

## **DIETARY PRACTICES AMONG STUDENTS OF UNIVERSITI TEKNOLOGI MARA CAWANGAN KELANTAN**

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**Abstract:** Healthy eating practices has become difficult to be observed among Malaysians due to changes in their present lifestyles. Recognising the importance of promoting health and preventing diseases during the period of transition from adolescence to adult life, the current study aims to firstly find out university students' meal consumption patterns before determining food preferences of the students. It also seeks the difference between accommodation status and students' body mass index (BMI). The data of this study were gathered from 118 respondents from UiTM Cawangan Kelantan. The instrument used was a set of questionnaires adapted from Yun, Ahmad and Quee (2018). The data were analysed using Statistical Package of Social Sciences (SPSS) 23.0 via descriptive analysis, while to identify the difference between accommodation status and students' BMI, the statistical analysis included an independent t-test. It was revealed that most of the students ate meals regularly on a daily basis but were inclined to skip meals, mainly breakfast. The students also preferred to eat foods that were easy to consume, and they opted for foods at cheaper prices over healthy and nutritious ones. The study also found that there was a significant difference between accommodation status and the students' BMI. The results indicate that the students did not implement healthy dietary practices in their lives. Apparently, university students need to be assisted so as to become responsible adults who can develop healthy dietary practices.

**Keywords:** Accommodation status, dietary practices, eating habits, food preferences

### **1. Introduction**

Malaysians' way of living is transforming quite fast in parallel with the advanced and progressive development of their country. The influence of socioeconomic status, physical and cultural factors contribute to the changes in dietary patterns such as families eating out, skipping meals and consuming too much fast food (Sidik & Rampal, 2009). Over the years, it has become more difficult to observe healthy eating habit among people. This is evident since about 64% of males and 65% of females in Malaysia are either overweight or obese, which makes Malaysia the country with the highest rate of obesity and overweight in Asia (World Health Organization, 2019). On the other hand, the Ministry of Health, Malaysia highlighted that being underweight is also a cause of concern as it can lead to anaemia, low body mass index and distorted perception to body image which can develop into anorexia and bulimia (Nor Hazwani et al., 2012).

Unhealthy eating habits can be observed among university students. This is apparent as their improper eating practices have been discussed extensively among researchers. A study by Huda and Ahmad (2010) found that out of 624 students of Universiti Sains Malaysia, 27% were underweight and approximately 12% were overweight or obese. Besides, a research done by Moy et al. (2009) revealed that 35.3% out of 2665 students of one public university in Kuala Lumpur ate fast food at least once a week. In their study, Gan et al. (2011) concluded that more than half of the university students did not acquire the recommended amount of energy, vitamin C and some minerals as suggested in the Recommended Nutrient Intake (RNI) for Malaysia.

University students are usually neglected compared to children and adults in the research of eating behavior. Instead, they are often overlooked as targets for promotion of healthy lifestyle. When enrolling into university, their responsibilities increase. According to Khor, Cobiac and Skrzypiec (2002), eating behaviors and health status of university students could be affected when they encounter stress while enduring academic difficulties. In addition to this, Nelson et al. (2008) stated that promoting

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health and preventing diseases have been recognized as crucial during the transition period of young people from adolescence to adult life because of the many adverse effects of negative eating behaviour on these young people's health.

It is important for university students to have a healthy diet since they can learn better when they are well-nourished. Eating healthily can also help them be more alert and memorize better in class which, in turn, helps them to increase their academic grades. Moreover, they can prevent themselves from getting chronic illnesses later in life. However, there are some problems that prevent these students from healthy eating practice which are evident in the succeeding research findings. Maintaining balance in education while coping with stress can make it harder for university students to manage time (Allen & Charles, 1997). A study by Moy et al. (2009) found that at least 43.8% university students skipped breakfast due to not having time to eat. They further described that 37% of students who live in hostels with cafeterias and 27.9% students who live in rented houses skipped their breakfast. Furthermore, financial problems could contribute to poor eating habits since unhealthy foods tend to be cheaper. The high prices of healthy food and the availability of fast food may negatively influence university students' eating behaviour (Gan et al., 2011). One last problem arises when they are staying away from their family, there is the tendency to develop poor eating habits. Therefore, this study aims at investigating university students' dietary practices particularly among those studying at UiTM Cawangan Kelantan.

### **1.1 Objectives of the study**

This study suggests several research objectives to be attained as follows:

- a) To find out university students' meal consumption patterns.
- b) To determine food preferences of the university students.
- c) To identify the difference between accommodation status and students' body mass index.

## **2. Literature Review**

### **2.1 Meal consumption patterns**

Currently, there is no research that has come to a conclusion of the recommended number of times to consume meals per day. It is a common practice that the daily food intake should be divided into three square meals namely breakfast, lunch and dinner while snacking is suggested between the main meals. National Coordinating Committee of Food and Nutrition (2010) has come out with Malaysian Dietary Guidelines to promote healthy diet practices and lifestyles and to recommend the latest science-based nutrition and physical activities that give propounding insights on this matter. However, the guidelines highlight the nutrition intake rather than the frequency of meals to be consumed daily.

As mentioned earlier, the recommended number of meals to be consumed daily is still undetermined; past studies on daily meal consumption bring to light conflicting results. For example, a study by Malmo Diet and Cancer reported that eating more than six meals per day reduced the risk of obesity as compared to less than three meals daily, and it was observed that these frequent eaters had a lower waist circumference after diet and lifestyle adjustment (Paoli et al., 2019). On the contrary, it was found that adults who ate one or two meals daily appeared to show a relatively lower BMI than those who ate three meals in a day (Kahleova et al., 2017). Despite this, the authors conclude that a regular meal pattern including breakfast consumption, high amount of energy consumption early in the day, reduction of meal frequency (two to three meals per day) and regular fasting periods lead to the positive result on human health. Thus, it is implied that infrequent meal patterns including skipping meals is seen as detrimental due to its effects particularly in increasing the rate of obesity. This is pertinent as a research by Sönmez and Nazik (2019) found that students of University of Turkey who skipped meals have significantly higher body mass index (BMI). University students are more inclined to skip breakfast aside from low fruit and vegetable consumption (Nor Hazwani et al., 2012). Kutty et al. (2015) also stated that the prevalence of skipping breakfast is significant among young people, especially university students, which can be a sign of adult obesity.

## **2.2 Factors influencing food preferences**

Research has found that there are a few factors which undoubtedly influence students' choices of food. Marie et al. (2017) stated that the cost of foods is one of the factors influencing students' food preferences in which 42% of the respondents preferred foods that are easy to prepare which showed that they were concerned about time constraint. Sprake et al. (2018) also stated that students who lack cooking skills will likely consume food that can be quickly and easily prepared. Jennifer and Katharina (2019) also revealed that students having problems, particularly time constraint due to university commitment, tend to eat quick-fixed meals, which led to unhealthy eating behaviour. According to Gan et al. (2011), most of the respondents were not picky about foods. They usually ate something that was available and consumed a small portion of food in order to lose weight.

Accommodation status or students' residential environment has been observed to influence their dietary practices. University students, particularly those who live independently – away from parents and families – have been reported to practise negative dietary habits which contribute to health implications as they grow older (Adelabu, Amole & Ajayi, 2019). Those who stayed with their families and on campus displayed healthier nutrition habits than those living off-campus on their own. Based on the findings by Moy et al. (2009), respondents who stayed in their rented houses were most likely to skip breakfast compared to those who stayed in hostels. This is most likely due to several factors such as health conditions, food prices, convenience, taste, awareness of food nutrients and availability of food (Fatin Izzaty et al., 2019). However, Deliens, Clarys, de Bourdeaudhuij and Deforce (2014) stated that food prices were important in making food choices regardless of where the students live. Students often think carefully before they choose any food. Some of them might agree on influence of social interactions, family backgrounds and food availability (Kutty et al., 2015) on food choices. Participants agreed that unhealthy food served at university cafeterias increased their appetite and led to uncontrollable eating, hence contributing to their weight problems (Greaney et al., 2009).

## **3. Methodology**

### **3.1 Research design**

The present study utilized quantitative research methodology. The instrument used to collect the data was questionnaire. This approach was perceived as convenient to address the three research objectives which are to find out university students' meal consumption patterns, to determine food preferences of the university students and to identify the difference between accommodation status and students' body mass index. Simple random sampling was chosen as a sampling technique where every student of UiTM Cawangan Kelantan has an equal chance and likelihood of being selected in the sample. While the sampling frame was 6000 students, the sample size chosen was 130 students. This number was chosen as it reflected time limitation and access to the student WhatsApp groups due to the Covid-19 pandemic that had caused interruptions of physical university attendance in March 2020.

### **3.2 Research instrument**

The survey instrument was an online self-reported questionnaire. The set of questionnaires divided into three sections was developed based on a questionnaire used previously by another study (Yun, Ahmad & Quee, 2018). Different question types, namely closed-ended questions and category questions, were used in the questionnaire. The sections of the questionnaire were demographic profile, frequency of consuming meals and food preferences. The first section of the questionnaire elicited demographic characteristics such as age (years), faculty, academic programme (diploma, degree), accommodation status (college resident, non-resident), current height and the body weight of the respondents. The weight values (in kilogram) along with the height values (in metre) were used to calculate and classify body mass index (BMI) – underweight (< 18.5), normal (18.5 – 24.9), overweight (25 – 29.9) and obese ( $\geq 30.0$ ). The second section comprised questions to explore respondents' eating patterns particularly the frequency of consuming meals, while the third section was designed to determine the respondents' food choices which revealed their awareness of the concept of food pyramid and the concept of balanced nutrition. Prior to data collection, the face value of the questionnaire was

established by experts which was then tested on ten randomly selected university students to access their comprehensibility of the items.

### 3.3 Respondents of the study

The respondents of the study were diploma and degree students from different faculties at UiTM Cawangan Kelantan. In May 2020, a total of 130 questionnaires were distributed to students of various faculties of the university. A total of 118 students from various faculties at UiTM Cawangan Kelantan returned the questionnaires. Of these numbers, 33 were college residents while 85 were non-residents.

### 3.4 Data collection and data analysis

This study opted for online survey which was created via Google form. The link was then distributed through WhatsApp to the respondents. Data collected from the questionnaire were entered and analysed using Statistical Package of Social Sciences (SPSS) 23.0. Results were presented through frequency counts and other descriptive statistics: mean, median and standard deviation. The collected data were used to compare dietary practices among respondents who stayed at the colleges and those who were non-residents. The statistical analysis included independent t-test to determine the difference between accommodation status and the respondents' BMI.

## 4. Findings and Discussion

### 4.1 Demographic profile

This study was carried out among 130 respondents. However, there were 118 responses received due to inaccessibility to respondents' WhatsApp groups. Hence, the response rate for this study was 90.77%. Table 1 displays the frequency and percentage of categorical socio-demographic variables. Majority of the respondents were degree students (77; 65.3%). Of the 118 respondents, 32 were college residents and 86 were non-residents. As for the BMI category, 44.1% respondents were in the normal weight category, and 26.3% and 21.2% were overweight and underweight respectively. The prevalence of obesity among the respondents was 8.5%.

**Table 1: Demographic Profile**

Characteristics	Frequency	Percentage (%)
Age		
19 – 21	57	48.4
22 – 24	58	49.1
25 – 27	2	1.7
28 – 30	1	0.8
Faculty		
Faculty of Accountancy	6	5.1
Faculty of Administrative Science & Policy Studies	2	1.7
Faculty of Art & Design	1	0.8
Faculty of Business & Management	22	18.6
Faculty of Information Management	1	0.8
Faculty of Computer & Mathematical Science	86	72.9
Academic Programme		
Diploma	41	34.7
Degree	77	65.3
Accommodation Status		
College Resident	32	27.1
Non-Resident	86	72.9
Body Mass Index		
Underweight (< 18.5)	25	21.2
Normal (18.5 – 24.9)	52	44.1
Overweight (25 – 29.9)	31	26.3
Obese (≥30)	10	8.5

#### 4.2 Meal consumption patterns

Table 2 shows meal consumption patterns of the respondents. Majority (85.6%) claimed that they ate their meals regularly on a daily basis. However, it is revealed that the number of meals consumed by 53 respondents (44.9%) was less than three meals in a day while 44 respondents (37.3%) consumed at least three meals daily. This suggests that there was irregularity in the respondents' frequency of taking meals which inarguably affecting their health at the stage of early adulthood. Ozdogan et al. (2010) asserted that regular meal pattern is important in ensuring body physiological system stability for all age groups. In regard to main meals consumed daily, it was reported that 67 respondents (56.8%) skipped their breakfast, which is considered as the most important meal of the day; moreover, 12 (10.2%) respondents skipped their lunch and 40 respondents (33.9%) skipped their dinner. In view of Arshad and Ahmed's (2014) perspective, many students were likely to have poor eating habits, making them overweight and lazy. Many of the respondents had a habit of snacking (82.2%) between the meals. This result is similar to the finding of Yun et al. (2018) which reported that more than 80% of university students regularly had snacks in between meals, and they believed such behaviour was due to meal skipping. In addition to this, Hakim et al. (2012) emphasised that skipping meals led to more eating throughout the day including frequent snacking which eventually result in weight gain.

**Table 2:** Meal Consumption Patterns

Variable	n (%)	College Resident n (%)	Non-Resident n (%)	SD
Eat meals regularly on daily basis				
Yes	101 (85.6)	27 (22.9)	74 (62.7)	0.353
No	17 (14.4)	5 (4.2)	12 (10.2)	
Number of regular meals				
< 3 meals/day	53 (44.9)	16 (13.6)	37 (31.4)	0.747
3 meals/day	44 (37.3)	9 (7.6)	35 (29.7)	
> 3 meals/day	21 (17.8)	7 (5.9)	14 (11.9)	
Eat breakfast every day				
Yes	51 (43.2)	12 (10.2)	39 (33.1)	0.513
No	67 (56.8)	20 (16.9)	47 (39.8)	
Eat lunch every day				
Yes	106 (89.8)	26 (22.0)	80 (67.8)	0.304
No	12 (10.2)	6 (5.1)	6 (5.1)	
Eat dinner every day				
Yes	78 (66.1)	17 (14.4)	61 (51.7)	0.475
No	40 (33.9)	15 (12.7)	25 (21.2)	
Snacks in between meals				
Yes	97 (82.2)	29 (24.6)	68 (57.6)	0.384
No	21 (17.8)	3 (2.5)	18 (15.3)	
Daily Water Intake				
< 2 L	59 (50.0)	18 (15.3)	14 (11.9)	0.502
> 2 L	59 (50.0)	14 (11.9)	45 (38.1)	

#### 4.3 Respondents' food preferences

Table 3 below presents respondents' food preferences. Fifty-seven respondents (48.3%) would eat a variety of food (rice, meat, vegetables and fruits) as required for a balanced diet. Forty-five respondents (38.1%) ate vegetables 3 to 5 times a week, but as many as 75 respondents (63.6%) rarely consume fruits which should be eaten aplenty – 2 servings of fruits daily. Almost half of the respondents (49.2%) consumed fried food on a daily basis; however, more than half of the respondents (53.4%) rarely ate instant foods. Sixty-two respondents (52.5%) preferred to eat foods that were cheap rather than nutritious foods. This echoed the finding by Yun et al. (2018) where 58.7% university students reported that they preferred cheap food over healthy or nutritious foods. Majority of the respondents (76.3%) would choose to eat in order to relieve stress when facing academic difficulties. When facing deadlines or during examination weeks, 78% of the respondents tend to overlook the nutrition of the food that they consumed. From the findings, the respondents preferred foods that were easy to consume. This is associated to the finding of Ahmed et al. (2019) which reported that students preferred to consume fast food because of its palatability, affordability, and convenience.

**Table 3: Respondents' Food Preferences**

Variable	n (%)	College Resident n (%)	Non-Resident n (%)	SD
What do you usually eat when you had to prepare/cook your own meals?				
Rice, meat, vegetables and fruits	17 (14.4)	4 (3.4)	13 (11.0)	1.473
Rice, meat and vegetables	40 (33.9)	9 (7.6)	31 (26.3)	
Rice and meat	28 (23.7)	6 (5.1)	22 (18.6)	
Rice and vegetables	2 (1.7)	1 (0.8)	1 (0.8)	
Meat/vegetables/fruits only	4 (3.4)	2 (1.7)	2 (1.7)	
Instant foods	27 (22.9)	10 (8.5)	27 (22.9)	
How often do you eat vegetables?				
Every day	37 (31.4)	8 (6.8)	29 (24.6)	0.790
3-5 times a week	45 (38.1)	14 (11.9)	31 (26.3)	
Rarely	36 (30.5)	10 (8.5)	26 (22.0)	
How often do you eat fruits?				
Every day	7 (5.9)	2 (1.7)	5 (4.2)	0.604
3-5 times a week	35 (29.7)	10 (8.5)	25 (21.2)	
Rarely	75 (63.6)	20 (16.9)	56 (47.5)	
How often do you eat fried food?				
Every day	58 (49.2)	13 (11.0)	45 (38.1)	0.750
3-5 times a week	40 (33.9)	14 (11.9)	26 (22.0)	
Rarely	20 (16.9)	5 (4.2)	15 (12.7)	
How often do you eat instant foods?				
Every day	4 (3.4)	1 (0.8)	3 (2.5)	0.566
3-5 times a week	51 (43.2)	14 (11.9)	37 (31.4)	
Rarely	63 (53.4)	17 (14.4)	46 (39.0)	
Do you choose food that cost less over healthy/nutritious foods?				
Yes	62 (52.5)	15 (12.7)	47 (39.8)	0.566
No	56 (47.5)	17 (14.4)	39 (33.1)	
How often do you eat out?				
< 3 times a week				0.501
> 3 times a week	63 (53.4)	17 (14.4)	46 (39.0)	
How often do you order food takeaways/deliveries?				
< 3 times a week				0.377
> 3 times a week	98 (83.1)	27 (22.9)	71 (60.2)	
Do you eat more when feeling stressed?				
Yes				0.427
No	90 (76.3)	24 (20.3)	66 (55.9)	
When facing deadlines or during examination weeks, do you look for food that you can quickly consume regardless of its nutrition?				
Yes	92 (78.0)	23 (19.5)	69 (58.5)	0.416
No	26 (22.0)	9 (7.6)	17 (14.4)	

#### 4.4 Respondents' accommodation status and their body mass index

Referring to Table 4, the mean of respondents' body weight was 55.73 kg whereas the mean of their BMI was 22.32 kg/m<sup>2</sup>. As the median is resistant to change and is not affected by the extreme

values, both median body weight and median BMI of the respondents were calculated. The median body weight of the respondents was 51 kg while the median BMI was 20.89 kg/m<sup>2</sup>.

**Table 4: Summary Statistics**

Variable	Mean	Minimum	Maximum	Median
Weight (kg)	55.73	35.0	120.0	51.0
BMI (kg/m <sup>2</sup> )	22.32	14.88	42.02	20.89

While Table 4 shows the summary statistics, Table 5 depicts the results of respondents' BMI across their accommodation status – college residents and non-residents. As indicated in the table below, the non-residents' mean BMI was significantly higher than the college residents', 27.80 kg/m<sup>2</sup> (SD=5.6527) and 21.03 kg/m<sup>2</sup> (SD=3.2885) respectively. The non-residents' mean BMI was in the overweight category; in contrast, the college residents' mean BMI was in the normal weight category. Thus, the results indicate that non-residents were prone to obesity if this matter was not properly addressed. This is pertinent as BMI was significantly associated with students' dietary habits which include daily food consumption and snacking habit (Syed et al., 2020).

**Table 5: Accommodation Status and BMI of the Respondents**

	Accommodation Status	N	Mean	SD
BMI (kg/m <sup>2</sup> )	College Residents	32	21.03	3.2885
	Non-Residents	86	27.80	5.6527

Table 6 summarises the finding for independent t-test that was conducted to accomplish the third research objective. It was conducted to compare accommodation status and the BMI of college residents and the non-residents. Based on the analysis, the assumption of homogeneity of variance was violated, and it was found that there was a significant difference between two variances (Levene's Test; F=9.111, P-value=0.003). This study successfully concluded that there was a significant difference between accommodation status and the respondents' BMI (t test=-2.096, P value=0.039). As the mean BMI of non-residents was higher than the college residents', it can be imparted that the non-residents were more influenced in revealing the relationship between accommodation status and the respondents' BMI.

**Table 6: Summary of Independent T-Test**

		Levene's Test		T-Test	
		F	Sig.	T	Sig. (2-tailed)
Body Mass Index	Equal variances assumed	9.111	0.003	-1.662	0.099
	Equal variances not assumed			-2.096	0.039

## 5. Conclusion

This study aims at investigating university students' dietary practices including their meal consumption patterns and their choice of foods. The results of this study revealed that there was irregularity in the students' frequency of taking meals. More than half of the students skipped their breakfast; it is indeed the meal that was neglected the most. While majority claimed that they ate their meals regularly on a daily basis, the result revealed that the number of meals consumed was less than three per day. Hence, snacking became the choice of most respondents due to meal skipping. Additionally, many students did not get all the nutrients required for a healthy and balanced diet. It is quite worrisome to know that the students' fruits and vegetables intake was minimal when almost half of them chose fried foods and instant foods in addition to foods at cheaper prices over healthy and nutritious ones for their everyday meals.

These findings lucidly disclosed the fact that university students need to be assisted so as to becoming responsible adults who can develop healthy eating behaviour. The onset of adulthood should be regarded as crucial wherein these young adults are required to take their health seriously at the utmost. Realising that students' accommodation status significantly affected their BMI, measures have to be taken to address the issue. Organising virtual forums to reach out to students such as nutrition educational programmes will help create awareness of the significance of regular meal consumption

and the amount of nutrition required for a healthy body. To achieve this, the university management can build a reciprocal relationship between food vendors in and outside of the university which at long last benefiting all parties. Additionally, the roles of university health centre is deemed crucial in providing guidance for both, resident and non-resident students, on the practice of good eating habits aside from the counsellors and student affairs department that are accountable in enhancing student growth and development.

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