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EFFECTS OF HOUSING CONDITION ON RENTAL VALUES OF RESIDENTIAL PROPERTIES IN KADUNA METROPOLIS, NIGERIA

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ABSTRACT

Purpose: *A neighbourhood's housing environment encompasses the social services and utilities that make a community liveable. Because housing quality significantly affects both environments and their populations, it is vital to understand its drivers and measurement metrics. This study aims to assess the effects of housing quality on the rental values of residential properties in the Malali area of Kaduna Metropolis.*

Design/methodology/approach: *The study adopted quantitative research approaches and survey strategy because of the nature of the research questions with a sample size of 277. Structured questionnaires were distributed to the respondents. The data was analysed using mean ranking, frequency distribution tables and multiple regression analysis.*

Findings: *The result revealed that, the average (Mean) rent paid in different types of rented residential properties in Malali area of Kaduna metropolis, Nigeria, stands for flat ₦436,093, bungalow₦547,043 and tenement ₦116,083.*

Research limitations/Implication: *This study was limited to two categories of independent variables Housing Physical Condition and Housing Non-Physical Condition within the Malali area of Kaduna. The regression model achieved an R^2 of approximately 64.26%, indicating that these independent variables collectively account for a significant proportion of the total variation in rental values.*

Practical implication: *The study recommends that property owners/developers should continue to prioritise regular maintenance and timely repairs of fundamental property elements, as this ensures tenant satisfaction, increases turnover, and protects property value over time and to strategically invest in upgrading and maintaining flooring and ceilings to enhance interior aesthetics, boost perceived quality,*

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and increase the desirability and potential rental value of their properties. ***Originality/value:*** *Property owners/developers should continue to prioritise regular maintenance and timely repairs of fundamental property elements, as this ensures tenant satisfaction, increases turnover, and protects property value over time.*

Keywords: Housing Quality, Housing Condition, Residential property, Rental Value

1.0 INTRODUCTION

As population grows and urbanisation continues, cities are faced with a number of challenges such as air pollution, security, congestion, social issues, and pressure on housing markets as well as demand and prices of rental properties experienced an upsurge (Dano, Balogun, Abubakar & Aina, 2020). The widening gap between the demand and supply of housing results in a massive shortage of residential accommodations (Rodríguez-Pose & Storper, 2020). Quality of housing necessitates the condition of living, health and well-being; therefore, housing quality is a function of structural attributes, socioeconomic infrastructure and neighbourhood condition, and property value is a function of quality (Adebayo, 2016).

A large number of people who migrate to cities in search of jobs and better livelihoods live in rented accommodations (Scheba & Turok, 2020). The rents vary significantly based on the types of property in a city due to the property type and characteristics (Su, He, Sun, Zhang, Hu & Kang, 2021). The attributes of property units are the only factors that influence their value. Existing studies indicate these influencing factors can be sorted into the following categories: Property components (Binoy & Naseer, 2020), such as the number of living rooms and bedrooms, number of toilets and bathrooms, property location, such as access and proximity to public transit, roads, employment centres, public areas, shopping centres and arts and entertainment centres (Wang, Wu, Jin, Huang, Zhang, Su & Qin, 2021) and property neighbourhood, such as green space and noise (Zambrano-Monserrate & Alejandra Ruano, 2019). The quality of constructional materials and the level of structural improvement made to the property may also be significant factors in determining property value. Major considerations in this regard are the physical features, such as the type, style and quality of various dwelling components. Gabe, Robinson and Sanderford (2021) asserted that neighbourhood attributes such as openness, pleasantness, interest, maintenance and noise, on the other hand, play a very important role in the process of determining residential property value as they also require market analysis before arriving at the fair market value of any given residential property. Thus, the influence of neighbourhood components on residential property value shows that residential properties are heterogeneous goods with numerous features that are of value to the consumer.

The deteriorating nature of housing condition and nonchalant attitude of property investors has necessitated this research; couples with perceived high rental movement due to level of inflation of the general economy. Poor location attributes and unavailability of housing infrastructure (like inadequate parking spaces, poor access, water supply) to the effects of the down turn in the economy among others and the unavailability of such services as drainage and sanitation, which are measure of welfare, (Mathur, 2020). This has also been identified in the study areas, nature of housing infrastructure such poor accessibility, inadequate space, drainage, poor sanitation condition has worsened the condition housing of environment, without little or no effort to save the dying situation.

Different studies have been carried out basically on the issue of housing quality, and studies about housing quality measurement have been around for a very long time, it has not begun to permit all practical applications. For instance, if you look at the method of measurement, the geographical scope of the measurement and their indicators cannot be generalized. This is because researchers have used different methods and indicators to measure the quality of housing and available evidence have been collected for a range of cities and in a variety of time periods (Khalid, 2017). Studies also exist where the effect of housing attributes on housing price or property values have been carried out.

Different authors have found relationship between housing quality and property value, and they opined that high density can be detrimental to housing quality and thus to economic attractiveness. Famuyiwa (2018), observed that the quality of housing environment is an increasingly important research objective in the demand side consideration. This situation may not be the same everywhere and in all cases. Therefore, this research work is aimed at assessing how housing condition affect residential property value in Malali area of Kaduna Metropolis State.

2.0 Literature Review

Housing is characterized by its good network of drainages and refuse disposal system regular water supply electricity supply and recreational ground, in other word housing recognizes that the occupancy of housing involves the consumption of housing facilities and utility services. Housing utility and services are described as term underlying housing facilities that are needed in order to improve the living standard of occupants (Lan, Zhou & Da, 2018).

There is quality, comfort, social and community amenity aspects which go with housing. Housing embraces all the social services and utilities that go to make a community or neighbourhood a liveable environment (National Housing Policy, 2014) Jinadu (2012) viewed housing as bundles of services or a basket of good which includes the physical structure itself, the auxiliary facilities and services within and around it, as well as the general environmental qualities and amenities that surround the building.

Dos-Santos et al, (2017), opined that housing is a very critical basic need of man and it is a unit of environment. He viewed housing as follows: “Residential environment which includes in addition to physical structure that human use for shelter, all necessary services, facilities, equipment’s and devices needed or desired for the physical and mental health, as well as social well-being of the family and individual.” Ehwi, Asante, and Morrison, (2020) opined that housing comprises all gamut’s of shelter, home and the attendant infrastructure such as road water electricity communication and transportation. Chica-Olmo et al, (2020) stated that housing is a creation of special environment in which people live and grow.

Housing infrastructure is seen as pre-requisite to the achievement of urban sustainability, provision of infrastructure in environment on an extensive continuous and self-sustaining basis is a sine-qua-non for efficiency of operations of urban enterprises and the liveability of the city and power of infrastructure determines the quality of life, particularly in urban areas, Obed-Ndukwu (2020). Infrastructure as a set of facilities and processes that provide a foundation for human socio-political and economic development, in the wider perspective, it includes the services and facilities necessary for the society to function well such as schools’ hospital, market, recreational centers or parks, (Rinchumphu, Ayutthaya, & Yunus, 2020).

Housing infrastructure if adequately provided and efficiently managed, productive and profitable land uses are usually attracted toward such area. Akujuru (2014) has identified the characteristics of urban infrastructure as follows: economies of scale, externalities, intermediate input characteristics and cost recovery. The property's components comprise numerous attributes, each adding value to the property or

otherwise subtracting value from the property (Musa, Zahari & Yusoff, 2019). The dwelling attributes of the property that have a great influence on property values include the number of living rooms and bedrooms, size of both living and the bedrooms, number of toilets and bathrooms, level of structural improvement including interior and exterior decorations, age of the building, architectural design of the building as well as the quality of building materials and the available space (Mao, Qi & He, 2020).

Babalola, Ibem, Olotuah, Opoko, Adewale and Fulani (2019), explained that property components are subdivided into building type, size of unit, amenities, and maintenance. Building type includes the number of units in the structure and the age of the building. The size of the rental unit includes the number of rooms, number of baths and number of bed rooms. Size is the total square footage of the building. Stern and Yager (2018), found building size to affect property values significantly. Oke, Aigbavboa, and Raphiri (2017), classified property features as dwelling subsystems in the human habitat that influence housing satisfaction. This view was further supported by Aigbavboa (2016), who mentioned that housing construction rarely refers to the needs and types of families who are going to inhabit the houses.

In contrast, these criteria are critical in the establishment of human habitats. Etminani-Ghasrodashti, Majedi, and Paydar (2017), found that property components are critical factors in determining property satisfaction, compared to the residents' demographics. They found that shifting will occur if the residents are not satisfied with the property they are residing in. On the contrary, a different finding was found by Dimuna and Olotuah (2019), who reported that besides property components, demographic factors also influence residents' satisfaction levels. Dakpallah (2011), demonstrated that rental accommodation in Ghana, like any other developing country, is facing some challenges regarding physical and nonphysical attributes. The quality of rental units is of key concern in the rental sector. This is influenced by the quality and durability of the materials used by landlords, and the actual building process, which lacks supervision to ensure adherence to safety standards. The quality of rental accommodation is further compromised through poor maintenance of rental units. Repair works that are either delayed or neglected, particularly by non-resident landlords who are only interested in their rent. This often creates a fragile relationship between landlords and their tenants.

3.0 RESEARCH METHODOLOGY

The research adopted the quantitative research approaches and survey research design. It also employs the use of questionnaires and existing databases. This research involved gathering information on targeted population from a sample and analysed sample to the entire population of 1275 household heads and sample size of 297 was drawn using Krejcie and Mogan (1970). A total number of 297 questionnaires were distributed and 242 where questionnaires were returned and were used for the analysis. The data collected from the field were analyse using mean ranking and ordinary least square regression method was adopted.

4.0 DATA PRESENTATION AND ANALYSIS

The findings from the data analysis are presented and discussed in this section of the study. The 297 sets of questionnaires were administered to the household heads of rented residential properties in the selected study area (Ungwan Rimi). A total number of 242 questionnaires with 84.69% approximate response rate were retrieved from the study area were used in the analyses after removing invalid ones and data screening for outliers.

Table 1: Demographic Result

Variables	Options	Frequency	Percent
Gender	Male	198	90.90
	Female	44	9.10
Age	less than 25	12	2.09
	25-35	94	32.33
	36-45	60	39.66
	46-55	31	17.74
	56 and above	45	8.18
Educational Qualification	Informal education	21	1.24
	Certificate/Grade II	23	8.05
	ND/NCE	38	13.61
	HND/Degree	81	52.42
	Master's Degree	46	16.10
	PhD	33	8.57
Neighbourhood stay	Less than 5 years 6-10 years	28	19.5
		81	54.3
	11-15 years	76	21.5
	16 years and above	47	4.8
Profession	Farming/fishing	22	5.8
	Business	46	40.3
	Professional	78	14.5
	Civil servant	96	39.5
Type of housing	Bungalow	68	24.08
	Flat	113	65.11
	Tenements	61	10.79

4.1 Conditions of the Features Provided in the Rented Residential Properties in Malali, Kaduna Metropolis

Descriptive statistics based on mean ranking were carried out to explore the conditions of property features provided in the rented residential properties in Malali, Kaduna metropolis, Nigeria. The property features have two themes: Physical features (tangibles) and Non-physical features (intangibles).

4.2 The physical features (Tangibles)

The results of the physical features (tangibles) showed the mean, standard deviation, and mean ranking for each item, as presented in Table 2.

Table 2: Conditions of Physical Features (Tangibles)

	Mean	Std. Deviation	Ranking	Remarks
Condition of plumbing facilities	4.22	0.197	1	Very Good
Condition of electric facilities	4.21	0.672	2	Very Good
Condition of doors and windows	4.10	0.714	3	Good
Condition of fence	4.01	0.974	4	Good
Condition of wall	3.90	0.999	5	Good
Condition of burglary proof	3.61	1.013	6	Good
Condition of cooling facilities	3.55	1.005	7	Good
Condition of heating facilities	3.40	1.018	8	Moderate
Condition of nets on window	3.39	1.007	9	Moderate
Condition of floor	3.38	1.022	10	Moderate
Condition of ceiling	3.35	1.051	11	Moderate
Conditions of Physical features	**3.37**	**1.424**		**Good**

Table 2 presents the conditions of physical features (tangibles), where the major physical features with very good conditions are plumbing facilities (M=4.22, SD=0.197), electric facilities (M=4.21, SD=0.672), and doors and windows (M=4.10, SD=0.714). The physical features (tangibles) with the least means consist of condition of floor (M=3.38, SD=1.022), condition of ceiling (M=3.35, SD=1.051) are moderate. Meanwhile, the overall result of the conditions of physical features (tangibles) provided in the rented residential properties, indicate a good result in Malali, Kaduna metropolis.

4.3 The Non-Physical Features (Intangibles)

Descriptive statistics based on mean ranking was carried out to explore the conditions of Non-physical features (intangibles) provided in the rented residential properties in Malali, Kaduna metropolis, Nigeria. The results showed the mean, standard deviation and mean ranking for each item as presented in Table 3.

Table 3: Conditions of Non-physical features (Intangibles)

	Mean	Std. Deviation	Ranking	Remarks
Condition of internal appearance	4.27	0.725	1	Very good
Condition of light	4.01	0.926	2	Good
Condition of natural lighting	4.00	0.941	3	Good
Condition of external appearance	3.67	1.066	4	Good
Condition of artificial lighting	3.40	1.029	5	Moderate
Condition of privacy	3.11	1.054	6	Moderate

Condition of ventilation	3.06	1.062	7	Moderate
Condition of design	3.01	1.066	8	Moderate
Conditions of Non-physical features	**3.57**	**1.233**		**Good**

Table 3 presents the conditions of non-physical features (intangibles) provided in the rented residential properties in Malali, Kaduna metropolis. The major non-physical features rated very good, and with means ranking highest are condition of internal appearance (M=4.27, SD=0.725), condition of light generally (M=4.01, SD=0.926), and condition of natural lighting (M=4.00, SD=0.941). The least nonphysical features (Intangibles) with lowest means, though rated good consist of condition of ventilation (M=3.06, SD=1.062), and condition of design (M=3.01, SD=1.066) are moderate. Meanwhile, the overall result of conditions of non-physical features (intangibles) provided in the rented residential properties in Malali, Kaduna metropolis indicates a good condition.

Table 4: Descriptive Analysis of Rental Values of Residential Properties in Malali

	Malali		
Descriptive	**Flat**	**Bungalow**	**Tenement**
Mean	708326	978200	224686.9
Standard Error	6301.86	2064.15	1035.777
Median	700000	1000000	225000
Mode	700000	1000000	210000
Standard Deviation	97444.9	31908	16009.43
Sample Variance	9.5E+11	1.02E+11	2.563E+10
Kurtosis	4.392468	0.491824	-1.243366
Skewness	2.223753	-1.2504	0.0178747
Range	400000	100000	50000
Minimum	600000	900000	200000
Maximum	1000000	1000000	250000
Sum	1.69E+09	2.34E+09	53700000
Count	242	242	242

Source: Computed From Appendix C and D

The analysis of descriptive statistics of rental values of residential property types is presented in Table 4. The average rental value of residential flats in Malali is ₦708,326. The average rental value of residential bungalow in Malali is ₦978,200, while average rental values of residential tenement is ₦224,686.

Table 5: Significance of Homogeneity of Variance in Rental Values of Residential Property

Residential Types	**Levene Statistic**	**df1**	**df2**	**Sig.**
Flat	84.224	5	1541	.000
Bungalow	72.555	5	1541	.000

Tenement	92.461	5	1541	.000

Source: Computed from Appendix A-F

The result of Levene test of equality of variance was carried to ascertain significance of homogeneity of variance in rental values of residential property types across the study areas and the result is presented in table 5. The significance of the Levene statistic was tested at 0.05 level and the result revealed that there is no equality of variance in rental values across the study areas, in other word, the variance in rental values across the study areas is not significantly homogenous or equal across the areas under study. Hence, there is a need to carry out analysis of variance to determine the significance of variance in rental values across the study area and identify the area(s) that constitute the bulk of variance in rental values. The result is therefore presented as follows:

Table 6: Analysis of Variance in Rental Values of Residential property

Market	SS	Sum of Squares	Df	Mean Square	F	Sig.
Flat	Between Groups	22079800567092268	5	4415960113418453	13350.038	.000
	Within Groups	509735974830166	1541	330782592362		
	Total	22589536541922436	1546			
Bungalow	Between Groups	30566898411509704.000	5	6113379682301941	31863.801	.000
	Within Groups	295655813525843.750	1541	191859710269.853		
	Total	30862554225035548.000	1546			
Tenement	Between Groups	1507188438593767.500	5	3014376877187 53.5	33772.652	.000
	Within Groups	13754190197764.816	1541	8925496559.224		
	Total	1520942628791532.200	1546			

Source: Computed from Appendix A-F

The result of analysis of variance in rental values of residential property types across the study areas is presented in table 6. The significance of analysis of variance (ANOVA) in rental values of residential property types is tested at 5% level of significance. The result of ANOVA revealed that the p-values of statistics at 0.000 is less than 0.05 level of precision for all rental values of residential property types. Therefore, this indicates that there is statistically significant difference in rental values of residential

property types across the study areas. Furthermore, there is need to ascertain the market area that constitutes the bulk of variance in rental values and the result has been presented in Table 5 and 6.

Table 7: Ordinary Least Square (OLS) Regression Model for Malali Residential Property Market

Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-sq	DW
HCPS	0.230103	0.035759	6.434831	0.0000	0.7941	2.031
HNPS	0.141500	0.064944	2.178809	0.0387		
C	-6.437995	11.25399	-0.572064	0.5678		

HCPS: Housing physical condition; HNPS: Housing Non-Physical Condition; LPS: Environmental Location Proximity; ECS: Environmental Neighbourhood Quality Condition. All variables are significant at 0.05.

The analysis of the effect of environmental quality and property features on rental values of residential property type in Malali was conducted using OLS regression analysis and the result is presented in Table 7. The result revealed that 79.41% variation in aggregated rental values of residential property types is significantly influenced the two housing variables (HCPS & HNPS). The result of t-statistics presented in the tables suggested that there is statistically significant relationship between housing quality features and rental values in Malali residential property market as the p-values of t-statistics are found below 0.05 level of precision.

4.4 Malali Residential Property Market Model

The aggregated rental values is the average rental values of residential property types in the study areas. Model is developed based on the ole estimates in table 8 as follows:

Aggregated Rent = 0.230103*HCPS + 0.141500*HNPS

Table 8: Test of Significance of Model and Reliability of the Model

Test of Significance of Model			
R-squared	0.794131	Mean dependent var	6.995816
Adjusted R-squared	0.790612	S.D. dependent var	1.527061
S.E. of regression	0.698767	Akaike info criterion	2.141700
Sum squared resid	114.2564	Schwarz criterion	2.214429
Log likelihood	-250.9331	Hannan-Quinn criterion.	2.171008
F-statistic	225.6613	Durbin-Watson stat	2.031203
Prob(F-statistic)	0.000000		

Malali residential market model was also tested to ascertain the level of fit-ness of the model for future use and reliability of the model for accurate prediction. The result of the test featured F-statistics that measures significance and fit-ness of the model for the future use and the result revealed that the F-test at 265.9909 is found statistically significant as the p-value (prob) at 0.000 is less than 0.05 level precision. By implication, the model is found fit and can be used for purpose of prediction of rental value in Malali residential property market. Also, the residual of the model was tested and examined using Durbin Watson statistic. The Durbin Watson was used test the presence of serial autocorrelation in the residuals and the result revealed that Durbin Watson statistics at 2.031 is found within the reasonable range of 2.00 (not significantly < 2 and not significantly greater > 2). This therefore implies that none of the variable included in the model is correlated with itself and linear assumption OLS was not violated.

4.5 Summary of Findings

The study offers a comprehensive assessment of the physical and non-physical attributes of rented residential properties within Kaduna Metropolis, providing valuable insights into the quality and characteristics of available housing. The findings reveal a generally positive state of affairs, though with specific areas identified for both commendation and potential improvement" suggests that the overall results of a study or evaluation are favourable, but certain aspects stand out either as strengths or as opportunities for enhancement this result is in conformity with study conducted by Abidoye and Chan (2019), the result revealed that location, neighbourhood characteristics, and property state of repair are the most highly significant variables that influence property value in Lagos metropolis.

Regarding physical features, the result indicates that key infrastructural elements specifically plumbing and electrical facilities along with essential components such as doors and windows, consistently receive a "very good" rating. This suggests that these fundamental aspects of the infrastructure are functioning well and meet high standards of quality and reliability.

In terms of non-physical features, the study presents an overwhelmingly positive picture, with aspects like internal appearance, general lighting, and natural lighting all receiving "very good" ratings. This indicates that properties generally offer pleasing interior aesthetics and benefit from ample illumination, both artificial and natural, which significantly contributes to a comfortable and inviting living environment. The emphasis on natural lighting is particularly beneficial, promoting energy efficiency and a sense of well-being. Furthermore, the study identifies ventilation and design as the "most important" non-physical features. This highlights that tenants and the market place a high premium on good air circulation, crucial for comfort and health in the local climate, and on well-thought-out spatial arrangements. The recognition of their importance suggests these elements are key drivers of tenant satisfaction and desirability. Overall, the conditions of these non-physical features are also described as "good," reinforcing the notion that properties in Kaduna Metropolis largely provide a comfortable, welldesigned, and pleasant living experience from an intangible perspective.

5.0 RECOMMENDATIONS AND CONCLUSION

The study offers a comprehensive analysis of the residential rental market in Kaduna Metropolis, Nigeria, revealing key insights into rental values, property conditions, and their determinants. It established a wide rent range from ₦30,000 to ₦990,000, with an average of ₦436,093. Interestingly, while a higher percentage of bungalows fall into higher rent categories, the mean difference in rent suggests bungalows tend to rent for a lower price than flats. The study also highlighted good conditions for essential physical

features like plumbing and electricity, and excellent ratings for non-physical features such as internal appearance and natural lighting, with ventilation and design being most important. Proximity to religious centres, schools, and shops was good, though waste disposal centres, recreational centres, and fire stations were less accessible. Neighbourhood attributes like electricity supply, security, and layout condition were rated highly, while drainage, water supply, and sanitation, though good, were comparatively lower.

Based on the comprehensive analysis of rental values and property features, qualities, and their effects on rental values in Malali area of Kaduna Metropolis, the following recommendations are made from the study: Property owners/developers should continue to prioritize regular maintenance and timely repairs of fundamental property elements, as this ensures tenant satisfaction, increases turnover, and protects property value over time. Property owners should strategically invest in upgrading and maintaining flooring and ceilings to enhance interior aesthetics, boost perceived quality, and increase the desirability and potential rental value of their properties. Investing in new or upgraded public recreational centres, or encouraging private developers to include them, presents a significant opportunity for community development that would enhance residents' quality of life and neighbourhood attractiveness.

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