



Dietary Habits among University Students in Malaysia

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ABSTRACT: University students are going through a transitional phase in which lifelong dietary habits will be cultivated; making this a very important phase in which to promote healthy behaviors. This cross-sectional study examined the dietary patterns in 209 Malaysian university students using a structured dietary habits questionnaire. It was found that 74.6% of the student's skipped breakfast at least 3 or more times a week, and that 40.7% reported daily intake of juices. Only 8.6% recommended daily intake of vegetables, while snacking was moderately common, with 30.6% indicating that they snack at least 3 times in a week. Overall, these results suggest that the Malaysian university students reported irregular meal patterns, high intake of energy dense foods, and low intake of vegetables. Therefore, universities should take a lead role in providing education of nutrition, making a healthy campus environment from food aspects, and encouraging healthy eating habits that will aid in the reduction of long term risks of diet related chronic disease.

Keywords: dietary habits; university students; nutrition; lifestyle behaviors; obesity

I. INTRODUCTION

In Malaysia, dietary trends are heavily changing, with food patterns increasingly diverging from traditional diets and continuing towards a more westernized diet and high-energy foods. This transition aligns with the growth of the country's rapid economic growth and urbanization (Norimah et al., 2008; Goh et al., 2020). Food balance sheets and national surveys have shown that in Malaysia, food in kilocalories available (supply) was at least 30% greater than the population size from 1980 to 2014. During this time, people consumed increased amounts of wheat, meat, sugar, and eggs and the ratio of plant protein to animal protein decreased (Goh et al., 2020). Dietary survey data from the National Health and Morbidity Surveys, identified two main dietary behaviors from the categories of dietary patterns, Traditional (includes local cakes, fish, and eggs); western (fast foods, meats, sugary drinks); and mixed (cereals, vegetable). Of the dietary behaviors, Traditional pattern was linked to lower odds of overweight and obesity in 2003 (Shyam et al., 2017), which indicates the health benefits of the Traditional diets.

At the individual behavior, reliance on cross-sectional data in low-income Malaysian adults, over 89% did not have enough consumption of fruits and vegetables which is concerning to the WFP, with over two-thirds of respondents frequently drinking sugar-sweetened beverages (SSBs). There is also a dependence on ultra-processed types of foods in the Malaysian diets, especially with inheritance from the Malays and Indians (Eng et al., 2022). More evidence from controlled observational studies indicates that Malaysian adults have a caloric intake of around 1,550 kcal per day, and lack produce such as fruits, vegetables, and dairy, and have higher intakes of carbohydrates, meat, and fat, especially in male participants' diets (Lee et al., 2019). These converging lines of evidence amalgamate to give a clear picture of who Malaysians are as modern eaters. Evidently, modern Malaysians now have higher caloric consumption from higher processed food consumption, and lack certain nutrients like fruits, vegetables, and dairy foods. This presents the risk of being overweight, obesity, and

metabolic disorder risks. Overall, we urgently need policy and educational recognition of how we can advocate healthy traditional dietary measures to encourage better nutrition for the whole population. This study set out as the main objective to explore the diet of university students in Malaysia, and subsequently compared with Japan.

II. METHODOLOGY

This study employed a cross-sectional design to assess dietary patterns of Malaysian adults. The quantitative survey approach was applied since it offers the opportunity to collect detailed food consumption information, food frequencies, and meal pattern information among 209 Universiti Pendidikan Sultan Idris university students. The respondents were Malaysian adults aged 18 years and older who were selected from urban and rural settings to ensure representativeness in terms of socioeconomic and ethnic groups.

A stratified random sampling technique was used with strata defined as geographical region, ethnicity, and urban–rural location in accordance with the sampling plan that was used in the Malaysian Adult Nutrition Survey (MANS). Sample size was calculated through the formula for the prevalence studies and 95% confidence level and 5% margin of error to produce a minimum sample of approximately $n = 209$ participants. Food intake was assessed using a validated semi-quantitative Japanese Dietary Habit (Wong & Murata, 2017).

The information was gathered online using the Google Forms. Participants were asked to complete the informed consent form prior to accessing the questionnaires. The questionnaire took approximately 10 minutes to complete. Participants were assured of confidentiality and informed that they were free to withdraw at any point without incurring penalty. Ethical clearance was granted by the Research Ethics Committee. All protocols were in line with ethical guidelines according to the Declaration of Helsinki. Descriptive statistics were determined for the presentation of demographic data and questionnaire scores. All analyses were conducted using SPSS version 30.

III. RESULT

A total of 209 students (54 males and 155 females) participated in this study. Figure 1 showed that 66% of the subject has normal body mass index (BMI), and 1.4% categorized as extremely obese. The participants mostly from other field of study with 53.1%, followed by pure and applied science 19.6%, sports 15.8% and social science 11.5%.

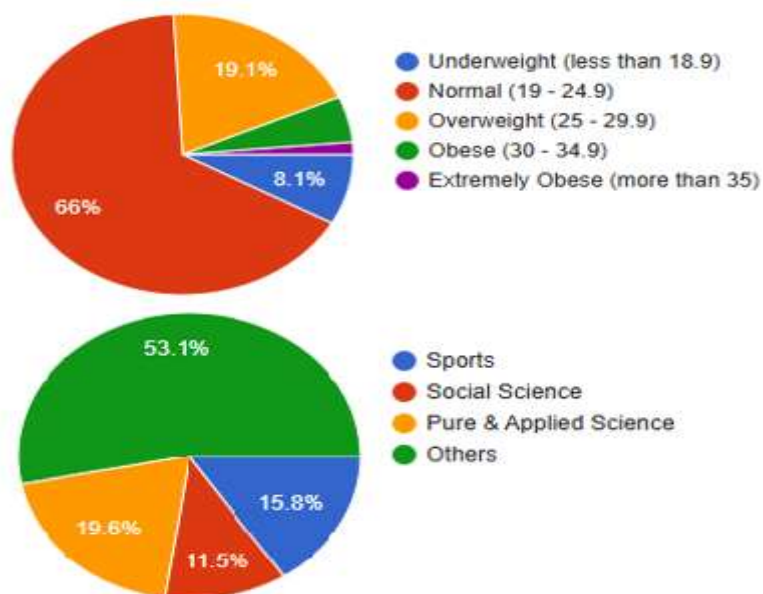


Figure 1: Demographic profile of university students

Table 1 showed the comparison between Malaysia and Japan in terms of dietary habits. Breakfast skipping was common in Malaysia, with 74.6% of participants reporting that they skipped breakfast at least three times per week, and 25.4% rarely consumed breakfast at all. On the other hand, Japan showed that 81% have less than 3 times skipped the breakfast. Juice intake was also high, with 40.7% reporting daily consumption in Malaysia, while Japan preferred green tea with 37%. The students tend to start their meals with rice with 45.5% compared to Japan which started with vegetable dish by 58%. Both countries demonstrated that they would like to lose weight with 66.5% and 67%.

Table 1: Comparison of dietary habits between Malaysia and Japan

Questions and answers	Malaysia (n=209)		Japan (n=305)	
	n	(%)	n	(%)
Question 1: Which food item do you start with at meals?				
<i>Vegetable dish (Salad included)</i>	18	8.6	178	58
<i>Meat dish (Fish included)</i>	22	10.5	39	13
<i>Soup or drink (or Water)</i>	74	35.9	69	23
<i>Rice (or Noodles/Pasta)</i>	95	45.5	19	6
Question 2: How long does each meal last on average?				
<i>Less than 10 minutes</i>	21	10	21	7
<i>10 to 29 minutes</i>	72	34.4	227	74
<i>30 to 59 minutes</i>	34	16.3	51	17
<i>60 minutes or more</i>	82	39.2	6	2
Question 3: How many times do you chew before swallowing?				
<i>Less than 10 times</i>	65	31.1	92	30
<i>10 to 19 times</i>	95	45.5	178	58
<i>20 to 29 times</i>	35	16.7	31	10
<i>30 times or more</i>	14	6.7	4	1
Question 4: How often do you skip breakfast?				
<i>3 times or more per week</i>	156	74.6	57	19
<i>Less than 3 times per week</i>	53	25.4	248	81
Question 5: When do you have the last meal of the day?				
<i>Less than 2 hours before sleeping</i>	69	33	85	28
<i>More than 2 hours before sleeping</i>	140	67	220	72
Question 6: When do you stop eating?				
<i>Stop at 80% satiety (80% full)</i>	141	67.5	157	51
<i>Stop at 100% satiety (until I am full)</i>	68	32.5	148	49
Question 7: What will you choose when you want to drink something other than water?				
<i>Green tea</i>	50	23.9	113	37
<i>Coffee (without sugar)</i>	11	5.3	77	25

<i>Black tea (or other kinds of tea)</i>	21	10	61	20
<i>Coffee (with sugar)</i>	33	15.8	20	7
<i>Juice (or Non-carbonated drinks)</i>	85	40.7	18	6
<i>Carbonated drinks (Zero-calorie drinks included)</i>	9	4.3	15	5

Question 8: What do you use to sweeten your drink or food?

<i>Sugar</i>	147	70.3	232	76
<i>Other sweeteners</i>	62	29.7	73	24

Question 9: How often do you snack after dinner?

<i>3 times or more per week</i>	64	30.6	66	22
<i>Less than 3 times per week</i>	145	69.4	239	78

Question 10: Do you want to lose weight?

<i>Yes</i>	139	66.5	204	67
<i>Not really</i>	70	33.5	101	33

IV. DISCUSSION

Most Malaysians begin their meals off with rice and noodles as this is the staple food of choice in the country. This finding is different from those of Japanese where most start their meals off with vegetables (58%) or soup (23%). Eating vegetables first is a simple and effective intervention for improving glycemic parameters in diabetic Japanese patients (Imai et al., 2009). The time of salad consumption seems to affect energy consumption, by enhancing satiety and reducing the energy density per meal, as noted in previous studies (Rolls et al., 2004). In this study, vegetable consumption was alarmingly low with 21% of students meeting Malaysian Dietary Guidelines of at least five servings per day. The survey results were similar to the results of Koo et al. (2020), which found Malaysian adolescents to not be consuming enough fruits and vegetables. In contrast, Ishikawa et al. (2021) reported that nearly half of Japanese participants consumed vegetables every day. This likely continues to indicate the role of cultural paradigms towards dietary preferences.

Fast rates of eating have also been found to increase the risk of Type 2 diabetes mellitus and obesity (Ohkuma et al., 2013; Sakurai et al., 2012). This survey found that only 10% of participant's completed their meals in 10 minutes or less and that the most common eating duration was the 10-29 minute group accounting for (62.2%). 6.7% of respondents reported that they took 30-59 minutes to finish an average meal. In addition to eating slower, increases in mastication (chewing) have also been shown to have a protective effect on obesity and type 2 diabetes risk (Yamazaki et al., 2013; Li et al., 2011). The survey results found that nearly 45.5 % of survey respondents chewed 10-19 times before swallowing. Eating speed and chewing rate are behaviors that are both modifiable eating behaviors and should be able to be incorporated relatively easily as well no matter the environment you are presented with.

This study elicited some interesting results which almost 74.6% of students reported skipping breakfast at least three times a week, with the additional 25.4% indicating they rarely eat breakfast; the prevalence is much higher than the national prevalence among adults in Japan, which only reported that 19% skipped breakfast (Wong & Murata, 2017). To establish some context, it seems that for young adults in Malaysia, eating irregularly may be more typical. Skipping breakfast has been reported to be associated with poor concentration, weight gain, and long-term metabolic implications (Moy & Johari, 2014). In this survey, 67.5% of respondents successfully practiced this restraint during meals, and their BMI levels were significantly higher than those who ate until they were 100% sated. This is similar to the Japanese principle in stop eating at 80% satiety which called hara hachi bunme.

The most popularly consumed beverage in this survey after water was juice with a total of 40.7%. On the contrary, Japanese tends to drink green tea with a total of 37%. This was further explained because Japanese

not only showed they were associated with lower levels of obesity and cancer, it has also shown in large studies, it does have positive effect on overall mortality (Saito et al., 2015; Liu et al., 2016). Malaysian still preferred sugar to sweetened their drinks or food compared to other sweetener with 70.3%. This supported the result with relation to National Health and Morbidity Survey (2023) found that 54.4% of Malaysian adults were categorized as overweight. The survey showed that 30.6% consumed snacks after dinner at least three times a week. There is evidence that unhealthy food consumption, social media use and stress have the highest weightage for contributing overweight and obese issues for Malaysian university students. Majority of the students (66.5%) want to lose weight that shows that student had awareness of their eating habits to avoid obesity.

In conclusion, the dietary behaviors observed here underscore the gap between knowledge and behavior in young adults. While there is a high level of awareness about healthy eating, barriers such as time restrictions, academic pressures, peer pressure, and cost are influencing the uptake of unhealthy eating patterns. This is troubling since established dietary behaviors during the university years are adopted later in adult life and increase the likelihood of non-communicable diseases such as obesity, diabetes, and cardiovascular diseases (Musaiger et al., 2016). This study has limitations whereby the self-reported data may also involve recall bias or respondents may simply undervalue their usual consumption of unhealthy foods. The cross-sectional design also limits causal inference. Longitudinal tracking, combined with objective dietary assessment tools, would be a good approach for future research to see how dietary behaviors are developed during university years and how they affect people later in life.

V. CONCLUSION

This study illustrates dietary behaviors among Malaysian university students which include erratic meal patterns and insufficient consumption of fruits and vegetables. This study supports the concerning regional trends and reiterates the gap between the nutritional knowledge of student respondents and their actions. The concerning dietary practices and behaviors of university students are important public health concerns as they emerge from a critical transitional time in their lives, when they may develop a pattern of eating that lasts for a lifetime. Universities should leverage their power as health intervention points, through initiatives such as leading nutrition education, developing healthier food environments, and creating interventions that support an overall healthy lifestyle that promotes balanced eating. Future research should also utilize longitudinal study designs and objective dietary assessments to expand knowledge on how dietary practices develop during young adulthood and to assess the effectiveness of specific interventions.

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