



DESIGN CHARACTERISTICS AND CRIME EXPERIENCE IN UNIVERSITY STUDENTS' HALLS OF RESIDENCE

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<https://doi.org/10.30572/2018/KJE/130401>

ABSTRACT

Provision of accommodation for students is one of the primary responsibilities of the managements of Federal Government owned universities in Nigeria. The designs of these students' halls of residence are institutional in nature, possessing certain common physical design features. The study focuses on 17 halls of residence in 4 federal universities in Southwest, Nigeria. The data collected on the physical design features (hall size, dwelling floor level, corridor length and loading) were analyzed in relation to crime experienced in the halls of residence. The findings suggest that residents in larger hall sizes experienced more crime and a significant relationship established between dwelling floor level and assault/beaten-up [λ^2 (6, N=618) = 17.46, $p = .008$] and between corridor loading and burglary/break-in [λ^2 (2, N=567) = 8.93, $p = .012$]. Hence architects and other professionals should take a critical look at these physical design features when dealing with crimes in future student housing design.

KEYWORDS: Halls of residence; Design characteristics; Crime experience; Perception of safety; Defensible space.

1. INTRODUCTION

Making the environment conducive for learning is one of the primary responsibilities of universities in Nigeria, as considerable efforts made by different institutions towards the accommodation of their students. However these accommodation facilities for students are not been immunized from crime, and these crimes have been linked to the physical environment. [Edward \(2013\)](#) advocated that physical changes in the built environment impact on safety by either inhabiting or facilitating crime opportunities. Essentially defensible space theory places premium on the characteristics of the physical environment as a tool to ensure the safety for inhabitants by exploring ways in which the design of the physical environment can be used to reduce criminal activities. The emergence of crime prevention through environmental design (CPTED) was based on the premise that crime resulted from design opportunities presented by the environment hence the formulation of strategies in which CPTED seek toward effective manipulation of the design of the built environment in a way that limits opportunities available to the offenders to commit crime ([Crowe 2013](#)).

Studies on crime experiences and residents' safety in their residential environment have mainly been done in public multi-family dwelling neighbourhoods ([Newman, 1996](#); [Suk, 2006](#); [Ratti, 2010](#); [Okunola & Amole, 2018](#)), and no such relationship has been investigated within the students' halls of residence, as little is known about the impact of the building design features on the residents' safety in students' halls of residence, because those that have related safety to the physical environment of university campuses have been limited to the exterior landscape features ([Fisher & Nasar, 1992](#)). This study therefore explores how the physical design characteristics of students' halls of residence impact on residents' crime experience in Federal Government-owned universities situated in Southwest, Nigeria.

2. LITERATURE REVIEW

2.1. Spatial Characteristics of University Students' halls of Residence in Nigeria

The students' halls of residence in most federal universities in Nigeria can be recognised by its spatial organization, because they possess common characteristics, with most being low-rise walk-up blocks of buildings that do not exceed four floors. These blocks are either separated by open spaces or linked by walkways or common facilities. Each floor is comprised of a series of bedrooms located along a corridor and the arrangements are such that the rooms are accessed either through a single or double loaded corridor with shared common facilities, such as bathrooms, kitchens and laundry located at either ends of the corridor ([Amole, 1997](#)). This corridor access economically allows for the accommodation of many more bedroom units and

also ensuring that all members on each floor share common sanitary facility. The corridor on each floor also provides the social space for students' social interaction thus enhancing the formation of social groups on the different floor levels.

Appropriation of spaces in the students' halls of residence shows levels of hierarchy as highlighted in the study by [Amole \(2009\)](#) which ranges from the level of the bedroom to that of the floor, followed by the block level and then the hall level. The bedroom is a vital feature in students' halls of residence, designed as study-bedrooms to serve a dual purpose of places to sleep and study, it also formed the first layer of spatial composition consisting of a number of bed spaces, followed by the floor which comprises of series of bedroom units accessed from the corridor and the service core, and the third level of the spatial composition has series of floor levels making up a single block of building while the final level had compositions of the blocks of building defining the whole hall.

2.2. Hall design features and defensible space attributes

Surveillance is an important component in crime prevention. The capability of the physical design of the environment to deter crime is related to the surveillance opportunities that such design offers the residents. The design of students' halls of residence which allows for bedroom access through the corridor promotes active physical activity on the horizontal corridor and this specifically supports natural surveillance. The layout of the bedrooms with the circulation system in students' halls of residence allows for the placement of several door entrances and windows on the same corridor which enables neighbors to watch over each other's room and therefore more likely to engage in reciprocal guardian behaviour ([Kaytal, 2002](#)).

In addition to the corridor providing horizontal access to the bedroom units in the students' halls of residence, another distinguishing feature is the loading on the horizontal access which also has implication on the degree of surveillance offered. The design of single loaded corridor having all the bedrooms exclusively located only on one side of the corridor to face an exterior wall that is either glazed, screened or left open depending on the climatic consideration. The treatment in terms of the material specified for the infill of the exterior wall of the single loaded corridor goes a long way to determine the degree of visibility of the activities taking place within the corridor, and whether such activities can easily be observed from the outside of the building. [Newman \(1972\)](#) observed that little or no crime problem are associated with single loaded corridors, in contrast to the double loaded corridor that account for some 20 percent of all crime that occurs in the interiors of the building.

Territoriality requires a geographically defined physical space, where the definition of the boundary of such a space depends on the clarity of the territorial markers that facilitate its readability as a defined territory. Territorial ownership is largely determined by the size of the space and the number of people laying claim to such space, hence to ensure the effectiveness of territoriality [Newman \(1996\)](#) advocated the subdivision of residential environment into smaller units. The fewer the number of occupants controlling a space will ensure its proper usage, as opposed to large undefined shared spaces which generate disputes over rights of use of space as well as the acceptable usage it can be put to. The subdivision of the halls of residence at the various levels, from the number of bedroom units per corridor, the number of bedrooms per block and the number of blocks making up the hall, are all important in defining territories at various scales of the environment.

The corridors on each floor of the halls of residence provides resident students with horizontal access to entry their bedrooms, however the lengths of the corridors varies and is determined by the placement and location of the service core that houses the shared sanitary, kitchenette and laundry facilities designed as a unit on each floor. [Amole \(2007\)](#) defines the short corridor hall types as those that have five bedrooms or less between the service-cores and the long corridor types as those with about ten bedrooms or more between the service-cores. Whereas [Baum et al. \(1978\)](#) examined corridor types in terms of the group of people that exert social control over the shared corridor space thereby defining long corridor as those having 36-40 people on a corridor floor while short corridor types are derived by subdivision into clusters of about 20 persons on the floor by design features. Short-corridor residents exercised more social control than did long-corridor residents because short corridor offers less space and often used by smaller number of people. This is in contrast to the long corridor type where the large number of bedroom units served by a long corridor results in overwhelmingly large and anonymous people thus making territorial claim difficult.

Aside this, territorial difficulty also result from the loading on the corridor in form of either single or double loaded horizontal accesses meaning that access to the bedrooms are provided either from one side only or on both sides, as the double loaded corridor have higher intensity of use, as its serving a large number of people impact negatively on territorial claim as it tends to make the corridor a 'no man area' but this could be compensated for if the corridor is short. This however tallies with the contention by [Newman \(1972\)](#) that territorial attitude and prerogative is facilitated when fewer number of people are involved in the sharing a facility with one another, so that the fewer the number of people, the more quickly and easily to

distinguish and recognize by sight the other members sharing the same facilities thereby making it easy to identify strangers in such spaces.

3. METHODOLOGY

The study adopted a multi-stage sampling technique in data collection. In the first stage which is the university level, a purposive sampling was employed to select four out of the six federal universities in the study area, namely: University of Ibadan, University of Lagos, Obafemi Awolowo University, Ile-Ife and Federal University of Technology, Akure, [Fig. 1](#).

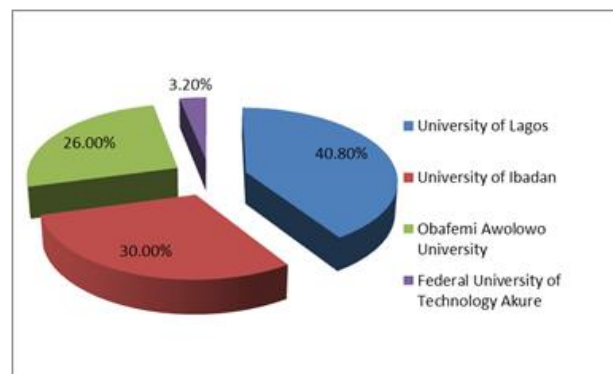


Fig 1. Distribution of respondents according to selected universities.

At the hall level, the thirty five (35) undergraduate halls of residence in these selected universities constituted the sample frame for the study, and then Stratified random sampling was done to select 17 of them. While at the respondent level, systematic sampling technique was used to select 5,677 rooms to be sampled a sample size of a total of 617 rooms, with a respondent from each room used for this survey

4. RESULTS AND DISCUSSION

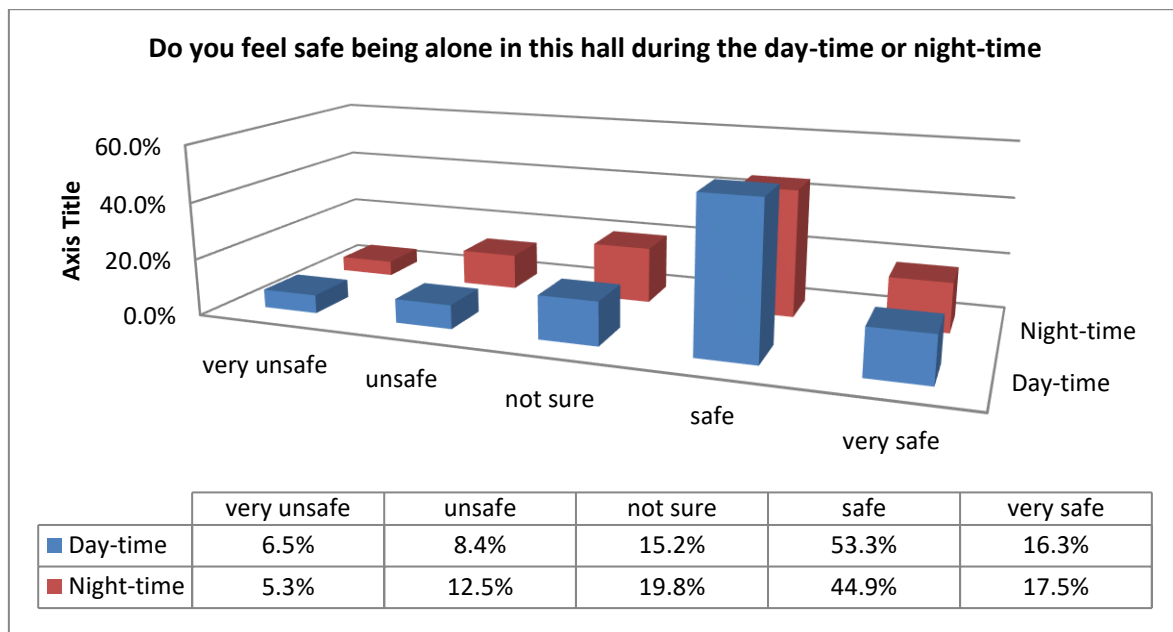
4.1. Residents' Perceived Crime Safety in halls of residence

For this study to examine the residents' perceived safety from crime, the response to the question whether the respondents believe that their hall of residence is safe from crime provides insight to the residents' safety perception. The result of the analysis as presented in [Table 1](#) showed that 42.9% of the respondents believe their hall of residence is either safe or very safe from crime as against the 26.6% of the respondents who either feel unsafe or very unsafe.

Table 1. Do you believe this hall of residence is safe from crime.

Crime Safety in Halls of residence	Frequency	Percent	Valid Percent	Cumulative percent
very unsafe	40	6.5%	6.5%	6.5%
Unsafe	124	20.1%	20.1%	26.6%
not sure	188	30.5%	30.5%	57.1%
Safe	226	36.6%	36.6%	93.7%
very safe	39	6.3%	6.3%	100.0%
Total	617	100.0%	100.0%	

A further analysis of respondents' perception of safety in the halls of residence during different times of the day, the result revealed that majority of the respondents even when alone in the halls of residence they still feel safe at any time of the day. However more of the respondents (69.6%) feel safer alone in the halls of residence during the day time as against 62.4% that feel safe at night time when alone (Fig. 2).

**Fig. 2. Perception of Safety in Halls of Residence at different times of the day.**

4.2. Crime Experience in Halls of Residence

This field work was conducted during the second semester, with the intention of knowing the type of crime experienced by respondents in their halls of residence during the preceding first semester. The type of crime experienced from the literature reviewed were classified into personal crime which has to do with that committed against the person as well as property crime dealing with their belongings.

The findings from the study showed that the most witnessed personal crime by the respondents was assault/beaten-up (13.5%) with the crime of rape (1.9%) being the least witnessed personal crime. Though the study revealed very low incidences of personal crimes but majority of the respondents who have witnessed personal crime have being those who have been assaulted or beaten up in their halls of residence during the preceding semester, [Fig. 3](#).

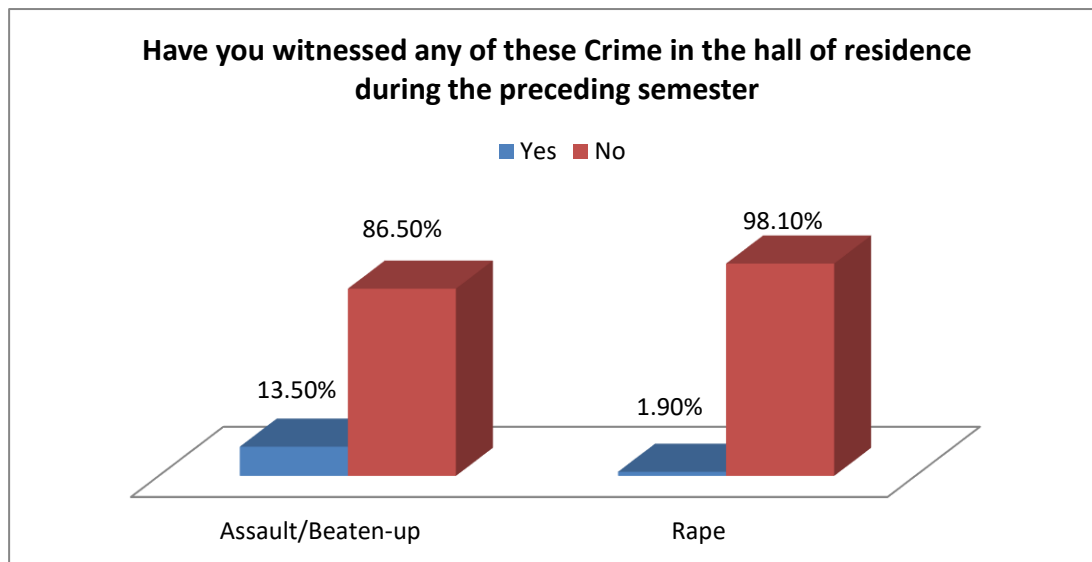


Fig. 3. Personal Crime witnessed in the hall of residence during the preceding semester.

In the case of property crime, majority of the respondents attested they have not witness any form of robbery, burglary and vandalism in their halls of residence the previous semester. However the result of the study showed that theft was the most prevalent property crime as more than half of the respondents (58%) witnessed theft in the halls of residence the previous semester followed by burglary/break-in (21.1%).

The study therefore affirms that the high level of safety from crime perceived by students living in the halls of residence is supported by low incidences of personal crimes of assault/beaten-up and rape experienced in the halls of residence. Also similar low incidences were recorded for property crimes such as robbery, burglary/break-in and vandalism, but it was however found out that was not the case with theft, as more than half of the respondents reported they have witnessed high incidences of theft in their halls of residence the previous semester.

Previous findings by [Ross & Rasool \(2019\)](#) and [Forbes-Mewett et al., \(2015\)](#) collaborates this study with university students found to be more vulnerable to the opportunistic crime of theft because of the valuable properties such as laptops, mobile phones, iPods and wallets that they possess which tend to attract thieves.

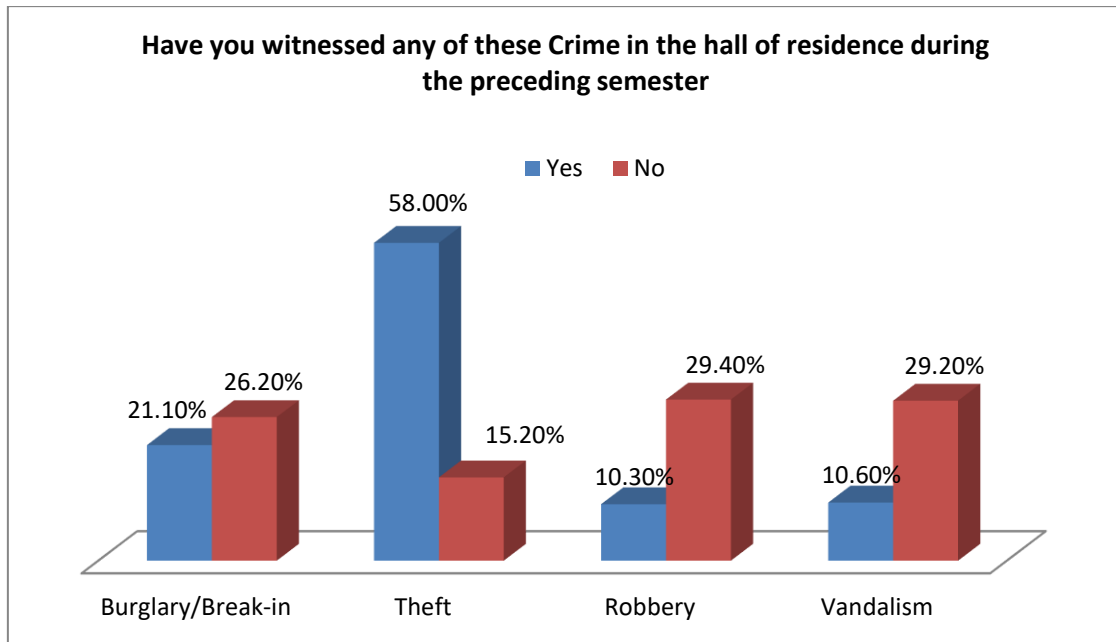


Fig. 4. Property Crime witnessed in the hall of residence during the preceding semester.

This study has shown that students were found to be satisfied with their safety at any time of the day in the halls of residence which could be adduced to the low incidences of most of the personal and property crime experienced in the housing provided for them. This result provides an insight that the crime mainly experienced in the university student residences in Nigeria was that of theft, followed by burglary/break-in and assaults/beaten-up.

4.3. Hall Design Characteristics and Residents' Crime Experience

To understand the physical design characteristics of the halls of residence, their physical design attributes such as hall size, corridor length and loading, dwelling floor level were investigated against the predominant crimes experienced in the halls of residence the preceding semester which are assault/beaten-up, burglary/break-in and theft.

In determining if there is any relationship in the crime experienced by respondents in their halls of residence the preceding semester with the floor level where the respondents' rooms are located, the result of the cross tabulation analysis in [Table 2](#) showed that it was only the personal crime of assault/beaten-up that yielded a statistically significant relationship with residents' dwelling floor level ($\chi^2=17.462$, $df = 6$, $p= 0.008$). The findings indicates that the association of the dwelling floor level with theft which is the predominant experienced crimes in the halls of residence was not supported.

Table 2. Crime witnesses in halls of Residence and Dwelling Floor Level.

which floor level is your room located	Assault/Beaten-up		Burglary/Break-in		Theft	
	Yes	No	Yes	No	Yes	No
basement	6 (14.6%)	35 (85.4%)	2 (4.9%)	39 (95.1%)	17 (41.5%)	24 (58.5%)
ground floor	21 (13.0%)	141 (87.0%)	34 (21.0%)	128 (79.0%)	87 (53.7%)	75 (46.3%)
1st floor	13 (6.8%)	179 (93.2%)	39 (20.3%)	153 (79.7%)	100 (52.1%)	92 (47.9%)
2nd floor	28 (18.5%)	123 (81.5%)	35 (23.2%)	116 (76.8%)	92 (60.9%)	59 (39.1%)
3rd floor	13 (21.0%)	49 (79.0%)	8 (12.9%)	54 (87.1%)	28 (45.2%)	34 (54.8%)
4rd floor	2 (20.0%)	8 (80.0%)	4 (4.0%)	6 (6.0%)	3 (3.0%)	7 (70.0%)
Pearson Chi-square	$\lambda^2=17.462$, df = 5, p= 0.008		$\lambda^2=9.949$, df = 5, p= 0.127		$\lambda^2=9.224$, df = 5, p= 0.161	

When crimes of assault/beaten-up, burglary/break-in and theft that were experienced by residents was considered in relation to corridor loading in the halls of residence, the findings showed that burglary/break-in was the only crime that had significant relationship ($\lambda^2=8.926$, df = 2, p= 0.012) with most respondents (31.9%) living on double loaded corridor experiencing more burglary/break-in within the halls of residence. Indeed, the result of the study showing that there is an association between corridor loading and the crime of burglary/break-in is not unexpected because there are more rooms on the double loaded corridors and also experiencing low visibility on those corridor types.

Table 3. Crime witnesses in halls of Residence and Corridor Loading.

which floor level is your room located	Assault/Beaten-up		Burglary/Break-in		Theft	
	Yes	No	Yes	No	Yes	No
Single loaded	52 (11.8%)	387 (88.2%)	80 (18.2%)	359 (81.8%)	232 (52.8%)	207 (47.2%)
Double loaded	15 (20.8%)	57 (79.2%)	23 (31.9%)	49 (68.1%)	39 (54.2%)	33 (45.8%)
Partial double loaded	15 (15.1%)	90 (84.9%)	16 (15.1%)	90 (84.9%)	56 (52.8%)	50 (47.2%)
Pearson Chi-square	$\lambda^2=4.589$, df = 2, p= 0.101		$\lambda^2=8.926$, df = 2, p= 0.012		$\lambda^2=0.045$, df = 2, p= 0.978	

However in determining the relationship of the respondents' crime experience with the corridor length of the floor where their rooms are located, the cross tabulation analysis yielded no significant relationship between the corridor length and any of the crime experienced in the halls of residence. The result however showed that the highest percentage which is 56.3% of those living on the long corridor experienced theft in their halls of residence the preceding semester, followed by 28.2% and 15.5% experiencing burglary/break-in and assault/beaten-up on the long corridors respectively, showing that more respondents on the long corridor

experienced all the different forms of crime than those living on the short corridor types in the halls of residence.

The non-association of the corridor length with any of the crime experienced in the halls of residence though unexpected but the findings indeed collaborates existing literature (Baum et al., 1978; Newman, 1996) that suggest low incidences of crime were expected to occur on short corridor types giving the high degree of territoriality because of the smaller group of people that exert social control over the shared corridor space defined by the short corridor.

Table 4. Crime witnesses in halls of Residence and Corridor length.

Corridor Length	Assault/Beaten-up		Burglary/Break-in		Theft	
	Yes	No	Yes	No	Yes	No
Short	70 (14.1%)	426 (85.9%)	95 (19.2%)	401 (80.8%)	262 (52.8%)	234 (47.2%)
Long	11 (15.5%)	60 (84.5%)	20 (28.2%)	51 (71.8%)	40 (56.3%)	31 (43.7%)
Pearson Chi-square	$\chi^2=17.958$, df = 1, p= 0.209		$\chi^2=17.164$, df = 1, p= 0.248		$\chi^2=9.213$, df = 1, p= 0.817	

The categorization of the hall sizes was derived from the number of beds-paces in the halls of residence. Table 5 shows the distribution of selected halls of residence into three classes by their size namely small size hall which are less than 500 bed-spaces, medium sized halls with between 500 and 700 bed-spaces and large sized halls are those with above 700 bed-spaces. The result from the cross tabulation in Table 5 showed that there were significant relationship between hall size and all the forms of crime experienced in the halls of residence, with the highest percentage (56.0%) of those living in medium size halls of residence experienced theft, followed by 53.1% in large size while a low percentage of theft (37.5%) was reported experienced in the small size halls of residence. Similar results were obtained for the other types of crime of assaults/beaten-up and burglary/break-in showing more respondents living in the larger halls of residence experiencing more crimes.

Table 5. Crime witnesses in halls of Residence and Hall Size.

Hall Size	Assault/Beaten-up		Burglary/Break-in		Theft	
	Yes	No	Yes	No	Yes	No
Small < 500	2 (4.0%)	48 (96.0%)	8 (16.0%)	42 (84.0%)	18 (37.5%)	30 (62.5%)
Medium 500 – 700	30 (14.4%)	179 (85.6%)	28 (13.4%)	181 (86.6%)	117 (56.0%)	92 (44.0%)
Large > 700	51 (14.2%)	307 (85.8%)	67 (21.1%)	251 (78.9%)	190 (53.1%)	168 (46.9%)
Pearson Chi-square	$\chi^2=48.450$, df = 2, p= 0.000		$\chi^2=1.488$, df = 2, p= 0.000		$\chi^2=75.273$, df = 2, p= 0.000	

The findings of this study therefore supports previous studies (Newman, 1996; Crowe, 2013; Rahimi, 2015) that advocated the concepts of territoriality and surveillance, where smaller

residential environment with fewer the number of occupants controlling a space will ensure quick and easy means to distinguish and recognize other residents sharing the same facilities with them, thereby making it easy to identify strangers and deter crime in such spaces.

5. CONCLUSION

Students' housing which is a multi-unit room dwelling present a unique form of housing whose spatial and organisational building form enable it to serve a specific user group, hence findings regarding residents' safety with other housing types are not necessarily generalizable to student housing and therefore make it necessary to examine physical aspects of student housing as it relates to students' safety and crime experience.

The results of the study highlights how students' crime experience relates to the physical features in the halls of residence, showing that across all categories of crime, the larger sized halls experienced more crime than the smaller ones. A significant relationship was established between the dwelling floor level and assault/beaten-up and also between corridor loading and burglary/break-in, as more of such property crime was found to occur on double-loaded corridors hence building form configuration for future student housing design should avoid the full double-loaded corridor that has been found to be unsafe from crime. These findings linking crime with the design of the physical environment was consistent with studies by [Armitage \(2018\)](#) and [AlHusban & AlHusban \(2020\)](#) that found that the arrangement and placement of physical design features affects surveillance and territoriality which impact on crime and how residents perceive their safety.

The study therefore underscores the importance of hall size, dwelling floor level and corridor loading, and therefore closer attention should be paid to these physical design attributes, as they would constitute part of the criteria that would facilitate design decision-making by architects and other professionals in the built environment when assessing crime experience and residents' safety in students' housing design.

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