

Perception and behaviour of undergraduate students to on-campus food operations in a tertiary Nigerian institution in southwest Nigeria: A cross-sectional study

Okwudishu O¹[ID](#), Okebalama VC²[ID](#), Bamidele EF³[ID](#), Osinaike A³[ID](#), Obinna C⁴[ID](#), Adefala NO³[ID](#), Omokore OA⁵[ID](#), Aباenowa CC⁶[ID](#), Odeyinka J³[ID](#), Uchechukwu N⁷[ID](#), Omotoso EI⁸[ID](#), Enyinnaya V⁹[ID](#)

¹Department of Internal Medicine, Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

²Department of Anatomic Pathology and Forensic Medicine, Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

³Department of Community Medicine, Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria

⁴Sandwell and West Birmingham NHS Trust

⁵Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

⁶Nabhaniyah General Hospital, Al-Nabhaniyah, Saudi Arabia

⁷Department of Emergency Medicine, Doncaster and Bassetlaw Teaching Hospital NHS Foundation Trust, England, United Kingdom

⁸Department of Surgery, Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

⁹Urology Unit, Department of Surgery, Federal Medical Centre, Umuahia, Abia State, Nigeria

Submitted: 7th December 2024

Accepted: 20th October 2025

Published: 31st March 2026

[ID](#): Orcid ID

Abstract

Objective: A useful and inviting college cafeteria is a factor in the success of university students. This study assessed students' perceptions and behaviour toward on-campus food operations.

Methods: It was a descriptive cross-sectional survey, carried out at Babcock University, Ogun State, Nigeria, involving 450 respondents using multistage sampling. Descriptive analysis was used to analyse demographics, perceptions, students' behaviour, and recommendations. Measures of association between the demographics and the students' perception were measured using the Chi-Square Test.

Result: 51.1% of the respondents had a positive perception of the cafeteria food services, while 48.9% had a poor perception. The majority (74.7%) disagree that the food provided is palatable, and that the food does not offer good value for money (65.6%). About half of the students are not comfortable eating in the cafeteria because it is not properly ventilated (65.3%) and not conducive when eating (63.3%). 49.1% disagree that the staff maintains standard hygiene protocol while serving food, while more than half (53.3%) disagree that the staff are friendly and approachable and do not respond promptly to their complaints (62.0%). More so, 66.0% of the study participants disagree that the number of cafeteria staff is enough to satisfy the students' needs.

Conclusion: The study showed that a little above half had a good perception of the on-campus food services. Ambience, service quality, and meal options are significant determinants of the negative perception of on-campus food services. Expanding the cafeteria space to accommodate more students and training the staff will improve their perception.

Keywords: Cafeteria, University, Campus food services, Students

Correspondence:

Okebalama Victor C

Department of Anatomic Pathology and Forensic Medicine

Babcock University Teaching Hospital, Ilishan-Remo

Ogun State, Nigeria.

+2348062995816, Okebalsvictor@gmail.com

Plain English Summary

This study explored how undergraduate students at Babcock University in Ogun State, Nigeria, feel about and behave toward the food services provided in the university cafeteria. Eating well is important for students' health, learning, and concentration, and campus cafeterias play a key role in meeting these needs. However, many students complain about the quality and service of on-campus meals.

A survey of 450 students was carried out using a structured questionnaire. The study asked questions about students' background, their opinions about the cafeteria's food, hygiene, environment, and service quality, as well as their eating habits and suggestions for improvement.

Just over half of the students (51%) had a good opinion of the cafeteria, while nearly half (49%) viewed it negatively. Most students said the food was not tasty, not worth the cost, and that the cafeteria was poorly ventilated and non-conducive for dining. Many also felt that the staff were unfriendly, did not maintain proper hygiene, and that there were too few workers to meet demand. About two-thirds said their cafeteria experience had affected their view of the university negatively.

The findings suggest that ambience, service quality, meal variety, and hygiene are major reasons for dissatisfaction. Students recommended expanding the cafeteria, employing and training more staff, improving ventilation and cleanliness, and offering better meal options.

Improving the quality and atmosphere of on-campus food services could enhance students' satisfaction, reduce food waste, and contribute to better health and academic performance.

Introduction

Food is a necessity of life, which provides the energy needed to carry out our daily activities. Students require adequate nutrition to enhance cognitive skills, such as concentration and memory, to perform their academic activities effectively. Food services are a crucial component of comprehensive arrangements that impact the overall satisfaction of students and faculty at universities and colleges.¹ Food service needs in a university are an important area that requires more attention. While many universities and colleges are looking to attract more undergraduates to their institutions and put quality education above all other things, paying attention to food services is also paramount in university settings (1).

A useful and inviting college cafeteria is a factor in the success of university students (2). A school cafeteria has several benefits, which include convenience, which is one key advantage of a cafeteria, improving a student's overall nutritional health, and ensuring a student's nutritional needs are met, and these improve behaviour, school performance, and cognitive development.

The importance of adequate nutritional intake cannot be overemphasised; students require adequate food intake to provide the energy needed to carry out their daily activities. The on-campus food service aims to provide students with the appropriate nutritional requirements. Certain factors, such as poor-quality food, unpalatable and unattractive meal options, irrational behaviour of food operators, and an uncondusive dining environment, can reduce students' dining frequency in the cafeteria. Also, the quality and quantity of food, ambience, promising dining environment and availability of meal options can

affect the dining frequency of students. Therefore, a large percentage of students depend on the university cafeteria for their daily meals, as it is prohibited for on-campus students to cook in their halls of residence. With inadequate food intake, the level of energy needed to carry out daily activities is reduced, leading to a reduction in concentration and focus of the students during lectures. This poses a threat to the overall performance of students in academic activities.

The way food is presented, portioned, and packaged in one's direct environment can affect the amount of food that one consumes (3). Specifically, larger serving portions and packages usually allure people to consume more food, which in turn leads to greater energy intake. In addition, the accessibility and presentation of foods can influence people's food choices in such a way that the more accessible or easy to reach certain types of food are, the more they are consumed (3).

However, it has been observed that a large proportion of on-campus students do not visit the cafeteria, having in mind that the cafeteria prepares food based on the school's estimated population. This has led to the wastage of food in the university cafeteria. Wastage of food leads to an economic loss not only for the school but also for the students and their parents or guardians, who are their sole providers.

Existing research has shown that students' perceptions and behaviours towards food services have a positive correlation with their dining frequency, seeking alternatives off campus, the ability of the university to retain its students, and even the university's reputation as a whole (4). Young adulthood is a particularly important time for the promotion of healthy eating because during this

period, nutritional habits are developed and they remain throughout one’s lifetime (5).

Many factors have been found to positively or negatively influence students when choosing food services, such as food and beverage quality, food variety, quality of service, price fairness, students’ satisfaction, hygiene & cleanliness, atmosphere or ambience of the cafeteria, and convenience of getting food (5). A challenge to university residence food service facilities is that students, when given a forced choice, often feel bad because they lose their decision-making autonomy. Consequently, they become increasingly hard to satisfy and may eventually seek out other possibilities (6). In many instances, college students are captive to their food service providers with few choices of the offered items. With tuition fees going up every year and the cost of other services edging up commensurately, students become more demanding and expect the best in terms of the food services they receive.

Materials and Methods

The study was a descriptive cross-sectional survey, which was carried out at Babcock University, Ilishan-Remo, Ogun State, Southwest Nigeria. The university hosts 8 schools and 2 colleges. Babcock University cafeteria was built about 7 years ago and has an ever-growing staff population. The different units in the food service department are the Directorate, Finance unit, Warehouse, Kitchen section, Quality control, and Maintenance. The food served in the cafeteria follows a lacto-ovo vegetarian diet.

The study population was all registered undergraduate students who attend Babcock University who live on campus and access cafeteria services, while excluding off-campus students and staff.

The sample size calculation was based on the following formula $n = \frac{z^2 \times p(1-p)}{d^2}$

n= sample size

z= standard normal deviate corresponding 95% confidence level, 1.96

p= expected prevalence 50% (0.5)

d= margin of error, 0.05

$$n = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2} = \frac{3.84 \times 0.5 \times 0.5}{0.0025} = 384$$

Including 10% error rate: n= 384+38= 422 ≈ 450

Four hundred and fifty (450) respondents were selected for the study using a Multistage sampling technique. The study instrument had 4 sections: section A with 6 questions that obtained information about the sociodemographic characteristics, section B assessed students’ perception of cafeteria services with 5 sub-sections; Subsection 1 comprised 9 questions about meal options, the second subsection had 5 questions about ambience while the third subsection assessed hygiene with 3 questions, while fourth and fifth subsection assessed service quality and convenience with 5 items each respectively. These statements were on a five-point Likert-type scale where 5=strongly agree, 4=mildly agree, 3=neutral, 2=mildly disagree, and 1=strongly disagree. Section C assessed students’ behaviour with 11 questions, and Section D comprised recommendations with 5 statements.

Data was entered using IBM SPSS Statistics version 22. Descriptive analysis was used for the sociodemographic characteristics, students’ behaviour, and recommendations. Measures of association between the sociodemographic characteristics and the students’ perception were measured using the Chi-Square Test. P<0.005 was considered statistically significant.

Results

Table 1: The mean age was 19.54±2.0 years. Most of the respondents were in the age group 16-20 years (64.4%), studied medically-related courses (59.8%), were Christians (87.1%), and Yoruba by tribe (39.3%). All the respondents were Nigerians by nationality. The major meal option was lunch and supper (54.7%).

Table 1: Sociodemographic Characteristics

	Characteristics	n=450 (%)
Age	≤15 years	10 (2.2)
	16-20 years	290 (64.4)
	21-25 years	150 (33.3)
Sex	Male	244 (54.2)
	Female	206 (45.8)
Current level	100 level	74 (16.4)
	200 level	51 (11.3)
	300 level	68 (15.1)
	400 level	155 (34.4)

	500 level	59 (13.1)
	600 level	43 (9.6)
Course of study	Medically-related	269 (59.8)
	Non medically-related	181 (40.2)
Ethnicity	Hausa	56 (12.4)
	Yoruba	177 (39.3)
	Igbo	127 (28.2)
	Others	90 (20.0)
Nationality	Nigerian	450 (100.0)
	Non-Nigerian	0 (0.0)
Religion	Christianity	392 (87.1)
	Islam	52 (11.6)
	Traditional	0 (0.0)
	Others	6 (1.3)
Meal type	BLS	190 (42.2)
	BL	8 (1.8)
	BS	6 (1.3)
	LS	246 (54.7)
School	BCSM	160 (35.6)
	Computing and engineering sciences	100 (22.2)
	EAH	0 (0.0)
	Law	0 (0.0)
	Management sciences	25 (5.6)
	Nursing	42 (9.3)
	PAH	52 (11.6)
	SAT	10 (2.2)
	VASS	61 (13.6)

Table 2: Overall, 51.1% of the respondents had a good perception of the cafeteria food services, while 48.9% had a poor attitude. The maximum obtainable score was 135, with a mean of 57.6. The majority (74.7%) disagree that the food provided is palatable, are not satisfied with the menu options provided (58.4%) and that the food does not offer good value for money (65.6%). Half of the students are not comfortable eating in the cafeteria because

it is not properly ventilated (65.3%), and not conducive when eating (63.3%). Almost half (49.1%) disagree that the staff maintain standard hygiene protocol while serving food, while more than half (53.3%) disagree that the staff are friendly and approachable and do not respond promptly to their complaints (62.0%), and about 66.0% disagree that the number of cafeteria staff is enough to satisfy the students' needs.

Table 2: Student perception about cafeteria food services

Characteristics	SA	MA	N	MD	SD
	n=450 (%)	n=450 (%)	n=450 (%)	n=450 (%)	n=450 (%)
Subsection 1: meal options					
The menu options provided in the cafeteria are satisfactory	0 (0.0)	61 (13.6)	55 (12.2)	71 (15.8)	263 (58.4)
The menu provided in the cafeteria caters to the dietary needs of the students	56 (12.4)	55 (12.2)	4 (0.9)	57 (12.7)	278 (61.8)
Fruits and vegetables served in the cafeteria are adequate	0 (0.0)	56 (12.4)	101 (22.4)	108 (24.0)	185 (41.1)
The meal options provided constitute a balanced diet	0 (0.0)	0 (0.0)	57 (12.7)	99 (22.0)	294 (65.3)
The food provided by the cafeteria is palatable	0 (0.0)	57 (12.7)	4 (0.9)	53 (11.8)	336 (74.7)
The portion size served is adequate	97 (21.6)	127 (28.2)	114 (25.3)	0 (0.0)	112 (24.9)
The food is served at the desired/optimal temperature	40 (8.9)	130 (28.9)	4 (0.9)	53 (11.8)	223 (49.6)
The meal options at the café offer good value for money	40 (8.9)	110 (24.4)	1 (0.2)	4 (0.9)	295 (65.6)
I consider the food served in the cafeteria as healthy and wholesome	0 (0.0)	55 (12.2)	57 (12.7)	22 (4.9)	316 (70.2)

Subsection 2: ambience					
I am comfortable eating in the cafeteria	57 (12.7)	56 (12.4)	108 (24.0)	4 (0.9)	225 (50.0)
The cafeteria surroundings are always kept clean	55 (12.2)	112 (24.9)	117 (26.0)	109 (24.2)	57 (12.7)
The cafeteria setting is conducive	0 (0.0)	57 (12.7)	99 (22.0)	108 (24.0)	186 (41.3)
I always look forward to eating in the cafeteria because it is conducive	0 (0.0)	0 (0.0)	57 (12.7)	108 (24.0)	285 (63.3)
The cafeteria is well ventilated	0 (0.0)	55 (12.2)	44 (9.8)	57 (12.7)	294 (65.3)
Subsection 3: hygiene					
The cafeteria staff maintain standard hygiene protocol while serving food	55 (12.2)	55 (12.2)	78 (17.3)	221 (49.1)	41 (9.1)
The eating utensils are always kept clean and dry	0 (0.0)	110 (24.4)	154 (34.2)	112 (24.9)	74 (16.4)
The cafeteria maintains sanitary measures in disposing of leftovers	18 (4.0)	55 (12.2)	208 (46.2)	53 (11.8)	116 (25.8)
Subsection 4: service quality					
The cafeteria staff are friendly and approachable	4 (0.9)	0 (0.0)	97 (21.6)	109 (24.2)	240 (53.3)
The cafeteria staff exhibit professionalism while on duty	4 (0.9)	0 (0.0)	151 (33.6)	57 (12.7)	238 (52.9)
The staff are willing to entertain complaints	4 (0.9)	58 (12.9)	0 (0.0)	151 (33.6)	237 (52.7)
Food service operators respond promptly to the complaints	0 (0.0)	4 (0.9)	167 (37.1)	0 (0.0)	279 (62.0)
The attitude of the staff discourages me from visiting the cafeteria	111 (24.7)	0 (0.0)	115 (25.6)	164 (36.4)	60 (13.3)
Subsection 5: convenience					
The cafeteria is easily accessible to all students	74 (16.4)	0 (0.0)	110 (24.4)	53 (11.8)	213 (47.3)
The operating hours of the cafeteria are convenient	18 (4.0)	55 (12.2)	56 (12.4)	97 (21.6)	224 (49.8)
Long queues in the cafeteria discourage me from using cafeteria services	226 (50.2)	0 (0.0)	97 (21.6)	53 (11.8)	74 (16.4)
It's more convenient to patronise other food campus food vendors than to stand in the cafeteria queues	222 (49.3)	150 (33.3)	0 (0.0)	4 (0.9)	74 (16.4)
The number of cafeteria staff is enough to satisfy student needs	56 (12.4)	40 (8.9)	4 (0.9)	53 (11.8)	297 (66.0)
Perception category				n=450 (%)	
Good perception				230 (51.1)	
Poor perception				220 (48.9)	

Table 3 shows the respondents' behaviour towards cafeteria services. 56.9% visit the cafeteria because cooking is prohibited in the halls. 44.7% rarely visit the cafeteria, while 40.7% visit the cafeteria very often. Compared to the previous semester, only 36.9% of the respondents visited the cafeteria more often, with the major reason being to save their parents' money (89.8%). 70.2% did not finish their last random meal in the cafeteria,

the major reason being that they did not like the taste of the food (67.1%). 96% of the respondents would rather pay to get the food they want. 4.0% would opt for the prepaid cafeteria meal plan as it saves money (51.3%). 63.8% stated that their experience in the cafeteria has influenced their perception of the University negatively. Concerning meal option choice, preference was the major factor (46.4%), next being finance (36.4%).

Table 3: Students' behaviour towards cafeteria services

Characteristics	n=450 (%)	
Why do you visit the cafeteria?	Cooking is prohibited	256 (56.9)
	The food is satisfactory	6 (1.3)
	Other on-campus food services are expensive	36 (8.0)
	Cafeteria services are prepaid	152 (33.8)
How often do you visit the cafeteria?	Very often	183 (40.7)
	Often	59 (13.1)
	Rarely	201 (44.7)
	Never	7 (1.6)

Compared to the last semester (non-freshman), my dining frequency has increased.	Yes	166 (36.9)
	No	284 (63.1) n=166 (%)
If yes to the above, why?	The food tastes better	0 (0.0)
	More meal options have been made available	9 (5.4)
	I don't want to waste my parents' money	149 (89.8)
	I'm financially constrained (broke)	8 (4.8)
	Other	0 (0.0) n=284 (%)
If no to the above, why?	I don't like the food	118 (41.5)
	There are limited meal options available	10 (3.5)
	I prefer to eat from other on-campus food services	156 (54.9)
	Other	0 (0.0)
Does the cafeteria setting discourage you from eating at the cafeteria?	Yes	334 (74.2)
	No	116 (25.8) n=334 (%)
If yes to the above, why?	The cafeteria is poorly ventilated	17 (5.1)
	The cafeteria environment is untidy	6 (1.8)
	The cafeteria's sitting arrangement is poor	53 (15.9)
	The cafeteria is too noisy	258 (77.2) n=116 (%)
If no to the above, why?	The cafeteria is well ventilated	2 (1.7)
	The cafeteria environment is tidy	7 (6.0)
	The cafeteria seating is well arranged	101 (87.1)
	The cafeteria is calm and peaceful	6 (5.2)
Did you finish your last meal at the cafeteria?	Yes	134 (29.8)
	No	316 (70.2) n=134 (%)
If yes to the above, why?	I had no other option	16 (11.9)
	I don't like to waste food	49 (36.6)
	The food was delicious	19 (14.2)
	I was hungry	50 (37.3) n=316 (%)
If no to the above, why?	I wasn't hungry	203 (64.2)
	I didn't like the food options	13 (4.1)
	I didn't like the taste of the food	212 (67.1) n=450 (%)
If you were given the option, would you rather pay to get the food you want or opt for the prepaid cafeteria meal plan?	Yes	432 (96.0)
	No	18 (4.0)
Why to above?	It is more convenient	165 (36.7)
	It saves me money	231 (51.3)
	I don't visit the cafeteria often	38 (8.4)
	It's a waste of money	16 (3.6)

How has your experience in the cafeteria influenced your perception towards Babcock University	Positively	163 (36.2)
What influenced your choice of meal plan?	Negatively	287 (63.8)
	Convenience	59 (13.1)
	Finance	164 (36.4)
	Course of study	18 (4.0)
	Preference	209 (46.4)
Have you fallen ill after visiting the cafeteria	Yes	174 (38.7)
	No	276 (61.3)
Has eating in the cafeteria helped you save money	Yes	353 (78.4)
	No	97 (21.6)

Table 4 shows the recommendations given by the respondents. 54.7% stated that they would visit the cafeteria more if new meal options were included. Only 28.7% of the respondents would frequent the cafeteria more if fruits and vegetables were served more. 50.0% recommended that the food be made

more palatable to reduce food waste, while 33.1% recommended that portion sizes should be reduced. With regards to measures to combat the ever-growing needs of the students, 89.6% proffered employing more food service providers.

Table 4: Recommendations

Characteristics		n=450 (%)
If new meal options are introduced in the cafeteria, will that encourage you to go to the cafeteria?	Yes	246 (54.7)
	No	204 (45.3)
How often are fruits and vegetables served	Very often	111 (24.7)
	Often	191 (42.4)
	Rarely	108 (24.0)
	Never	40 (8.9)
	Yes	129 (28.7)
If fruits and vegetables are served more frequently, will this encourage you to visit the cafeteria more often?	No	321 (71.3)
	Portion sizes should be reduced	149 (33.1)
What measures do you think the cafeteria can adopt to reduce food waste?	Food should be served at the desired temperature	70 (15.6)
	Food should be made more palatable	225 (50.0)
	Careful preparation to reduce the incidence of debris in the food	6 (1.3)
	Increase the number of food service operators	403 (89.6)
What measures can cafeteria management adopt to meet the ever-growing needs of Babcock University students?	Ensure the cafeteria sticks to assigned operation hours	41 (9.1)
	Ensure staff practice standard sanitary protocol	6 (1.3)

Table 5: There was no observed statistical significance difference ($P>0.05$) between the

sociodemographic characteristics and students' perception.

Table 5: Cross-tabulation and chi-square analysis to determine factors affecting the perception of the respondents towards cafeteria food services

Factors	Perception of cafeteria food services		X^2	P -value
	Good	Poor		
Age	≤15 years	5 (2.2)	0.123	0.941
	16-20 years	150 (65.2)		

	21-25 years	75 (32.6)	75 (34.1)		
Sex	Male	125 (54.3)	119 (54.1)	0.003	0.956
	Female	105 (45.7)	101 (45.9)		
Current level	100 level	39 (17.0)	35 (15.9)		
	200 level	26 (11.3)	25 (11.4)		
	300 level	34 (14.8)	34 (15.5)	0.537	0.991
	400 level	80 (34.8)	75 (34.1)		
	500 level	28 (12.2)	31 (14.1)		
	600 level	23 (10.0)	19 (9.1)		
Course of study	Medically-related	140 (60.9)	129 (58.6)	0.233	0.629
	Non-medically-related	90 (39.1)	91 (41.4)		
Ethnicity	Hausa	28 (12.2)	28 (12.7)		
	Yoruba	95 (41.3)	82 (37.3)	1.771	0.621
	Igbo	59 (25.7)	68 (30.9)		
	Others	48 (20.9)	42 (19.1)		
Religion	Christianity	199 (86.5)	193 (87.7)		
	Islam	28 (12.2)	24 (10.9)	0.177	0.915
	Traditional	0 (0.0)	0 (0.0)		
	Others	3 (1.3)	3 (1.4)		
Meal type	BLS	96 (41.7)	94 (42.7)		
	BL	2 (0.9)	6 (2.7)	2.873	0.412
	BS	4 (1.7)	2 (0.9)		
	LS	128 (55.7)	118 (53.6)		
School	BCSM	82 (35.7)	78 (35.5)		
	Computing and engineering sciences	48 (20.9)	52 (23.6)		
	EAH	0 (0.0)	0 (0.0)		
	Law	0 (0.0)	0 (0.0)	5.279	0.509
	Management sciences	15 (6.5)	10 (4.5)		
	Nursing	27 (11.7)	15 (6.8)		
	PAH	26 (11.3)	26 (11.8)		
	SAT	4 (1.7)	6 (2.7)		
	VASS	28 (12.2)	33 (15.0)		

Discussion

This study revealed that a little above half of the respondents (51.1%) had a positive perception towards the on-campus food service operations, which may be due to the adequate portion size served per meal and the convenience of not cooking as students, which will help them channel their time more to academic activities. However, a significant proportion (48.9%) of the respondents had a negative perception. Attributes such as the ambience, convenience, hygiene, service quality, and meal options are significant determinants of the negative perception towards on-campus food services and further reduced their dining frequency. This is similar to a study which reported that service quality, menu, and facility have positive effects on perceived value and customer satisfaction (7). This is also similar to another study in the USA that found that perceived quality and perceived value had significant effects on customer satisfaction (8). However, more than half (63.8%) of respondents said their experiences in the school's cafeteria have negatively impacted their

perception of the university. This suggests that a lot more students were dissatisfied with the food service operations in relation to the school. This further implies that the college experience of students is predominantly negative. This result reflects a similar finding in research (5) which says that as educational expenses increase yearly, students' requests and expectations also increase commensurately towards the quality of service and care they receive (3). The university, being a private institution, has considerably higher tuition fees and other college expenses compared to government-owned universities and thus this cost plays a major role in choosing a university of study. Thus, if this integral part of the college experience is neglected, disappointed students are most likely to consider the total product offered by the school as below their expectations (5). This would eventually impact the students and may force them to re-evaluate their decision to attend a particular university.

Additionally, previous research has shown that on-campus food service contributes to student

wellness positively, specifically if it provides access to good quality, healthy food in a favourable environment (9). In this study, 74.2% of respondents stated that the cafeteria setting discouraged them from eating, with noise being the major deterrent (77.2%). Also, 70.2% of respondents said that they were unable to finish eating their last random meal in the cafeteria, as the taste of the food was not to their liking (67.1%). This further supports previous research that showed that students' perceptions of a food service operation determined their subsequent behaviour towards it, either positively or negatively (6). Another challenge facing university food service facilities is that when students are given what appears to be a forced choice, they often feel bad, as they have lost their decision-making autonomy. Now, because the university runs on a prepaid cafeteria meal plan that is made compulsory, especially for on-campus students. Most students have, in turn, responded negatively to it. The study also noted that a significant (96%) of respondents opted to pay out of pocket for the food they desired and were not in favour of the prepaid meal plan at all. Only 4% of students still preferred the prepaid meal plan. Hence, it is paramount for the school management to recognise and understand the students' behaviour towards the food service and respond appropriately to increase student satisfaction and, in turn, improve the overall college experience.

The study shows that more than half of the respondents agree that their experience in the school cafeteria has influenced their perception of the university negatively. This is because of the unpalatable nature of the food, as said by about 50.0% of the respondents. A previous study reported that the quality of food can be measured by its colour, taste, visual appeal, size, smell, freshness, and texture. These play a major role in accomplishing student satisfaction and increasing the chances of return (10). To achieve customer satisfaction, food service administrators need to consider and properly understand their necessities and requests (5). By considering the plight of the students, proper adjustments can be made in their favour, thus making the meals more palatable.

The study further shows that a large percentage of respondents (74.2%) are discouraged from eating in the cafeteria because of the noisy setting of the cafeteria. Some students have also reduced their cafeteria visits because of the hygiene and cleanliness of the cafeteria, as several students complained of the dirty environment. This is in line with a previous study that shows that about 59% of customers value cleanliness more than any other

factor (11). To curb these issues, policies should be created by the school towards noisemaking and littering in the cafeteria while eating, and appropriate punishments allocated to offenders. Also, the cafeteria cleaners should be supervised more closely and ensure they clean the cafeteria as the need arises. This will improve the atmosphere of the cafeteria, thereby increasing students' frequency to the cafeteria.

About 89.6% of respondents say that the food service providers are not enough to combat the ever-growing needs of the students. With less manpower comes less work done, and with less work done comes increased time needed to serve the students. This will lead to overcrowding in the cafeteria, making it conducive for the students. More capable cafeteria staff should be employed to improve the efficiency of distributing food to the students.

Meanwhile, 38.7% of respondents reported falling ill after eating in the cafeteria. This corresponds with a study that showed that about 51.8% of students reported having sometimes fallen ill after visiting the cafeteria (12). This percentage of students who reported falling ill after visiting the cafeteria may suggest sub-optimal food hygiene practices among cafeteria staff. Therefore, prompt actions should be taken to improve food hygiene practices, reducing the number of students who come down with food-borne diseases.

From the study, the following recommendations would have a positive response from the students: more than half of the participants would use the cafeteria more frequently if more meal options were introduced. A similar study (13) also supports the positive association between more meal options and dining frequency. Half of the participants recommended that the food be made more palatable, i.e. improved quality, to reduce food waste. Studies on university dining found that food quality was one of the top indicators of customer satisfaction (7, 8), and while the majority of the respondents recommended employment and training of additional food service providers. In several studies, service quality was one of the main attributes that contributed to customer satisfaction, so it is an important attribute to improve upon (7, 8). Other recommendations include ensuring adequate operation hours, ensuring standard sanitary conditions by the staff. Cleanliness is an important attribute for management to pay attention to because it has been shown to contribute to overall satisfaction and impact students' frequency of dining at a facility (14).

Conclusion

The study revealed that there was a good perception of the on-campus food services among the general student population. However, a significant proportion of students have a contradictory opinion. Service and operations such as the ambience, convenience, hygiene, service quality, and meal options are significant determinants of the negative perception towards on-campus food services and further reduced their dining frequency.

Based on the findings of this study, the following recommendations are made.

1. The cafeteria should employ more staff, and they should be trained on proper food handling techniques.
2. The school administration should review the prepaid meal plan; meal plans should be made more flexible.
3. Food service providers should adopt strict measures to combat issues such as noise and ensure orderliness and proper hygiene in the cafeteria.
4. The cafeteria should be properly ventilated, and air conditioners and fans should be provided to make the environment more conducive.
5. The school administration should expand the cafeteria space to serve the ever-growing population of on-campus students.

Declaration

Ethics approval and consent to participate

Ethical approval for this study was granted by the Babcock University Health Research Ethics Committee (BUHREC 878/22). The hall administrators also granted permission, and informed consent to participate in the study was obtained from the respondents, who were assured of strict confidentiality during and after the research.

Consent for publication

All the authors consented to publishing the work under the Creative Commons Attribution-Non-Commercial 4.0 license.

Availability of data and materials

The essential data supporting this study's findings are available within the article. For confidential reasons, additional data are available upon request from the corresponding author.

Competing interests

The authors declare that they have no competing interests.

Funding

No funding

Authors contributions

All the authors were involved in the management of the patients and conceptualising the report. OVC, BEF, OO, OA, and OC conceptualised and designed the study. OVC, OC, OJ, UN, UC, EV, and OEI collected, cleaned, analysed, and interpreted the data.

OVC, BEF, OOA, ACC, EV, UN, and AJ wrote the first manuscript. OVC, ANO, BEF, and OC corrected the manuscript. All the authors agreed on the final manuscript. The manuscript has been read and approved by all the authors.

Acknowledgment

We acknowledge the university authorities for allowing us to conduct this study within their school environment.

References:

1. Landicho CM, Amada BA, Flores S, Mendoza A, Ramos SE, Borbon NM. Customer Satisfaction Measurement (CSM): Basis for Student Support Services Enhancement Plan. Asia Pacific Journal of Academic Research in Business Administration| Volume. 2021 Sep;7(2): 51-55. <https://doi.org/10.13140/RG.2.2.20709.32481>
2. Onate BB. The Status of The University Cafeteria Services at Cagayan State University, Andrews Campus, Tuguegarao City. International Journal of Advanced Research in Management and Social Sciences. 2016;5(1):107-18.
3. Mensink F, Schwinghammer SA, Smeets A. The Healthy School Canteen programme: a promising intervention to make the school food environment healthier. Journal of environmental and public health. 2012;2012(1):415746. <https://doi.org/10.1155/2012/415746>
4. Smith RA, White-McNeil A, Ali F. Students' perceptions and behavior toward on-campus foodservice operations. International Hospitality Review. 2020 Jan 29;34(1):13-28. <https://doi.org/10.1108/IHR-06-2019-0010>
5. Garg A, Kumar J. Exploring customer satisfaction with university cafeteria food services. An empirical study of Temptation Restaurant at Taylor's University, Malaysia. European Journal of Tourism, Hospitality and Recreation. 2017;8(2):96-106. <https://doi.org/10.1515/ejthr-2017-0009>
6. Kim HS, Lee SM, Yuan JJ. Assessing college students' satisfaction with university

- foodservice. Journal of foodservice business research. 2012 Jan 1;15(1):39-48. <https://doi.org/10.1080/15378020.2011.624048>
7. Kwun DJ. Effects of campus foodservice attributes on perceived value, satisfaction, and consumer attitude: A gender-difference approach. International Journal of Hospitality Management. 2011 Jun 1;30(2):252-61. <https://doi.org/10.1016/j.ijhm.2010.09.001>
 8. Joung HW, Choi EK, Wang E. Effects of perceived quality and perceived value of campus foodservice on customer satisfaction: Moderating role of gender. Journal of Quality Assurance in Hospitality & Tourism. 2016 Apr 2;17(2):101-13. <https://doi.org/10.1080/1528008X.2015.1042620>
 9. Lugosi P. Campus foodservice experiences and student wellbeing: an integrative review for design and service interventions. International Journal of Hospitality Management. 2019 Oct 1;83:229-35. <https://doi.org/10.1016/j.ijhm.2018.10.019>
 10. Dollah SN, Mansor N, Mohamed M. Exploring the major determinants of student satisfaction on university cafeteria food services: A Malaysian case. Interdisciplinary Journal of Research in Business. 2012;2(7):62-73.
 11. Duarte Alonso A, O'Neill M, Liu Y, O'Shea M. Factors driving consumer restaurant choice: An exploratory study from the Southeastern United States. Journal of Hospitality Marketing & Management. 2013 Jul 1;22(5):547-67. <https://doi.org/10.1080/19368623.2012.671562>
 12. Bourne PA. The perception of university students and workers on foodservice offered by the university's cafeteria. Journal of Advanced Research in English & Education. 2021;5(1):39-52. <http://thejournalshouse.com/index.php/Journal-English-Education/article/view/48>
 13. Zegel R. Evaluation of Students' Satisfaction with and Importance of Attributes of Three Unique All-You-Can-Eat University Dining Facilities. <https://doi.org/10.1016/j.jand.2017.06.167>
 14. El-Said OA, Fathy EA. Assessing university students' satisfaction with on-campus cafeteria services. Tourism Management Perspectives. 2015 Oct 1;16:318-24. <https://doi.org/10.1016/j.tmp.2015.09.006>