

Influence of Residential Environment on Cooking Behaviour of Students on the University of Ilorin, Nigeria.

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Abstract

This study assessed the effect of student residence hall design on cooking behaviour of undergraduate students residing on campus residence halls in the University of Ilorin, Nigeria. It compared the cooking behaviour of students in different residence hall types with respect to kitchen design (i.e. the suite type, the shared kitchen, the kitchen per floor and the no kitchen residence halls). It also identified differences in the cooking behaviour of males and females in the residence halls. A survey was conducted and 430 questionnaires were administered to elicit information from students in the residence halls on their socio-economic characteristics and cooking behaviour. Cooking behaviour was conceptualized as cooking preference, cooking frequency, cooking location and perception of cooking convenience in the residence halls. 416 questionnaires were retrieved (representing 97% response rate) and used for the analysis. Information on the residence hall design and availability of kitchen, washing sinks, and worktops in the residence halls was collected through the use of the observation schedule which was prepared and filled objectively by the researcher. Data was analyzed using descriptive and inferential statistics. The results revealed that gender and residence hall type significantly influenced the cooking behaviour of students. The paper concludes that architects and managers of students' residences need to pay attention to the provision of cooking spaces in female residence halls than in male residence halls. Also, cooking spaces should be located within or close to students' rooms to encourage use.

Keywords

Cooking behaviour, Residence halls, Kitchen design, Student housing, Dietary habits, On campus housing.

1. Introduction

The provision of basic infrastructure that encourages cooking and eating activities in students' residential environment is known to promote healthy nutrition among students (Bailie & Runcie, 2001). Healthy nutrition promotes wellness, enables students to learn better and earn higher grades, as a result of better memory, alertness, and faster information processing while also preventing diseases (Dodsworth, 2010). The relationship identified by current research between cooking behaviour and improved dietary intake makes studies on cooking behaviour important in recent time. The focus of such studies on university students is relevant as the period of university is characterized by independence and increased autonomy leading to the practice of unhealthful lifestyles and behaviours. Such lifestyles include unhealthy changes in eating behaviours and poor eating habits (Deliens, Clarys, Bourdeaudhuij, & Deforche, 2014).

Poor eating habits put students in vulnerable conditions of nutritional risk of developing immediate or long term health problems (Centers for Disease Control, 1997; Douglas *et al.*, 1997; Lowry *et al.*, 2000). Poor eating habits for example, put students in vulnerable conditions of nutritional risk, possibly accompanied by the onset of chronic diseases and changes in body perception (Brunt & Rhee, 2008). Also, increasing access to fast foods commonly observed in campus environments today coupled with the lack of time to prepare meals on the part of students has made many to depend on fast foods or external food providers for their daily meals (Kumar, Palaha & Kaur, 2013). Fast foods consumption is known to be associated with lower intake of basic nutrients leading to obesity or other diet-related illnesses among young adults particularly in developing countries (Larson *et al* 2006; Duffey, Gordon-Larsen, Steffen, Jacobs, & Popkin, 2009). This is because consumption of snack and fast food is linked with poor diet quality and increased calorie consumption than foods prepared at home (Macino, Todd & Lin, 2009).

Self-cooking which is the ability to cook or prepare one's food is known to control food consumption while also providing other health benefits. Ability to cook one's food is important for achieving a healthy balanced diet as well as reduce reliance on takeaway foods and external food providers (MC. Lomaire & Lydon, 2011; Thorpe *et al*, 2012). In a study conducted by Larson, Perry, Story & Neumark-Sztainer (2006), young adults who prepared their food regularly were observed to consume fast food less frequently and were more likely to meet dietary recommendations. Self-cooking has also been found to be associated with increased fruit and vegetable consumption (Crawford *et al*, 2007). Despite the numerous benefits associated with self-cooking, university students, particularly

those living on campus residential environment often cook less (Larson et al, 2006).

Residential environment, according to Rappoport, is defined as a system of settings in which systems of activities take place that forms a sub-system of the environment (Rapoport, 1995). It consists of dwelling units and the area immediately surrounding it. Residential environment provides a platform for daily life and includes functions like accommodation, transportation, retailing, relaxation and shopping. Student accommodation in Nigerian universities mainly comprise the on-campus and off-campus residential settings; on-campus housing is usually situated within the university site, owned and managed by the university while off-campus housing on the other hand is owned and managed by private individuals outside but located close to the university site (Najib *et al* 2012). University managements offer several types of accommodation for students resident on campus. The commonest is the residence halls system (Amole, 2007). These residence halls incorporate several types of kitchen designs to aid the cooking activities students.

Several factors have been identified to influence the cooking behaviour of university students. These include gender, cooking skills, cooking confidence, positive attitudes about cooking, time constraints, availability of resources and basic ingredients, access to tools, variety of food options by food retailers, education level, availability of finances to cook (Larson et al, 2006; Jabs & Devine, 2006; Musingo & Wang, 2009; Soliah, Walter & Jones, 2012; Lawe, 2013). Also, residential status i.e on campus or off campus housing was also found to significantly influence cooking habits. On campus housing is reported to be significantly associated with less frequent food preparation compared to off campus housing (Larson et al, 2006). Similarly, Musingo & Wang, (2009) in their analysis of the eating habits of college students according to socio-demographic attributes found that students who lived off campus were more likely to cook their own food than those who lived on campus.

From literature, it appears that studies on residential environments and cooking behaviour have only focused on the location of residential environments. However, it remains unclear if residence hall type with respect to kitchen design influences the cooking behaviour of students.

This study investigated the influence of student residence hall type with respect to kitchen arrangements on the cooking behaviour of undergraduate students in the University of Ilorin, Nigeria. Information on the cooking activities of students in

relation to the design of residential environments will provide an empirical feedback to higher education management, student accommodation providers and professionals in the built environment regarding student housing facilities that support improved nutrition thereby enhancing students' wellbeing and academic performance in tertiary institutions.

2. Methodology

2.1 The Study Area

University of Ilorin is situated in the ancient city of Ilorin on latitude 8° 30'N and longitude 4° 32'E. Ilorin, the capital of Kwara State, is geographically positioned in the "middle belt" region of Nigeria where there is a cultural confluence of the North and South.

The University of Ilorin was established in 1975 as a University College affiliated to the University of Ibadan. The University took off as a mini campus on its temporary site at the Kwara State Polytechnic with three faculties, namely: Faculties of Arts, Science and Education. The faculties later evolved into six and incorporated Faculties of Engineering & Technology, Business and Social Sciences, and Basic Clinical Sciences.

In January 1982, the University moved to its permanent site after the completion of new Faculty blocks and residences for Natural Sciences and Engineering with a record of more than 1000 students studying in sciences. The permanent site of the institution has a land mass of about 15,000 hectares and this makes it the largest university in Nigeria in terms of land mass. The University now has fifteen Faculties and over sixty Academic Departments. Since 2002 to date, there has been an upsurge in the physical development of the Main Campus which is on the permanent site in terms of academic, administrative and students' residential facilities. At the time of this study, there were a total of twenty (20) residence halls on campus which consist of six (6) public hostels and fourteen (14) private residence halls. The public residence halls are owned and managed by the institution while the private residence halls are owned and managed by private individuals in partnership with the university. They public and private residence halls are situated on the university campus. The staff and student populations are now about 3,500 and 40,000 respectively. However, due to the shortage of residence hall facilities, the university has only been able to accommodate about 15% of the student population on campus leaving the other 75% to seek for accommodation off campus (University of Ilorin, Student Affairs Division).

2.2 Sampling Method

Survey research design was adopted for the study. Questionnaire and a well – structured observation schedule were used as the instrument for data collection. The study population comprised of all students residing on campus residence halls in the University of Ilorin. This included both private and public residence halls on the University campus. Multi-stage sampling technique was adopted to select samples. In the first stage, twelve (12) residence halls were purposively selected out of the twenty (20) residence halls on campus based on three criteria, namely: ownership (institution owned or owned by private individuals), gender (male or female), and design type (with or without kitchen facility, restaurant, buttry, balcony and backyard). The second stage was the systematic selection of 12% of students in each of the twelve (12) residence halls. The first student in each of the residence halls was selected randomly. 430 questionnaires were administered on the students and 416 were retrieved representing a response rate of 97%. Information obtained through the use of questionnaire included the socio-economic/demographic characteristics of students, cooking preference, cooking frequency, cooking location and perception of cooking convenience in the residence halls. The observation schedule was prepared and filled objectively by the researcher. The data collected included the residence hall design and availability of kitchen, washing sinks, and worktops in the residence halls.

2.3 Data Analyses

Statistical analysis was performed using the Statistical Package for Social Scientists (SPSS) software version 16. Analytical tools used for the study were mainly descriptive statistics such as frequency tables, percentages, cross tabulations and chi square tests. The analysis indicated whether there was a significant association between residence hall type and other variables. Statistically significant difference was set at $p < 0.05$.

3. Results and discussion

3.1 Socio-economic characteristics of respondents

The results of the socio-economic characteristics of the students (in Table 1) showed that 72.4% were females and 27.6% were males. This indicates that more females resided on campus than males. The results also revealed that 17.5% of the students were less than 18 years of age, 54.3% were between the ages of 18 and 20 years, 24.8% were between the ages of 21-24 years; while 22.2% were more than 24 years of age. This indicates that most of the students (79%) were between the ages of 18 and 24 years and were fairly distributed among 100 to 300 levels.

Table 1: Socio-economic characteristics of students (N=416)

Variables	Respondents	Frequency (n)	Percentage (%)
Gender	Male	115	27.6
	Female	301	72.4
Age	<18yrs	73	17.5
	18-20yrs	226	54.3
	21-24yrs	103	24.8
	25 and above yrs.	9	2.2
Level	100 level	111	26.7
	200 level	116	27.9
	300 level	106	25.5
	400 level	72	17.3
	>400 level	10	2.4

3.2 Residence hall design

The study examined the design of the residence halls with respect to room-kitchen design and arrangements. Table 2 shows that 67% of the residence halls selected were the suite type (a room with kitchen en suite); 8% shared kitchen (two rooms sharing a kitchen space); 8% had kitchen per floor design (a number of rooms sharing a kitchen space per floor or level) while 17% had no kitchen space provided in the residence hall. Results also show that 83% of the residence halls surveyed had kitchens within them while 17% had no kitchens. It is notable that the commonest residence hall design among the halls selected was the suite type. The suite type design is however common with the private residence halls while the kitchen per floor design is common with the public residence halls. The result suggests that most of the students would find it easy to access the cooking area since the kitchens are located in the rooms. It also suggests that the culinary activities of the students would be enhanced since most of the residence halls had kitchens within them.

Table 2 Residence hall design

Variables	Values	Frequency	Percentage (%)
Residence hall design	Suite type	8 hostels	67
	Shared kitchen	1 hostel	8
	Kitchen per floor	1 hostel	8
	No kitchen	2 hostels	17

3.3 Cooking behaviour of respondents

The cooking behaviour of respondents is presented in this section. Cooking behaviour of students was measured using cooking preference, cooking frequency, cooking location and the perception of cooking convenience in the residence hall.

Table 3 Cooking behaviour of respondents

Variables	Values	Frequency	Percentage (%)
Cooking preference	Cooking my own meals	257	61.8
	Frozen, quick, microwavable foods	10	2.4
	I like cooked food but don't like cooking	50	12.0
	Depends on my mood that day	98	23.6
Daily cooking frequency	Once	115	27.6
	Twice	247	59.4
	Thrice	17	4.1
	As many times as possible	29	7.0
	Others	5	1.2
Cooking location	In the room	148	35.5
	Kitchen	199	47.8
	On the balcony	48	11.5
	On the corridor	17	4.1
	Others	2	0.5
Perception of cooking convenience in the residence hall	Very convenient	102	24.5
	Convenient	215	51.7
	Difficult	73	17.5
	Very difficult	23	5.5

3.3.1 Cooking preference

Table 3 presents the cooking preference of respondents. The table shows that 61.8% of the respondents preferred cooking their own meals while the others (38.2%) did not. Others preferred frozen, quick, microwavable foods (2.4%); some liked cooked food but do not like cooking (12%) while some cooked only when they felt like (23.6%). The result indicated that most of the respondents preferred cooking their own meals. The results are similar to that of Mitwe and Lihong (2009). In that study, more than half the population of respondents indicated that they cooked their own food compared to those who ate in a restaurant or ordered out their food.

Gender however made significant difference in the cooking preference of the respondents ($\chi^2 = 28.168$; $df=3$; $p < 0.05$) as shown in table 4. The cross tabulation result revealed that more females than males preferred cooking their own meals

(65.4% & 52.6% respectively). Also, though both males and females like cooked food, more of the males do not like cooking compared to the females (25.4% & 7% respectively). This suggests that the females cooked their own meals more than the males. This result supports previous findings (Larson et al, 2006; Musingo & Wang, 2009 and Amole, 2012) which reveal that females were more involved in cooking activity than males.

Residence hall type, age and level of the respondents were however not significantly associated with cooking preference.

3.3.2 Daily cooking frequency

The study examined the daily cooking frequency of the respondents. Table 3 shows that 27.6% of the respondents cooked once in a day; 59.4% cooked twice in a day; 4.1% cooked thrice daily; 7.0% cooked as many times as possible; while 1.2% cooked at some other frequency. The result indicated that most of the respondents cooked twice daily.

Gender and residence hall type were found to be significantly associated with daily cooking frequency of the respondents ($\chi^2 = 29.666$; $df=4$; $p < 0.05$) and ($\chi^2 = 37.160$; $df=12$; $p < 0.05$) as shown in table 4. The result reveals that more females than males cooked twice daily (65.2% & 45.6%) though most of the respondents generally cooked twice daily as stated in the result above. Age and level of respondents were however not significantly associated with daily cooking frequency.

3.3.3 Cooking location

The study also examined the location where the respondents cooked their meals. Table 3 shows that 35.5% of the respondents cooked their room; 47.8% cooked in the kitchen; 11.5% cooked on the balcony; 4.1% cooked on the corridor; while 0.5% cooked in other places. The result revealed that most of the respondents cooked in the kitchen.

It was of interest to the study to find out if the cooking location was related to the type of residence hall with respect to kitchen design. The chi square test showed that the relationship between the two variables was significant ($\chi^2 = 2.69E2$; $df=12$; $p < 0.05$) as shown in table 4. The result revealed that most of the respondents who lived in the suite type residence halls (94.1%) and all the respondents who live in the shared kitchen residence halls (100%) cooked in the kitchen compared to those in the kitchen per floor residence halls (12.1%) and the no kitchen residence halls (0%). This result may be influenced by the availability of kitchen facility in the

suite type and shared kitchen residence halls and the inadequacy and no provision of same facility in the kitchen per floor and no kitchen residence halls respectively. Consequently, most respondents in the kitchen per floor residence halls cooked in their rooms (86.2%) because of the distance from their bedrooms to the provided kitchen spaces while most of the respondents who lived in the no kitchen residence halls either cooked in their rooms (45.2%); on the balcony (45.7%) or on the corridor (8.5%) because of the non-availability of kitchen facility.

A significant relationship also existed between gender and cooking location ($\chi^2 = 98.897$; $df=4$; $p < 0.05$) as shown in table 4. The result revealed that more females than males cooked in the kitchenette (60.5% & 15.0% respectively) while more males than females cooked in the room (46.0 % & 31.9% respectively), on the balcony (23.9% & 7.0% respectively) and on the corridor (14.2% & 0.3% respectively). Age and level of respondents were not significantly associated with cooking location of respondents in the residence hall.

3.3.4 Perception of cooking convenience in the residence halls

The study examined the perception of the respondents about the convenience of cooking in the residence hall. Table 3 shows that 24.5% of the respondents reported that cooking in the residence hall was very convenient; 51.7% reported that cooking in the residence hall was convenient; 17.5% reported that cooking in the residence hall was difficult; while 5.5% reported that cooking in the residence hall was very difficult. The result depicted that most of the respondents perceived cooking in the residence halls as convenient.

The study further examined the relationship between the perception of cooking convenience in the residence hall and the type of residence hall with respect to kitchen design. The chi square test showed that the relationship between the two variables was significant ($\chi^2 = 57.66$; $df=9$; $p \leq 0.05$) as shown in table 4. The result revealed that most of the respondents who lived in the suite and shared kitchen residence hall types reported that cooking in the residence hall was convenient (92.8 % and 100% respectively). The result is similar with that from the respondents in the kitchen per floor residence halls (82.8%). However, the smallest percentage (62.2%) of respondents that viewed cooking in the residence was convenient were in the no kitchen residence halls type.

The table reveals that more respondents in the no kitchen and kitchen per floor residence hall type reported that cooking in the residence hall was difficult (37.9% and 17.2% respectively) compared to those in the suite and shared kitchen residence halls type (7.3% and 0% respectively). This was expected because the

facilities provided for cooking in the suite and shared kitchen residence hall type made cooking more convenient for the respondents there compared to the kitchen per floor and the no kitchen residence hall type where these facilities are inadequate and even absent respectively. Even though, in the latter case, students have had to improvise their rooms, balconies and corridors for their cooking spaces.

Also, the relationship between gender and the perception of cooking convenience was found to be significant ($\chi^2 = 37.797$; $df=3$; $p < 0.05$) as shown in table 4. The result revealed that more females than males reported cooking in the residence halls as convenient (84.0% and 57.9% respectively) while more males than females reported cooking in the residence hall as difficult (42.1% and 16.0% respectively).

Age was also significantly associated with the perception of cooking convenience in the residence hall ($\chi^2 = 18.106$; $df=9$; $p < 0.05$) as shown in table 4. The cross tabulation result revealed that more respondents who were less than 18 years old perceived cooking in the residence halls as convenient than those who were 25 years old and above (82.2% and 50.0% respectively) while more respondents who were 25 years old and above perceived cooking in the residence halls as difficult than those who were less than 18 years old (50.0% and 17.8% respectively).

Level of the respondents was not significantly associated with the perception of cooking convenience in the residence hall.

Table 4 Relationship between cooking behaviour and residence hall design as well as socio-economic characteristics of students

Cooking behaviour	Residence hall design and socio economic variables			
	Residence hall design	Gender	Age	Level
Cooking preference	13.576	28.168*	9.456	16.701
Cooking location	2.69E2*	98.897*	15.360	19.473
Daily cooking frequency	37.160*	29.666*	12.762	17.293
Perception of cooking convenience	57.660*	32.797*	18.106*	17.920

* $P < 0.05$, chi-square test

4. Synthesis and conclusion

Few studies have examined the influence of place of residence on the cooking behaviour of students. However, it remains unclear if residence hall type with respect to kitchen arrangement influences the students' cooking behaviour. This study examined the influence of residence hall type on the cooking behaviour of students. Cooking behaviour was conceptualized along the following dimensions: cooking preference, cooking frequency, cooking location and the perception of cooking convenience in the residence hall. The influence of residence hall design and socio-economic characteristics on these four dimensions of cooking behaviour was analysed. The analysis revealed that residence hall design was significantly associated with only cooking location and perception of cooking convenience while gender was significantly associated with all the four dimensions along which cooking behaviour was measured. This implies that the provision of cooking facilities within residence halls greatly influence where students cook. This consequently affects how easy or difficult cooking activity is perceived within the residence halls. Also, the result revealed that gender matters in studies related to cooking behaviour as cooking appears to be a gender sensitive task.

The implication of these results for the design and management of student residences is that more attention need to be given to the provision of cooking spaces particularly in the female residence halls than in the male residence halls. Also, prior consideration should be given to the provision of cooking spaces in residence halls as it enhances the cooking and eating behaviour of students. In addition, cooking spaces should be located within bedrooms or as close as possible to bedrooms to encourage use.

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