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Fast Food Consumption Patterns and Perceived Reasons among Undergraduate Students

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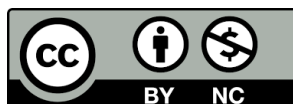
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ABSTRACT

Background: Little is known about fast food consumption, particularly among university students. Therefore, this study was conducted to investigate the trends in fast food consumption among undergraduate students enrolled in one of the universities in the East Coast of Malaysia.

Methods: A cross-sectional survey was conducted among 385 undergraduate students from healthcare-related courses (nursing, medicine, pharmacy, dentistry, sciences and allied health sciences). A self-developed questionnaire (content validity index = 86.0%; Cronbach's alpha = 0.678) was administered online via Google Forms. Data were analysed using IBM SPSS version 27, and descriptive statistics were reported in frequency, percentage, and median (interquartile range).

Results: About one-third of participants were first-year students (28.8%) with a median age of 22.0 (IQR 3.0), female (70.6%), Malay (98.2%), moderately active (53.0%), had a normal body mass index of 21.36 (IQR 5.3), and spent RM 400 (IQR 200.0) monthly on food. The factors associated with fast food consumption were taste (92.7%), convenience (61.8%), and personal preferences (59.7%). Most of them consumed fast food once a month (42.9%), during dinner (44.7%), and opted for medium-sized meals (67.3%) together with plain water (29.4%) or carbonated soft drinks (22.1%). Their choice of fast food menu included fried chicken (35.6%), burgers (5.5%), pizza (1.8%), French fries (2.3%), and hot dogs (3.1%) for daily consumption.

Conclusion: The findings demonstrate moderate consumption of fast food among most undergraduate students, with taste, convenience, and personal preferences being prominent contributing factors. Future interventions should aim at reducing daily fast food consumption among university students to promote a healthier food intake.

Keywords: Fast food; Consumption; Students; Diet; Habits

INTRODUCTION

Obesity is a global issue commonly associated with unhealthy lifestyles, including frequent fast food intake (1). In low- and middle-income countries, the increasing prevalence of obesity among adults between 18 to 59 years old coincides with the excess of fast food restaurants and dietary habits (2,3). Past research indicates that young adults, including university students, constitute the largest consumers of fast food across the globe (1,2,4,5). Such a trend is prompted by several factors like time (fast service for eating), financial resources, price, availability, and taste (2,3,4).

Existing evidence further advocates the link between university students and unhealthy lifestyles. For instance, 633 students (61.5% males and 44.7% females) in Mekelle University, Northern Ethiopia, were reported to have poor healthy diet practices (6). Another study involving 303 university students in Brunei showed that 82.2% had a habit of snacking regularly and 67% consumed fried food at least 3–5 times per week, with less intake of fruits and vegetables (7).

In the Malaysian context, a survey by Mokhtar et al. found that undergraduate students demonstrated very strong (61.5%) and strong (32.8%) preference towards fast food, with the majority of them (90.4%) consuming fast food at least 3 to 4 times a month (8). A similar trend was reported in a study involving 364 students of Universiti Teknologi MARA (UiTM), Perlis branch, whereby 32.7% of the participants admitted to consuming fast food 2 to 3 times every month (9). These statistics demonstrate the prominent trend of fast food consumption among university students, which eventually translates into unhealthy dietary habits. However, despite its prevalence, studies on fast food consumption in Malaysia have relied on the national database of the adult population rather than focusing on university students (1).

Frequent fast food consumption can lead to weight gain and obesity, especially when combined with a lack of physical activity (2,5,9). In Malaysia, approximately 21.3% of young Malays were found to have higher fast food consumption compared to other ethnics, resulting in more cases of obesity, particularly among undergraduate students (8). Failure to address this issue may lead to dire impacts on health (6). Therefore, this study aimed to

investigate fast food consumption among undergraduate students, with a focus on those enrolled in the International Islamic University Malaysia, Kuantan, Pahang.

METHODS

This study was approved by the Kulliyyah of Nursing Postgraduate Research Committee (KNPGRC) and the International Islamic University Malaysia (IIUM) Research Ethics Committee (IREC) (ID: IREC 2024-053). A cross-sectional study was conducted from May to June 2024. The inclusion criterion was undergraduate students of IIUM Kuantan, Pahang, who were willing to participate in this study, while the exclusion criterion was those who were on study leave.

The data were gathered using a self-developed questionnaire through convenience sampling, which was adapted from AlFaris et al. and Javed et al. (10,11). It consisted of four sections. Part A elicited information regarding the participants' socio-demographic background, including age, faculty (*kulliyyah*), gender, race, self-reported lifestyle, weight, height and body mass index (BMI) (kg/m^2), and monthly expenditure on food. The cut-off point value for BMI (in kg/m^2) was classified based on the World Health Organization (WHO): underweight (< 18.5), normal (18.5–22.9), pre-obese/overweight (23.0–27.4), obese I (27.5–32.4), obese II (32.5–37.4), and obese III (≥ 37.5) (3). The students' lifestyle was categorised according to their weekly physical activity duration: sedentary (exercising less than 30 minutes/week), moderately active (exercising between 150–300 minutes/week), or very active (exercising between >300 minutes/week). Part B contained 15 items on factors associated with fast food consumption, namely taste, location, convenience, service, price, viral food, and influence from friends or social media. Students were allowed to select more than one answer for this part. Meanwhile, Part C comprised six closed-ended questions regarding dietary habits and lifestyles, including consumption of natural products, water, vegetables, and the number of meals taken in a day along with duration of chewing. For this part, only one choice was allowed. Lastly, Part D consisted of six closed-ended questions on fast food intake, including frequency, portion, types, and period of fast food consumption. In this part, items 1 to 6 allowed only one answer, while item 6 required the students to detail their frequency

of intake daily, weekly, monthly, or less frequently.

All items were reviewed and validated by six expert panels, yielding a scale-level average content validity index (CVI) of 86.01%, which is considered appropriate (12). The items were evaluated for consistency, clarity, difficulty, and whether they should be included in the final version of the questionnaire. One mark was given for each item if the reviewer thought that the items were consistent, direct, and not difficult, and zero vice versa. A column for improvement was provided for each item in addition to an overall suggestion.

Prior to the actual research, a pilot study was performed with 38 undergraduate students to assess the validity and reliability of the instrument. The reliability value obtained was Cronbach's $\alpha = 0.678$, which is considered acceptable (13). Since the medium of instruction at IIUM is English, the questionnaire was administered directly without being translated into Malay.

During the study period, IIUM Kuantan Campus had a total of 3,840 students enrolled in these respective faculties: Kulliyyah of Medicine (860 students), Kulliyyah of Nursing (541 students), Kulliyyah of Dentistry (344 students), Kulliyyah of Pharmacy (424 students), Kulliyyah of Allied Health Sciences (716 students), and Kulliyyah of Science (955 students). The sample size was calculated using the Raosoft sample size software with a population size of 3,840, margin of error of 5%, confidence interval of 95%, and a response distribution of 50% (14). The recommended sample size for this study was 350 students. Following their agreement to participate in the study, a Google Forms link containing a proper information sheet and consent was distributed to the respondents, and ample time was allotted for them to answer the questionnaire.

IBM Statistical Package Social Science (SPSS) version 27 was used to analyse and manage the data descriptively (15). Quantitative variables were expressed as mean and standard deviation for normal distribution or median and interquartile range if they were skewed. Meanwhile, categorical variables were expressed as percentages and frequencies.

RESULT

Sociodemographic Background of Respondents

Table 1 shows the sociodemographic background of the respondents. A total of 385 undergraduate students participated in this study, constituting a response rate of 100%. The majority of respondents were female (70.6%), aged 22.0 (IQR 3) years old, Malays (98.2%), nursing students (23.1%), moderately active (53.0%), and had a normal BMI of 21.36 (IQR5.3) kg/m². Most of them had Majlis Amanah Rakyat (MARA) loans (35.6%) and spent around RM 201-400 (47.3%) on food.

Factors of Fast Food Consumption

Table 2 provides insights into the factors that lead to fast food consumption among undergraduate students. Most of them admitted to consuming fast food because of its taste (92.7%), convenience (61.8%), and personal preference (59.7%). The least popular factor was sociability (9.1%).

Dietary Habits of Students

Table 3 highlights the dietary habits of IIUM undergraduate students. Many admitted to having inconsistent habits of consuming natural food products (37.9%), vegetables (40.0%), and complete meals during breakfast, lunch, and dinner (54.5%).

Fast Food Consumption among Students

Table 4 highlights the fast food consumption trends among IIUM undergraduate students. Many of them consume fast food once per month or less (42.9%) and twice per week or more (16.4%). However, variations occurred when they were asked about their consumption of fast food throughout the week. The answers varied from 55.1% once a day to four times a day. They preferred medium-sized fast food (67.3%) with plain water (29.4%). The results show that the majority of IIUM students consume fast food less frequently. Nevertheless, there were students who consumed fast food daily, such as fried chicken (35.6%), or weekly, such as beef or chicken burger (5.5%), with at least one to three servings of French fries (2.3%) and nuggets (2.9%) (**Table 5**).

Table 1: Sociodemographic Background of IIUM Undergraduate Students (N = 385)

Items	Variable	Frequency (f)	Percentage (%)	Median (IQR)
Age				22.0 (3)
Faculty/ Kulliyyah	Kulliyyah of Nursing (KON)	89	23.1	
	Kulliyyah of Allied Health Sciences (KAHS)	81	21.0	
	Kulliyyah of Science (KOS)	72	18.7	
	Kulliyyah of Medicine (KOM)	69	17.9	
	Kulliyyah of Pharmacy (KOP)	42	10.9	
	Kulliyyah of Dentistry (KOD)	32	8.3	
Year of Study	1	111	28.8	
	2	89	23.1	
	3	82	21.3	
	4	91	23.6	
	5	12	3.1	
Gender	Male	113	29.4	
	Female	272	70.6	
Race	Malay	378	98.2	
	Chinese	3	0.8	
	Indian	1	0.3	
	Others	3	0.8	
Level of Physical Activity	Sedentary	154	40.0	
	Moderately Active	204	53.0	
	Very Active	27	7.0	
Anthropometry Measurement	Current Height			160.0 (11.0)
	Current Weight			54.5 (16.4)
BMI (kg/m ²)				21.36 (5.3)
BMI	Underweight	56	14.5	
	Normal	201	52.2	
	Pre-Obese (Overweight)	76	19.7	
	Obese I	33	8.6	
	Obese II	17	4.4	
	Obese III	2	0.5	
	Parents	107	27.8	
	Scholarships	67	17.4	
Main source of allowance	Education loan (PTPTN)	56	14.5	
	Education loan (MARA)	137	35.6	
	Part-time work	2	0.5	
	Others	16	4.2	
	0-200	43	11.2	400.0 (200)
Monthly expenditure on food	201-400	182	47.3	
	401-600	131	34.0	
	601-800	22	5.7	
	801-1000	7	1.8	

Note: PTPTN=National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional) MARA=Majlis Amanah Rakyat

Table 2: Factors Associated with Fast Food Consumption among IIUM Undergraduate Students (N = 385)

Variable	Frequency (f)	Percentage (%)
Taste	357	92.7
Convenience	238	61.8
Affordable price	218	56.6
Viral food	112	29.1
Family habit	51	13.2
Peer influenced	157	40.8
Personal preference	230	59.7
Outlet cleanliness	86	22.3
Halal certified	205	53.2
Availability of nutritional information	42	10.9
Food quality and appearance	169	43.9
Promotional offer	215	55.8
Meal packaging	85	22.1
Purchase with gift	43	11.2
Sociability	35	9.1

Note: Students could answer with more than one option

Table 3: Dietary Habits Among IIUM Undergraduate Students (N = 385)

Items	Variable	Frequency (f)	Percentage (%)
Do you eat any natural food or products consistently?	Never	4	1.0
	Sometimes	146	37.9
	Always	139	36.1
	Often	96	24.9
Do you eat any vegetables consistently?	Never	15	3.9
	Sometimes	154	40.0
	Always	125	32.5
	Often	91	23.6
Do you typically eat breakfast, lunch and dinner every day?	Never	15	3.9
	Sometimes	210	54.5
	Always	108	28.1
	Often	52	13.5
Your diet is	Unchanged	40	10.4
	Only different on weekends	65	16.9
	Sometimes different during weekdays	146	37.9
	Different everyday	134	34.8
Do you drink plain water before, during or after main meals?	Not drinking	6	1.6
	After	229	59.5
	During	111	28.8
	Before (30 mins before meals)	39	10.1
How long do you chew the food before swallowing?	Don't know	52	13.5
	Less than 20 times	212	55.1
	20-40 times	113	29.4
	More than 40 times	8	2.1

Table 4: Fast Food Consumption Among IIUM Undergraduate Students (N = 385)

Variable		Frequency (<i>f</i>)	Percentage (%)
How often do you consume fast food?	Once per month or less	165	42.9
	Once per week	157	40.8
	Twice per week or more	63	16.4
Which portion size of fast food do you usually eat?	Small	85	22.1
	Medium	259	67.3
	Large	41	10.6
What kind of beverages do you usually drink with fast food?	Carbonated soft drinks	85	22.1
	Coffee or tea	64	16.6
	Fresh fruit juices	33	8.6
	Sweetened drinks	78	20.3
	Energy drinks	1	0.3
	Zero-calorie soft-drinks	11	2.9
	Plain water	113	29.4
When do you usually consume fast food throughout the week?	Beginning of the week	4	1.0
	Middle of the week	19	4.9
	Weekend	133	34.5
	No specific time	229	59.5
When do you usually consume fast food during the day?*	Breakfast	7	1.8
	Lunch	67	17.4
	Tea time	19	4.9
	Dinner	172	44.7
	Supper	32	8.3

Note: *No specific time (59.5%) have multiple answers of 1 time/day (55.1%), 2 times/day (3.1%), 3 times/day (0.5%), 4 times/day (0.5%)

Table 5: Fast Food Frequency among IIUM Undergraduate Students (N = 385)

Type of food	Frequency, <i>f</i> (%)				
	Not consume	Less frequent	Daily	Weekly	Monthly
Beef or chicken burger	22 (5.7)	177 (46.0)	21 (5.5)	62 (16.1)	103 (26.8)
Pizza	122 (31.7)	207 (53.8)	7 (1.8)	12 (3.1)	37 (9.6)
French fries	43 (11.2)	164 (42.6)	9 (2.3)	70 (18.2)	99 (25.7)
Hotdog	131 (34.0)	151 (39.2)	12 (3.1)	48 (12.5)	43 (11.2)
Fried chicken	9 (2.3)	60 (15.6)	137 (35.6)	138 (35.8)	41 (10.6)
Nugget	114 (29.6)	164 (42.6)	11 (2.9)	51 (13.2)	45 (11.7)
Mashed potato	158 (41.0)	158 (41.0)	10 (2.6)	12 (3.1)	47 (12.2)

DISCUSSION

Sociodemographic Background of the Students

The participants of this study comprised 385 undergraduate students from six different faculties in the IIUM Kuantan campus. They were predominantly female, between the ages of 20 and 23 years (7,8,9,16-20). This agrees with a previous study by Sajjad et al., which highlighted significant fast food consumption by female students compared to their male counterparts (21). Meanwhile, a similar median age was reported by previous studies

conducted in Brunei and UiTM Malaysia 20.0 (IQR 2.0), with the latter reporting that a majority of Malay students (72.9% and 91.7%) had higher fast food consumption (7,8). Therefore, it can be assumed that fast food consumption is common among female university students in their early twenties.

Our findings also show that undergraduate students at the IIUM Kuantan campus had normal BMI, which echoes those reported in previous studies (16-25). Sajjad et al. believe that most students have a strong concern about weight control (21). Interestingly, the undergraduate students in this study had a

moderate level of physical activity compared to university students in Saudi Arabia who did not exercise regularly (75.3%) and medical students in Sudan who had a low level of physical activity (44.9%) (18, 20). Other studies conducted in the Brunei and Malaysian settings also echo the rarely-exercising pattern (38.0-68.9%) among students (7,8).

Most students in our study were dependent on education scholarships to support their living and purchase their food. This is consistent with Mokhtar et al. who found that students mainly depend on education loans (30.3%) and parents (39.9%) for their expenses (8). In this study, the students' food expenditure was slightly lower than that of students in Thailand, who had a monthly allowance of 7000 baht ($\pm$ RM 890) or less on food, and in UiTM Malaysia, who were willing to pay more than RM 30 per fast food meal (8,19).

Factors Related To Fast Food Consumption

The majority of participants agreed that they were prompted to consume fast food due to tempting food advertisements on the Internet (58.9%) and television (21.0%) (27). Past research has reported that undergraduate students are mainly influenced by promotional offers (55.8%) and coupons/promotions (37.9%) to purchase fast food (8).

Since university students are bound by tight academic schedules, factors like convenience (61.8%) and personal preference (59.7%) contributed towards their fast food' consumption. It aligns with previous findings, which noted that the lack of time (25-95%), lack of access (17%), taste preferences (17%), closing time (93%), and several other reasons (18%) had positioned fast food as the main option for many students, particularly as most universities do not allow their students to cook in hostels for safety reasons (8,18,25,27,28).

While 56.6% of undergraduate students in our study admitted to buying fast food due to its affordability, it falls short of the findings by Mokhtar et al., who found that 90.3% of students preferred to consume fast food due to the low price (8). Similarly, an affordable price was one of the considerations for students in Brunei when purchasing food (7,8). It could be hypothesized that fast food is sold much cheaper with more varieties in

the east-coast region than in the west-coast region of Malaysia.

Sajjad et al. reported that female students often ate fast food on special occasions, whereas male students did so when they were with friends (21). This contradicts our findings, whereby only 9.1% of undergraduate students at IIUM Kuantan chose fast food to be enjoyed with their peers during sociable moments, which is similar to a local study (29). These findings suggest that factors influencing fast food consumption are diverse and vary across universities and geographical locations.

Dietary Habits among Students

Our study revealed an inconsistent pattern of taking breakfast, lunch, and dinner regularly among the undergraduate students. A similar pattern was observed in Sahaskul et al., whereby nearly half (55.8%) of undergraduate students in Thailand consumed less than three meals per day, while 32.5% often skipped breakfast (19). A survey involving 584 students from Mahidol University also highlighted that 45.2% skipped breakfast, particularly those enrolled in the Faculty of Sciences and Technologies, the Faculty of Social Sciences and Humanities, and the Faculty of Health Sciences (19). Additionally, more than half of undergraduate students in Brunei only eat three meals per day (52.5%) and often skip breakfast (57.4%) (7).

These findings contradict a study in Saudi Arabia, where students always take breakfast, lunch, and dinner (18). However, an alarming pattern exists: 77.9% of university students prefer consuming fast food during dinner (8). While Malaysian adults seem to have a balanced dietary intake, the food quality remains questionable, deeming them not adhering to healthy lifestyle guidelines (2). This is also addressed in Sajjad et al., who found that 51.4% students preferred consuming fast food as snacks (21). This may explain the low consumption of vegetables and fruits among university students in our study. A similar issue was also highlighted by Tok et al., whereby only 23.4% and 9.2% of participants consumed vegetables and fruits every day, which is relatively low (7).

Fast Food Consumption among Students

Most of our respondents reported consuming fast food once per month or less (42.9%),

while 40.8% reported consuming fast food once per week and 16.4% twice per week or more. This aligns with Mokhtar et al., who found that 32.8% of students agreed that they liked fast food and 90.4% consumed fast food at least 3 to 4 times a month (8). Another study also highlighted that 32.7% of Malaysian students preferred fast food, with 28.9% of male students and 34.8% of female students consuming fast food between 2 to 3 times a month (9). On the other hand, 89.4% of students in Brunei consumed fast food less than 3 times a month (7), while 43.3% of students in Thailand were more inclined towards unhealthy food choices (19). These findings prove that university students often have a higher tendency to consume fast food regularly throughout their study period, particularly if it is easily accessible.

Regarding menu preference, university students in our study preferred fried chicken (35.6%) daily or beef or chicken burgers (16.1%) weekly, together with 1 - 3 servings of French fries (18.2%) and nuggets (13.2%). A similar preference towards French fries (30.0%), pizza (35%), and fried chicken (21.8%) was also captured in Sajjad et al. (21). Furthermore, other food items, such as ice cream, fruit and vegetable boxed juice, bubble tea, crunchy snacks, and burger joints, are becoming trendy in fast food consumption (9,19,24,26). However, past research reported low preferences for frozen (16.3%) and fast food (24%) among university students (18). Such inconclusive findings leave this issue open for further discussion.

Despite having a weak correlation, students' general preference for unhealthy food choices should be addressed as it may affect their health, especially body weight (22). Having healthy meals on campus has been associated with lower adherence to unhealthy food choices, including sausages, whole wheat bread, and cheese-based breakfast (24). Future research should obtain the latest data from undergraduate students due to the wide variety of fast food available in the market today.

CONCLUSION

Among the 385 respondents, 42.9% reported consuming fast food once per month or less, 40.8% once per week, and 16.4% twice per week or more. Taste, convenience, personal preference, affordability, and promotional offers were the most frequently selected

reasons for consumption. This study used a single-campus, cross-sectional sample and descriptive analysis; therefore, the findings should not be interpreted as demonstrating causal or independent associated factors. Further multicentre studies using probability sampling, validated measures, and multivariable analysis are needed.

LIMITATIONS AND RECOMMENDATIONS

The collection of data in this study was limited to undergraduate students from a single university. Thus, the findings may not be applicable to other populations. Larger-scale studies should be conducted in the future to improve the generalisability of the findings and expand the view on fast food habits by including the perspectives of other populations. Additionally, under- or over-reporting of dietary habits might occur from the use of questionnaires during data collection, necessitating the findings to be treated with caution.

CONFLICT OF INTEREST

The authors declare no competing interests.

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AUTHOR CONTRIBUTIONS

SNS: Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision.

NAMS: Validating and verification of the development of research instrument.

NAI: Provision of study material for literature review and involvement in data collection.

AA: Provision of study material for literature review and involvement in data collection.

AAB: Preparation, creation and/or presentation of the published work, specifically writing the initial draft.

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