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TENURE OF RESIDENTS AS A DETERMINANT OF MAINTENANCE CONDITIONS OF RESIDENTIAL BUILDINGS IN HOUSING DEVELOPMENT CORPORATION ESTATES IN ENUGU METROPOLIS, NIGERIA

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Abstract

Building maintenance is the effort made to restore the status of a building to its original use or for a new function. Occupied residential buildings, in public housing estates in Nigeria have been found to lack adequate maintenance attention from the facility providers. Also, this state of affairs has been associated with socioeconomic characteristics of residents. This study therefore sought to investigate the tenure status of the residents and its relationship with the maintenance conditions of residential buildings in Enugu State Housing Development Corporation (ESHDC) estates in Enugu metropolis with a view to developing improved maintenance guidelines for public residential building design. Survey design method was applied and it focused on four of ESHDC housing estates. A multistage stratified random sampling method was adopted in the selection of the study sample. Point Biserial Correlation analysis was used tool to test the relationship between the variables. With $p < 0.5$, the study found significant correlation between the two i.e. that tenure status of residents influences maintenance conditions of the buildings within the study population. The policy implication of these findings were that for improved building maintenance condition, efforts should be made to encourage long/permanent tenures by residents of the estates as this would likely lead to higher commitment to maintenance.

Keywords: building maintenance, public residential estates, tenure status

INTRODUCTION

There appears to be a lack of building maintenance practice in the Nigerian public service. This is borne out through general observations of residential, administrative, educational, medical or industrial buildings in this sector. This poor maintenance culture has become a widely recognized challenge in Nigeria and has affected the quality and quantity of public residential buildings. It is the intended purpose that public residential buildings provide liveable conditions for the occupants with conducive, safe, comfortable, healthy and secure indoor environment to carry out their daily activities, at times at subsidized rates. To achieve this purpose, they are designed, planned, constructed and managed, based on standards and specifications established by government agencies, professionals and other experts according to the needs and expectations of residents.

Building maintenance works are undertaken to keep, restore or improve buildings, their services and environments to acceptable standards and to sustain the utility value of the buildings. This may include refurbishment to raise the original standards as needs arise. The need for maintenance commences immediately the buildings are occupied. Many development control guidelines are created to ensure that building developers are in tandem with universal standards.

Occupied residential buildings, in public housing estates in Nigeria, have been found to lack adequate maintenance attention from the estate managers. Similarly, the infrastructural facilities are in very poor and deplorable conditions. A pilot survey of such estates in Enugu metropolis corroborates these assertions. There is thus the need for adequate and affordable buildings and infrastructure maintenance buildings in ESHDC estates in Enugu metropolis. The efforts of the Enugu State Government to achieve sustainable public housing, has not led to better building maintenance guidelines. It would appear that the adoptive building regulations and tenancy agreements with residents and contract agreements with facilities managers are not being implemented.

Against this background, a wider research was conducted to evaluate building maintenance and infrastructural conditions in ESHDC residential buildings with a view to developing improved maintenance and design guidelines for public residential buildings in the study area. The study being reported is a part of that research. The specific objective of this study was to investigate the tenure status of the residents and its relationship with the maintenance conditions of physical elements of residential buildings in ESHDC estates in Enugu metropolis. The proposed hypothesis was that there was no significant relationship between tenure status of the residents and the maintenance conditions of physical elements of residential buildings in ESHDC estates in Enugu metropolis.

LITERATURE REVIEW

A building is expected to last for fifty to sixty years before maintenance is required, if all the elements are of good quality and built according to international standards, from the onset. The building may become worn-out and require maintenance a few months after it is occupied (Abdul Lateef, O., Khamidi, M. & Idrus, A., 2011). Odediran, Opatunji, and Eghunure (2012) stated that the ability of a building to provide the required environment for an activity is a measure of its functionality. Therefore as the components of a building begin to deteriorate, it becomes necessary to take measures to ensure that the desired characteristics of that building are retained. Zeiler and Boxem (2008) and Meir, Garb, Jiao, and Cicelsky, (2009) have shown that sometimes original standards and specifications do not conform to the ever changing needs and expectations of users; and so users usually seek improved maintenance conditions of their buildings for their continued satisfactory use. In fact, the ability to upgrade an existing residential building not only extends its useful life, but is also clearly a more sustainable option than the process of demolition and reconstruction as in urban renewal programmes (Bullen, 2007).

Due to the multi-disciplinary nature of building maintenance, the purposes for studying maintenance conditions of residential buildings differ among researchers. Hsieh (2008) agrees with Kantrowitz and Nordhaus (1980) that maintenance of residential buildings stemmed from the need to document the problems of public residential building maintenance, develop solutions to them as well as make recommendations and guidelines for future public building maintenance policies and programmes. Several researchers have agreed commonly on open-ended evaluation, broad based and multifaceted data gathering approaches and analysis in distinguishing the outcome of different building

maintenance strategies in public residential buildings in housing estates. Waziri and Vanduhe (2013) listed ten factors that affect defects of public buildings in Malaysia. These are (1) lack of building maintenance, (2) moisture problem from wet areas leading to leakage, (3) environmental conditions, (4) aging of the buildings, (5) poor quality control: preventive methods, (6) lack of training and skills of maintenance crew, (7) lack of motivation in taking care of buildings, (8) poor communication in maintenance process, (9) defective materials used for maintenance works, and (10) inability to appreciate the site conditions.

Zagreus, Huizenga, Arens, and Lehrer (2004) pointed out how important tenure status of residents is in investigating the performance of buildings to meet their needs and expectations. Gupta and Chandiwala (2010) also discussed the use of questionnaires in the evaluation of performance of residential environment, based on researchers' observations of the tenure status. Vischer (2002) opined that users give their views and feelings about buildings-in-use based on their experience and interactions with buildings. According to Preiser (1999) and Chohen, Che-Ani, Memon, Tahir, Abdullah and Ishak (2010), professionals design and construct buildings and never use them and so their views would not be compared to the views of the residents who own them.

According to literature, building maintenance programmes in Nigeria have not received much attention, as the emphasis is on the development of new projects by both the building providers and the public that desire them (Odediran, Opatunji, & Eghunure 2012). This approach by the providers is in the effort to solve the housing problem created by haphazard rural-urban drift that characterise urban growth. Kunya, Achuenu, and Kolawole (2007) also observed that there was apparent lack of maintenance culture in Nigeria, and noting the emphasis on the construction of new buildings particularly where the spaces are provided by the government as 'sites and services'. These studies help to explain that occupants of mass-produced buildings in public housing estates in Nigeria are satisfied or dissatisfied with the different components of their buildings and infrastructural amenities. Fatoye and Odusami (2009) opined that users' satisfaction with buildings was related to the performance of public buildings in housing projects and the existing studies rarely associated occupants' satisfaction with the residential building maintenance in public housing projects in the Nigeria. Hence, this research was an attempt to understand the nature of the tenure of residents and its effect on building maintenance.

METHODOLOGY

The research design for this study was survey design. It focused on public residential buildings of ESHDC housing estates in Enugu metropolis. A multistage stratified random sampling method was adopted in the selection of the study sample. The first stage of the stratification involved ESHDC estates based on the age of the estates. As shown in Table 1, the total number of the ESHDC housing estates was 15. Random sampling by balloting was then carried out. Four housing estates were chosen, based on their ages (before 2000 and after 2000) as shown in Table 2. At the second stage, the number of housing units for each housing estate was obtained and sampling size formulae applied to obtain respondents' number.

Table 1: ESHDC housing estates in Enugu Metropolis Occupied By 2012 with their Ages

S/ N	Name of Estate	Location	Year developed	Number of Plots/Flats	Stratification
1.	African Real Estate, Uwani	Uwani	1963	108	2000 and before
2.	Riverside Estate phases I & II	A/Nike (low, medium and high density)	1966	821	
3.	Trans Ekulu Phases I to VI including RCC Plots and RD Plots	T/Ekulu	1976	2589	
4.	Republic Layout Phase I, II, III, IV (former EHOCOL	Ind L/Out (low, medium and high density)	1990	273	
5.	Harmony Estate	Umuchigbo (Not yet functional)	1998	1338	
6.	Q-series Mini Estate		2000	9	
7.	Golf Course Estate phases I, I ext, II, IV, V	GRA (medium and low density)	2000	509	
8.	Independence Avenue Pocket layout	Independence L/out	2001	38	After 2000
9.	Ekulu East Estate	Former Zoo (Low Density only)	2002	142	
10.	Greenland Estate Phases I, II, III	Bungalows @ RACK	2003	216	
11.	New Abakaliki Road Layout Area A	Emene	2004	275	
12.	Maryland Estate Phases I, II. (Former Loma Linda)	Ind. L/out	2007	406	
13.	Coal City Gardens Estate, GRA	GRA, behind CAN	2007	323	
14.	Liberty estate I, II		2008	101	
15.	Ivory Quarters Parcel A. B. C	T/E Near CBN Qtrs	2010	78	

Source: Fieldwork, 2015

Table 2: Selected Housing Estates of the ESHDC

	ESTATE	LOCATION	YEAR	NO. OF UNITS
1.	Ekulu East Estate	Former Zoo	2002	142
2.	Golf Course Estate phases I, I ext, II, IV, V	GRA	2000	509
3	Republic Layout Phase I, II, III, IV (former ETHICAL	Independence L/Out	1990	273
4	Riverside Estate phases I & II	A/Nike	1966	821
	Total			1745

Source: Fieldwork, 2015

For the purpose of this study, the sample size was determined statistically using the method given by Taro Yamane (1973) for the calculation of sample size. This gave 326 respondents. Four housing estates were chosen from stratified sampling to balance the sampling from both old and new, as new buildings require maintenance as soon as they are occupied and show different levels of dilapidation.

The residents' population distribution for the questionnaire was as follows: Ekulu East Housing Estate (27), Golf Estate (95), Republic Housing Estate (51), and River Side Estate (153)

RESULTS AND DISCUSSION

The following are the results of the specific nine variables investigated in the study to gather data on maintenance condition of the buildings. A composite variable (Maintenance condition of Buildings) was obtained by computing a mean score variable from these. This was then used to test their relationship with the tenure status of the residents.

(i) Condition of floor in the house:

A greater number of residents indicated that their floors in the rooms were in good or very good maintenance condition. This is illustrated in Figure 1.

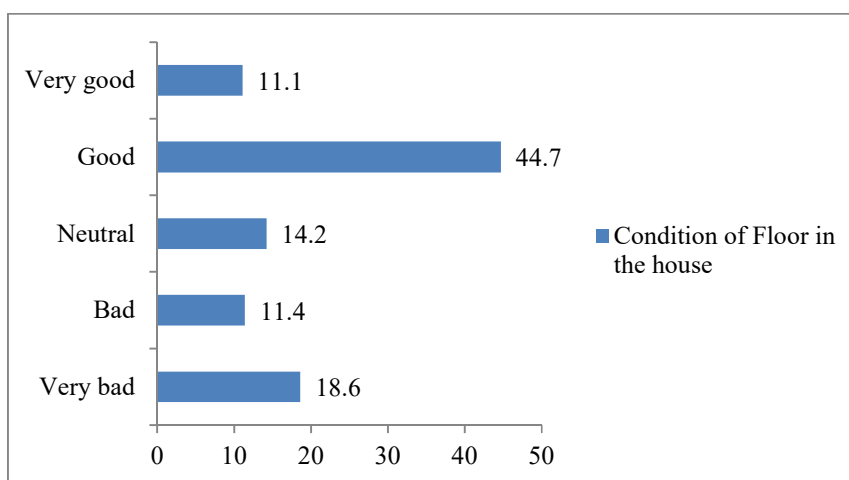


Figure 1: Condition of Floor in the house

Source: Fieldwork, 2015

(ii) Condition of Wall Finishes in the house:

When polled on their perception of the Condition of wall finishes in the houses, responses from the residents showed that majority described their walls in the buildings as good and very good. This is illustrated by Figure 2.

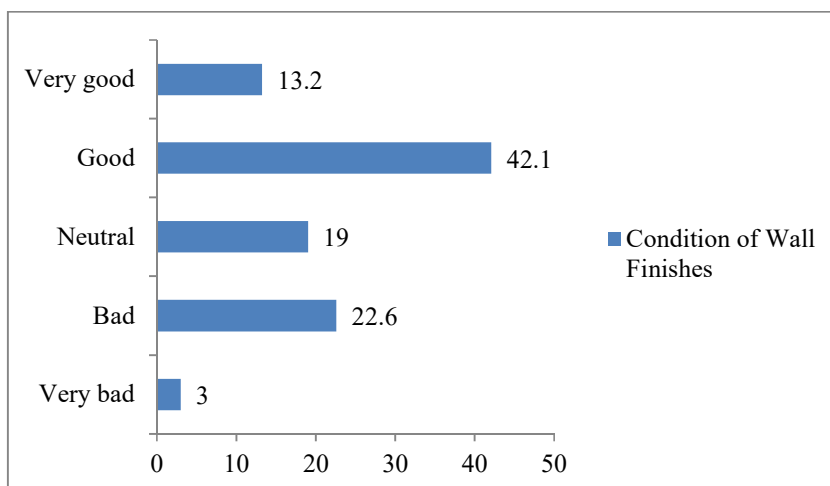


Figure 2: Condition of Wall Finishes

Source: Fieldwork, 2015

(iii) Condition of Roof Frames in the house:

The study collected data from respondents at various levels of study of roof frames. The responses from the residents indicate that owners majorly gave good description of the roof frames as good. This is illustrated in Table 4.3

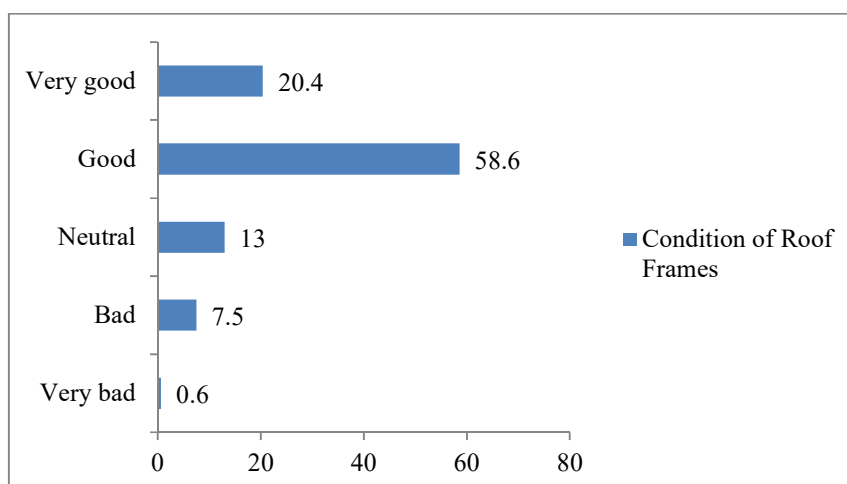


Figure 3: Condition of Roof frames

Source: Fieldwork, 2015

(iv) Condition of Ceiling in the house:

Analysis of data on the condition of ceilings showed that majority of respondents considered their ceilings as good. Majority of the residents enjoy good roof in their condition of ceilings. This is illustrated in Figure 4.

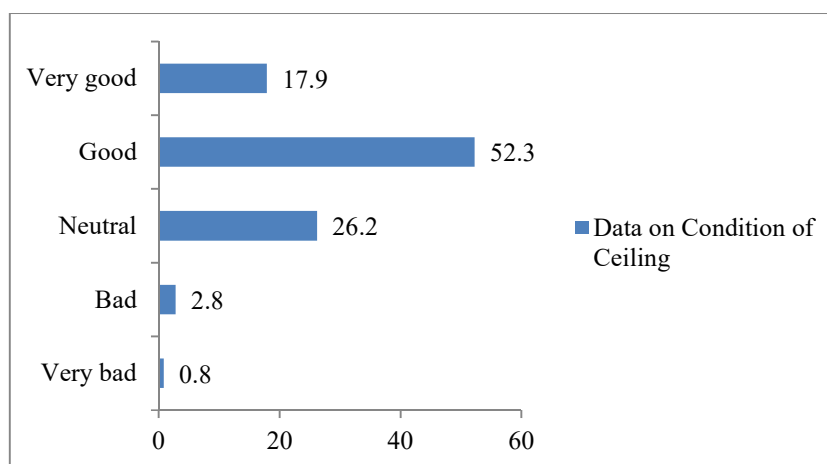


Figure 4: Data on Condition of Ceiling
Source: Fieldwork, 2015

(v) Appraisal of Condition of external walls:

Analysis of data on external walls of the buildings showed that a high percentage of residents the buildings described their external walls as good and very good. This is as illustrated in Figure 5.

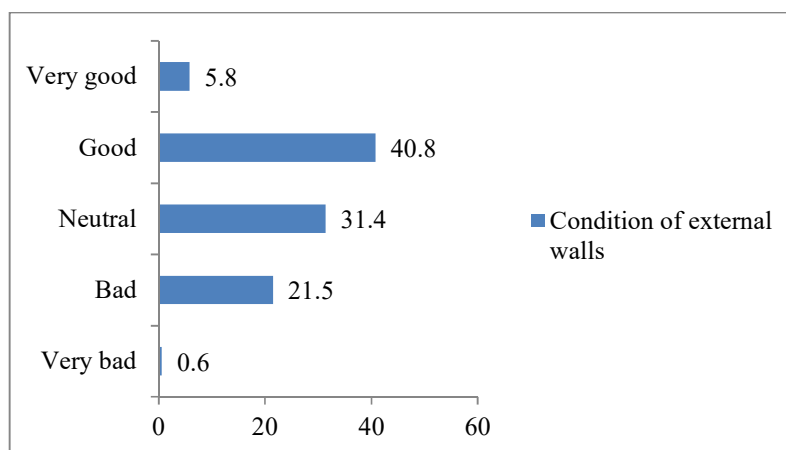


Figure 5: Condition of external walls
Source: Fieldwork, 2015

(vi) *Appraisal of Condition of doors maintenance:*

Analysis of data on maintenance condition of doors in the buildings shows that majority of residents disagreed or strongly disagreed that doors need maintenance. It can thus be inferred that the doors were largely in good condition. This is illustrated in Figure 6.

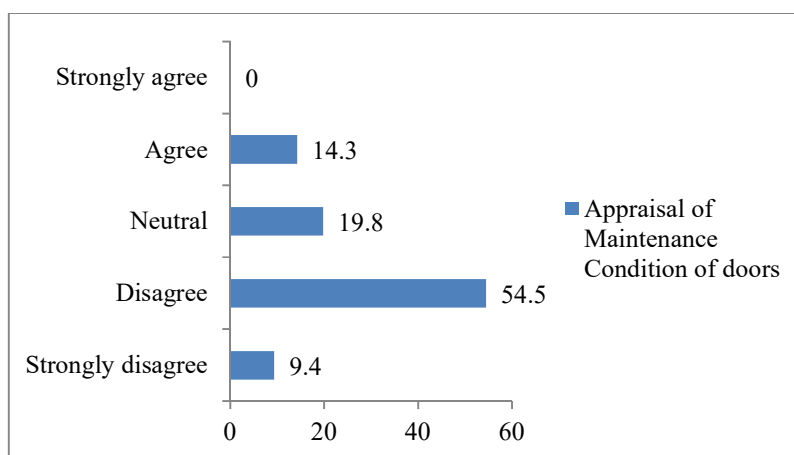


Figure 6: Appraisal of Maintenance Condition of doors

Source: Fieldwork, 2015

(vii) *Appraisal of Condition of external works*

An assessment of responses on condition of external works showed that the greater proportion of residents felt that the maintenance condition of external works were either good or very good. Also one third turned in a neutral (unsure) response. This is illustrated in Figure 7.

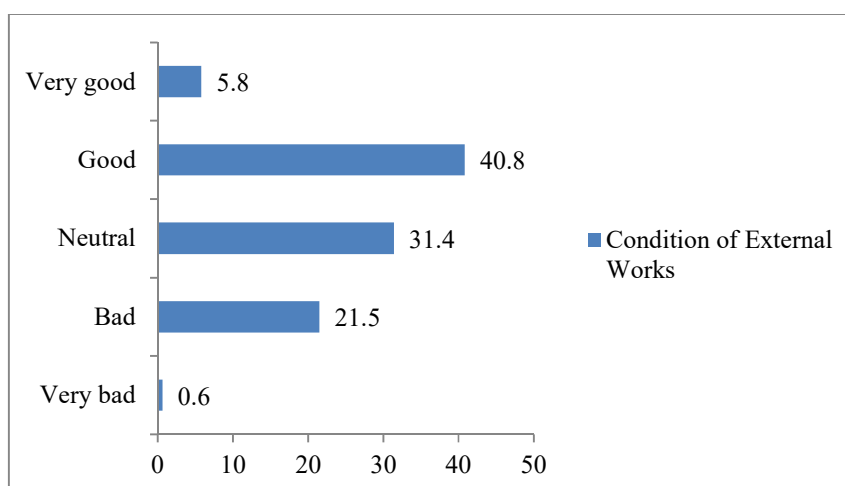


Figure 7: Appraisal of Condition of external works

Source: Fieldwork, 2015

(viii) *Analysis of Outdoor paints of the buildings*

This showed that a higher percentage of respondents indicated that outdoor paints were either good or very good. This is illustrated in Figure 8.

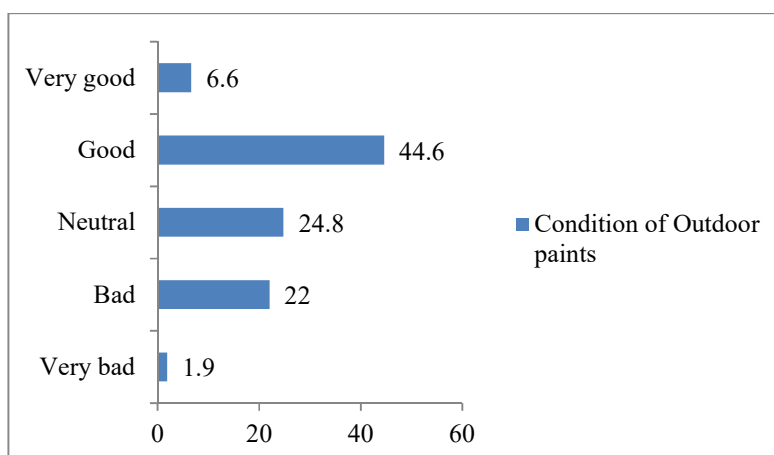


Figure 8: Appraisal of Condition of outdoor paints
Source: Fieldwork, 2015

(ix) *Indoor Paints on the buildings*

These were reported to be generally good and very good. This is illustrated in Figure 9

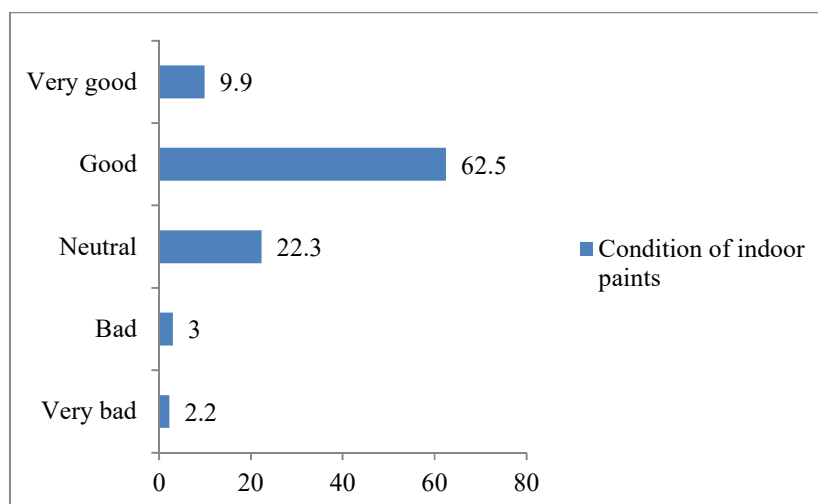


Figure 9: Appraisal of Condition of Indoor paints
Source: Fieldwork, 2015

(x) Tenure status of residents

The result of data analysed showed that over half of the residents in the estates were in the owner/occupier category and thus the majority. This is illustrated in Figure 10

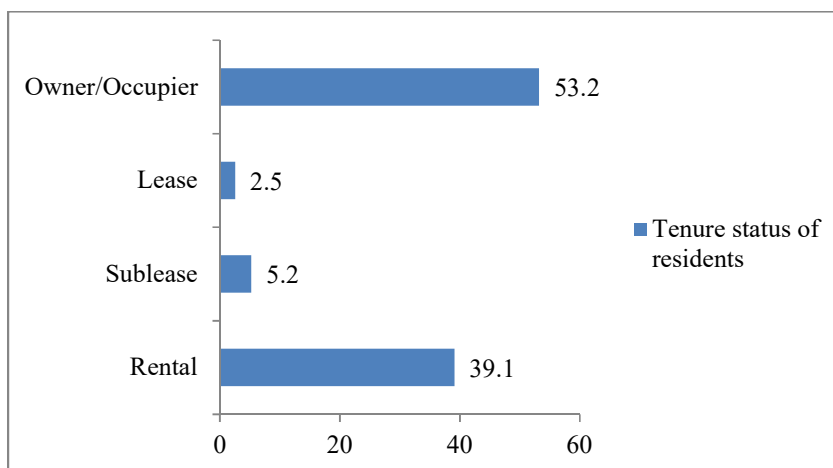


Figure 9: Appraisal of Condition of Indoor paints

Source: Fieldwork, 2015

Test of hypothesis

Point Biserial Correlation analysis tool was used for the test because an interval category variable (maintenance condition) and a nominal category variable (Tenure of residents) were in focus. The result of the analysis showed a correlation coefficient value of 0.291 with a significance value point of 0.000. This implies that a moderate positive relationship exists. The significance value of 0.000 showed that it is highly significant. It means therefore that the relationship is moderate and very significant. The null hypothesis is therefore rejected and alternate hypothesis accepted. This is that ‘there is a significant relationship between tenure status of residents and maintenance conditions of residential buildings in ESHDC estates in Enugu metropolis. The results are shown in Table 3.

Table 3: Point Bi-serial correlation analysis result of relationship between Tenure status of residents and maintenance conditions of residential buildings

		Maintenance conditions
Tenure system of Residence	Pearson Correlation	.291**
	Sig. (2-tailed)	.000
	N	363

Source: Fieldwork, 2015

RECOMMENDATIONS AND CONCLUSION

As a result of the outcomes of the study, the following recommendations are made to aid the improvement of maintenance guidelines for public residential buildings in the study area:

- (i) Efforts should be made by the public housing provider (ESHDC/government) to encourage long/permanent tenures by residents of the estates as this has been shown to positively correlate with a good state of maintenance of buildings.
- (ii) Where long tenure status is not feasible, the public housing provider should incentivize the residents to a greater sense of collective/shared ownership which should lead to a higher responsibility towards building maintenance. This borrows from the belief that owner-occupiers often regard their residences as belonging to them, as opposed to other residents who see the buildings as belonging to their landlords/ESHDC whose responsibility it is to maintain their buildings.

The quest to ensure that public residential buildings provide liveable conditions for the occupants within their lifespan cannot be achieved without adequate and regular maintenance. This is because the maintenance process ensures that the spaces remain secure, healthy, comfortable, safe and conducive, thus enabling their occupants to carry out life activities. Finding ways to improve the existing maintenance conditions is therefore imperative as well as feasible, particularly as relevant catalysts for this have been identified through research.

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