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Research Article

Socio-Demographic Determinants of Fast-Food Consumption in Malaysian Young Adults

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ABSTRACT

Fast-food is the fastest-growing food category in the world, offering young adults a quick, affordable, and readily available alternative to home-cooked meals. The objective of this study was to determine the socio-demographic determinants of the most frequent fast-food consumption among young adults in Malaysia. This cross-sectional study involved 405 Malaysian young adults aged 18 to 29 who participated in an online survey. This self-administered online questionnaire of habitual fast-food consumption was evaluated using a modified Fast-food Frequency Questionnaire comprised of 30 food items, while the socio-demographic profile was determined by age, gender, ethnicity, monthly household income, marital status, residence, and educational level. IBM SPSS Statistics version 25 (SPSS IBM, New York, USA) was used to analyse the data. The results indicated that the most frequently consumed fast-foods were fried chicken (77.6% of habitual consumption), ice cream (41.3%), and burgers (40%). A chi-square independence test revealed a statistically significant association between urban and rural residence and high fast-food consumption (i.e., fried chicken): $\chi^2(2, N = 405) = 22.924$, $p = 0.001$. However, there is no association between consumption of fast-food and gender ($\chi^2(2, N = 405) = 0.044$, $p = 0.834$), fast-food and age ($p = 0.403$), or fast-food and educational level ($p > 0.05$). Taken together, these findings have provided more information on the habitual consumption of fast-food by young adults. The Malaysian government and other health authorities may be able to develop an action plan to reduce obesity rates and other diseases associated with fast-food consumption among young adults.

Key words: Habitual fast-food, Malaysia, socio-demographic determinants, young adult

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INTRODUCTION

Fast-foods are described by the Ministry of Health as foods manufactured in huge quantities using standardised techniques and served quickly in restaurants (Ministry of Health, 2007), while the World Health Organization defined them as foods that can be made quickly and simply and are marketed as a quick meal or to be taken out in restaurants and snack bars (De Vogli *et al*., 2014). Fast-food consumption is common in busy lifestyles, and factors influencing people to consume fast-food in their daily lives include convenience, saving time, taste (Che *et al*., 2016), and immediately available alternative to home-cooked meals (Goyal & Singh, 2007). Eating outside is a popular trend among young adults these days, particularly among those who are very busy, university students, and those who do not have much time to prepare dinner at home or who are single. Fast-food has become one of the most popular meal options for the majority in Malaysia, or, in other words, their "daily main course," particularly among young adults (Ying, 2016). Several studies on how often young adults eat fast-food (Abdullah *et al*., 2015; Che *et al*., 2016; Vijayakumaran & Nur Amalina, 2018; Syafiqah *et al*., 2018) have found that more than 20% of young adults eat fast-food on a regular basis.

Studies on habitual fast-food consumption and socio-demographic determinants among young adults have sparked increased attention in recent years. This is because Afolabi *et*

al. (2013), Shori *et al*. (2017), and Monge-Rojas *et al*. (2013) all found that eating fast-food regularly is strongly linked to weight gain and is one of the main reasons why the number of obese people is rising. Excessive fast-food intake (typically highly processed, greasy, and heavy in calories and salt) is linked to an increased risk of obesity and other related diet diseases (Abraham *et al*., 2018; Mohammadbeigi *et al*., 2018; Alsabieh *et al*., 2019; Mokhtar *et al*., 2020; Khan *et al*., 2021). Based on Nutrition Research Priorities in Malaysia under the 11th Malaysia Plan 2016–2020, it stated that research about fast-food consumption ranks third under Area 3 Life Course Food Intake and Dietary Practices. However, there has been little research done on the most frequent fast-food consumption and socio-demographic determinants among young adults in Malaysia. The research gaps stated in this study support human nutrition policies that impact short- and long-term nutrition outcomes. Based on the National Plan of Action for Malaysia III 2016–2025, the suggested plan is to establish guidelines, display nutritional information on the menu, and reduce the serving size of fast-food. This study also aims to determine the habitual fast-food consumption of young adults so that a module of interventions focusing on young adults in Malaysia can be created in the future. Thus, hopefully, it can reduce the obesity rates by 17.7% (Institute for Public Health, 2015). All in all, this study looks at the social and demographic factors that affect how often young adults in Malaysia eat fast-food.

MATERIALS AND METHODS

This cross-sectional study was conducted among young adults on an online platform throughout Malaysia between September and November 2021, involving four main regions: the northern region (Perlis, Kedah, Perak, and Pulau Pinang), the east coast region (Kelantan, Terengganu, and Pahang), the central region (Selangor, Kuala Lumpur, and Putrajaya), the southern region (Negeri Sembilan, Melaka, and Johor), and Sabah and Sarawak. The research was conducted throughout Malaysia via convenience sampling approach, with a focus on peninsular Malaysia. The study involved 405 young adults aged 18 to 29 years old. The sample size was calculated based on the Cochran formula. The proportion refers to the frequency of fast-food consumption among younger participants in Selangor, which is 52.5%, taken from Abdullah *et al*. (2015). Since the study was conducted online and attrition was about 10% (Hoerger, 2010), the minimum sample size derived from Cochran's formula was 383 respondents. After reading the subject information sheet, respondents who agreed to participate provided written informed consent. The participant filled out the questionnaire.

The research tool is an online, self-administered, bilingual (Bahasa Malaysia and English) questionnaire that has two main parts: the socio-demographic profile, and the fast-food frequency questionnaire. Part I of the research instrument was socio-demographic, and it included data derived from respondents' profiles such as age, gender, ethnicity, monthly household income (based on Malaysia's Household Income and Basic Amenities Survey Report 2019), educational level, marital status, residential area (i.e., urban or rural area), and employment status. All of these sociodemographic factors were discovered to play a significant role in determining fast-food consumption among young adults. Residential areas include people who live in urban or rural locations based on their self-perception. Rural refers to areas outside of towns and cities, while urban refers to "gazetted territories with adjacent built-up regions with a combined population of 10,000 or more at the time" (Department of Statistics, 2020). Part II of the research instrument consists of the fast-food frequency questionnaire, which has the type of fast-food and the frequency of fast-food consumption monthly that the respondent has to tick according to their eating habit. Food Frequency Questionnaires (FFQ) are dietary data collection tools that use a context-specific food list to estimate the typical diet and investigate the relationship between consumption patterns and health consequences, but in this study they were used to determine the frequency of fast-food consumption. The fast-food frequency questionnaire is based on the Malaysian Adult Nutrition Survey (MANS) FFQ questionnaire. We have extracted the food group that is focusing solely on processed food products, which has 30 items on a 10-point scale. The frequency of fast-food consumption was classified using a 10-point scale ranging from 10 equals 1 time per day, 9 equals 2 times per day, 8 equals 3 times per day, 7 equals 1 time per week, 6 equals 2 times per week, 5 equals 3 times per week, 4 equals 1 time per month, 3 equals 2 times per month, 2 equals 3 times per month, and 1 equals never. Here is the formula for determining the score for habitual fast-food consumption, where S is the scale rating and R is the percentage of respondents who chose that rating (Chee *et al*., 1996).

$$\text{Score} = \frac{R1S1+R2S2+R3S3+R4S4+R5S5+R6S6+R7S7+R8S8+R9S9+R10S10}{10}$$

R=percentage of respondent
S=frequency of the fast-food consumption

The resulting score was determined by the range indicating the level of fast-food consumption:

0% to 29.9% indicates low, 30.0% to 79.9% indicates medium, and 80% to 100% indicates high consumption of fast-food (Chee *et al*., 1996). The questionnaire went through pilot testing to make sure it was error-free prior to conducting the real research data collection. The questionnaire took between 10 and 15 minutes to be completed. Prior to submission, all questions must be addressed in order to ensure that no data is missing or incomplete. The data obtained was calculated in IBM SPSS Statistical Version 25 (SPSS IBM, New York, USA), and the frequency of fast-food consumption was calculated using Chee *et al*. (1996) formula and later keyed into SPSS. The normality test was used to check the distribution of normality prior to data analysis. Descriptive analysis was used to determine the socio-demographic profile. In describing the participants' socio-demographic profile, mean or median, frequency, and percentage were applied. The Chi-square test was used to explore the association between the most frequent fast-food consumption and socio-demographic determinants among young adults in Malaysia. The significant level is set at $p < 0.05$.

RESULTS AND DISCUSSION

Socio-demographic profile of respondents

Table 1 outlines the sociodemographic profile of young adults as a whole as acquired through the study. At that point, males made up 15.6% of the population, while females made up 84.4%. The majority of respondents were between the ages of 21 and 23 (63%), with 32.8% being between the ages of 18 and 20. Aside from that, respondents between the ages of 24 and 26 made up 4% of the population, while those between the ages of 27 and 29 made up another 0.2 %. The median for all age groups was 22. Malay respondents make up a significant part of the total (95.3%). Then, there are the Chinese (3.7%), Indians (0.7%) and others (0.2%). The highest monthly income of the family ranged from MYR 4850 to MYR 10959, or 83.7%. Most of the people who took part in this study were single (99.8%), and only 0.2% of them were married. The majority of respondents came from rural areas (77%), while only 23% came from urban areas. In terms of educational attainment, the majority of respondents are currently pursuing a degree (88.1%). Other respondents included those with an SPM or below (4.4%), those with a diploma (7.2%), and others (0.2%). The majority of

Table 1. Socio-demographic profile of respondents (n=405)

Socio-demographic profile	n (%)	Median (IQR)
Gender		
Male	63 (15.6)	
Female	342 (84.4)	
Age		
18-20	133 (32.8)	
21-23	255 (63.0)	22 (1)
24-26	16 (4.0)	
27-29	1 (0.2)	
Ethnicity		
Malay	386 (95.3)	
Chinese	15 (3.7)	
Indian	3 (0.7)	
Others	1 (0.2)	
Monthly Household Income*		
Less than MYR 4849	62 (15.3)	
MYR 4850-MYR 10959	339 (83.7)	
More than MYR 10960	4 (1.0)	
Marital Status		
Single	404 (99.8)	
Married	1 (0.2)	
Divorced	0 (0.0)	
Windowed	0 (0.0)	
Residence		
Urban	93 (23.0)	
Rural	312 (77.0)	
Educational Level		
SPM or Below	18 (4.4)	
Diploma/Foundation/Matriculation/STPM	29 (7.2)	
Currently doing Degree	357 (88.1)	
Others	1 (0.2)	
Employment Status		
Employed	36 (8.9)	
Housewife	1 (0.2)	
Student	368 (90.9)	

*Household is based on Household Income and Basic Amenities Survey Report 2019, Department of Statistic Malaysia.
MYR = Malaysian Ringgit, 1 USD = 4.6 MYR

respondents were students (90.9%).

From 405 participants, we may deduce that the majority were female and students, with an average age of 21 to 23 years. The majority of participants were single, Malay, from rural regions, had a monthly household income of between MYR 4850 and MYR 10959 per month, and were currently pursuing a degree.

Habitual Fast-food Consumption

Table 2 shows that habitual fast-food intake was estimated and displayed in order of the highest to the lowest monthly frequency of consumption. For fried chicken, the percentage score is 77.6%, indicating that it is the most frequently consumed fast-food item in comparison to others. According to ALFaris *et al*. (2015), adolescents and young adults consume fast-food at least once a week (79.1%). According to Mokhtar *et al*. (2020), 90.4% of young adults consume fast-food at least three to four times each month.

Because only one type of meal was reported to be consumed more frequently than the others, it is a good indicator that fast-food consumption has not yet reached a saturation point. In comparison to the Mohammadbeigi *et al*. (2018) study, fried chicken consumption in this study is relatively high at 77.6%. According to research conducted by Mohammadbeigi *et al*. (2018) in Qom, Iran, the most popular fast-food items consumed were sandwiches (44.4%), and pizza (39.7%), but only 13.8% frequently consumed fried chicken. According to ALFaris *et al*. (2015) study in Riyadh, the most frequently consumed fast-food meals were beef or chicken burgers (70.4%), followed by pizza (32.7%), and French fries (29.6%). That was not the case in this study, owing to the socio-food cultural variations between the Arabs and the Malaysian population. According to Mohammadbeigi *et al*. (2018), 72.4% and 34% of adults had consumed at least one type of fast-food in the preceding month and week, respectively.

Fast meals are mainly poor in micronutrients, low in fibre, high in calorie density, and have a high glycemic load, and may contribute more than their daily energy requirements (Shah *et al*., 2014; Leal, 2021). Due to its exceptionally high calorie density, fast-food intake is associated with becoming overweight or obese, which is associated with a variety of additional diet-related diseases (Goon *et al*., 2014; Zhao *et al*., 2017; Mohammadbeigi *et al*., 2018; Ain *et al*., 2019; Man *et al*., 2021). According to Mohammadbeigi *et al*. (2018), fried meals and hotdogs have been connected to an elevated risk of obesity and weight gain. This corresponds to the study's findings since fried chicken is the most frequently consumed fast-food. Perhaps there is a case to be made for expressing worry about fast-food consumption. According to Abdullah *et al*. (2015), 68.3% of respondents eat fast-food at least once per month. The majority of survey respondents are students, which explains why they are only able to consume fast-food once each month, maybe due to financial restrictions. Mokhtar *et al*. (2020) showed that 15.5% of students avoided fast-food due to health and financial concerns. The busy lives of young adults make them want to treat themselves to fast-food every once in a while. A previous study discovered that the majority of young people consume fast-food more frequently than any other age group, which is consistent with this study (Bahadoran *et al*., 2013; Abdullah *et al*, 2015; ALFaris *et al*., 2015; Abraham *et al*., 2018; Younis & Eljamay, 2019; Dowarah *et al*., 2020). While the majority of individuals dine out, the availability of home delivery services by the majority of fast-food firms has increased community access to fast-food, notably during the COVID-19 epidemic. As a result, fast-food is now easily accessible without leaving the house and risking infection. The most plausible causes for the high level of fast-food consumption are that it is ready to eat and saves time and work in the kitchen (Ameen *et al*., 2018).

Association between most frequent fast-food consumption and socio-demographic profile

The main purpose of this study was to focuses on the association between socio-demographic and the most frequent fast-food consumption of Malaysian young adults. The association between gender, age, residency, and educational level was calculated in Table 3. A chi-square independence test revealed a statistically significant association between urban and rural residence and high fast-food consumption (i.e., fried chicken): $\chi^2(2, N = 405) = 22.924$, $p = 0.001$. However, there is no association between consumption of fast-food and gender ($\chi^2(2, N = 405) = 0.044$, $p = 0.834$), fast-food and age ($p = 0.403$), or fast-food and educational level ($p > 0.05$).

There was an association between residence and the frequency with which young adults in Malaysia consumed fast-food, consistent with the literature. This study confirms the findings of a prior study by Shi *et al*. (2004) conducted in China, which demonstrated a correlation between residences and fast-food consumption. The study by Shi *et al*. revealed that urban living was positively associated with the consumption of high-energy items, including those of animal origin, Western-style cuisine, and dairy products. This finding is also consistent with that of Man *et al*. (2021) study conducted in Malaysia, where it was found that residency has a substantial impact on fast-food intake. Man's study analysed data from the National School-Based Nutrition Survey (NSNS), which is a nationwide, cross-sectional survey involving

Table 2. Frequency scores of fast-foods consumed by respondents (n=405)

Food Items	Score
Highly consumed food (Score 80.0-100.0)	
	0.00
Moderately consumed food (Score: 30.0-79.9)	
Fried Chicken	77.6
Ice Cream	41.3
Burger	40.0
Sauce	37.7
Soft drinks	37.3
French Fries	35.4
Mayonnaise	35.2
Mashed Potato	33.0
Sweet Beverages	32.9
Less consumed food (Score: 0-29.9)	
Nuggets	27.3
Hot Dog	26.3
Salad Dressing	25.9
Pastry	25.7
Pizza	25.6
Fish cakes	25.1
Instant White Rice	25.0
Spaghetti	25.0
Coleslaw	24.2
Meatball	23.8
Waffle	23.8
Battered fish	23.2
Cake	22.8
Instant Porridge	22.7
Pie	22.7
Donuts	22.6
Sandwich	22.5
Pancakes	21.5
Onion Rings	19.4
Bacon*	3.7
Ham*	3.8

Food items with (*) are non-halal food that are forbidden for Muslim to consume.

Table 3. Association between sociodemographic determinants and highly fast-food consumption 'fried chicken' (n=405)

Sociodemographic determinants	Fried chicken		χ^2	*p* value
	Non-daily consumption	Daily consumption		
	n	n		
Gender				
Male	7	56	0.044[a]	0.834
Female	35	307		
Age				
≤ 23 years	39	349		0.403[b]
≥ 24 years	3	14		
Residency				
Urban	22	71	22.924[c]	0.000*
Rural	20	292		
Education level				
Degree	37	320		1.000[d]
No degree	5	43		

* significant at $p < 0.05$
[a] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.53.
[b] 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.76 (thus, use Fisher exact test).
[c] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.64.
[d] 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.98 (thus, use Fisher exact test).

adolescents aged 10 to 18 years. Cheong *et al*. (2019), who also conducted research in Malaysia, discovered no significant relationship between fast-food consumption and residential area.

In this study, other socio-demographic variables, such as gender and age, did not significantly influence the consumption of fast-food. This result contradicts the findings of Mohammadbeigi *et al*. (2018), who discovered an association between gender and intake of fast-food. Females consume fast-food at 2.9 times the rate of males, according to Mohammadbeigi *et al*. In addition, Man *et al*. (2021) have shown that there is a correlation between ages. Man *et al*. (2021) observed that 16- to 18-year-old adolescents consume more fast-food than their younger counterparts. This differs from the results provided in this study, which found no association between gender, age, and educational level. Hidaka *et al*. (2018), on the other hand, found no significant link between age and eating fast-food, which is the same as what this study found.

The study's drawback is that it was conducted on an online platform due to the COVID-19 pandemic when doing face-to-face studies were restricted. As a result, some limitations of this study exist, such as the difficulty in determining actual dietary intake from fast-food consumption, the nutrition profile, or the respondents' proclivity to forget or underestimate the frequency of fast-food consumption. As a result of these shortcomings, the study is limited in its investigation of the association between fast-food consumption and any diet-related diseases (for instance, overweight or obesity). Despite its limitations, the study certainly adds to our understanding of fast-food consumption and socio-demographic determinants among young adults in Malaysia. In the future, further research may be conducted face-to-face to assess the fast-food consumption of young adults with great accuracy. If more consistent and tangible proof of fast-food consumption is needed, a more complete study must be conducted that includes all conceivable factors that influence fast-food consumption. A more accurate understanding of fast-food consumption prevalence could be achieved if more different elements of respondents were considered, such as a larger sample size, racial differences, and a broader geographical location. The addition of portion size or portion weight might result in more research being conducted. More information on the types of fast-food consumed by young adults would help us establish a greater degree of accuracy on this matter. A greater emphasis on fast-food consumption may yield interesting results that account for more of the causes of overweight and obesity and may indirectly reduce their prevalence through a well-developed intervention programme aimed at combating these diseases' prevalence.

CONCLUSION

The most obvious finding to emerge from this study is that fried chicken was the most frequently consumed fast-foods among the young adults in this study followed by ice-cream and burgers. The study discovered a substantial correlation between residency and the most frequently consumed fast-food, "fried chicken," among Malaysian young adults. This study aims to establish a baseline for the consumption of fast-food and socio-demographic determinants among young adults in Malaysia. If necessary, the data gained from this study could provide information for the government and other health-authorities to develop an action plan to minimise the prevalence of obesity and other diet-related diseases connected with fast-food consumption among young adults in Malaysia.

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ETHICAL STATEMENT

The human ethical approval was approved by the boards of human ethics committee of University Malaysia Terengganu with the reference number: UMT/JKEPM/2021/71.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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