of Household)		
Male	307	
Female	93	
Marital status (Head of Household)		
Married	170	85
Single	60	15
Age groups (Head of Household)		
20 years	0	0.0
21 – 40 years26.25	105	26.25
41 – 60 years55.25	221	55.25
60 years 18.50	74	18.50
Occupations (ILO classification) (Head of Household)		
Professionals	97	24.25
Service and sales	162	40.5
Clerks and Technicians	75	18.75
Crafts and related trades	25	6.25
Others	41	10.25
Total Monthly Income (In Nigeria Naria)		
< 7,500	18	4.50
7500 - 14999	33	8.25
15000 - 20499	57	14.25
20500 - 24999	102	25.50
≥ 25000	190	47.50

Highest Education Level (Head of Household)		
Primary	36	9.0
Secondary	107	26.75
tertiary	257	64.25
Household Size		
< 3 persons	22	5.51
4 - 6 persons	202	50.51
7 – 9 persons	139	34.75
≥10 persons	37	9.25

Source: Survey 2012

Table 2: Distribution of Housing – health Indicators in Uyo metropolis at Household level (n = 400)

Housing-health Indicator	**Frequency**	**Percentage**
Physical Support Indicator		
Wheel chair	11	2.75
Stretcher	3	0.75
Clutch	7	1.75
Accident/Safety Indicator		
Portable fire Extinguisher	58	14.5
First Aid box	68	17.0
Escape route during Emergency	179	44.7
Ladder	98	24.5
Sprinkler Installation/wet riser/hose reel/fire hydrant/heat detector/smoke detector	151	9.7
Automatic fire Alarm	39	13.0
Long lasting Insecticide treated net	52	72.7
Mosquito net (window)	291	48.5
Mosquito net (Door)	194	
Crime / Security Indicator		
Electronic Security devices	41	10.2
Burglary proof/ Iron door	285	71.2
Fence wall with wire on top	111	32.8
Security dogs/ door bell	326	81.5
Security gates	240	60.0
Indoor Temperature/ Ventilation Indicator		
Air conditioners	109	27.21
Floor tiles	152	38.0
Wall tiles	161	40.21
Standing wall / fence < 1.8m	108	31.91
Ceiling in all rooms	335	83.71
Ceiling fan/ standing fan/ wall fan	361	90.2
More than one window in all rooms	248	62.0
Household Hygiene and Sanitation Indicator		
Toilet available	358	89.5
Bathroom available	375	93.7
Kitchen	346	86.5
Food store	328	82.0
Toilet (Inside)	329	66.7
Bathroom (Inside)	223	51.4
Kitchen (Inside)	234	67.6
Store (Inside)	280	85.3
Source of water supply (Tap)	89	22.2
Access to water need > 120 litres	248	62.0
Per capita / day	328	82.0
Refrigerator	247	68.9
Toilet (private)	270	72.0
Bathroom (private)	223	64.4
Kitchen (private)	239	66.7

Type of toilet water closet		
Lighting Indicator		
Electricity (PHCN)	323	80.7
Rechargeable lamp	153	38.3
Torchlight	260	65.0
Gas lamp	62	15.5
Refuse/waste disposal Indicator		
Sanitary waste bin	196	49.0
Average distance between house and waste receptacle $\geq \frac{1}{2}$ km.	214	53.5
Evacuation of waste from receptacle / neighborhood (weekly)	197	49.2
Crowding Indicator		
No. of persons sleeping per room per night $\leq$ 2 persons	231	57.7
Capacity of living room 16.00 m^2	263	65.7
Capacity of bedroom 12.00 m^2	263	65.7
Building Material Indicator		
Long span roofing sheet	63	15.7
Bricks	20	5.0
Environmental Quality Indicator		
Distance between house and property boundary 1.5m	227	56.7
Distance between one building and another 3.0m	242	60.5
Distance between house and stagnant water 50m	22	5.5

Source: Survey, 2012

Table 3: ANOVA Result

Source of Variation	SS	df	MS	F	Sig
Between Groups	231.500	3	77.167	3.635	0.05
With Groups	934.167	44	21.231		
Total	165.667	47			

Source: SPSS Analysis, 2012. *MS = Mean Square, SS = Sum of Squares*

REFERENCES

Eckstein, S. (1990). Urbanisation Revisited: Inner City Slums of Hope and Squatter Settlements of Despair. *World Development* 16: 111 – 125

Flannigan, B. and **Morey, P. R.** (1996) .Control of moisture problems affecting biological indoor air quality. Canada: ISIAQ Guidelines.

Habib R., Bosma H. and **Yertezian, J.** (2006). Harboring illnesses: on the association between disease and Living conditions in a Palestinian refugee camp in Lebanon *International Journal of Environmental Health* 16: 99 – 111.

Koskinen M, Husman, T., Meklin, T and **Nevalainen, A.** (2001). The relationship Between Moisture or Mould observations in Houses and the state of Health of their occupations. *European Respiratory Journal* 14:1 363-1367

National Population Commission (2006*). Final Census Report*, Abuja: FGN.

Shaw, M. (2004). Housing and Public health. In *Reviews of Public Health* 25: 8.1–8.22

Turner, F. C. (1991). *Housing by People: Towards Autonomy in the Built Environment*. London: New York: Marion Boyars.

UN-Habitat (2003). *A World of Cities: An urbanized world*. United Nations.

Wilkinson D. (1999). *Poor Housing and ill Health: A summary of Research Evidence*. The Scottish office: Central Research Unit.

WHO (1996). 2nd *Habitat Conference in Instabul*.