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GENDER DIFFERENCE IN EATING AND DIETARY HABITS AMONG UNIVERSITY STUDENTS

Fazillah Bosli[1], Siti Fairus Mokhtar [2], Noor Hafizah Zainal Aznam [3], Juaini Jamaludin[4], and Wan Siti Esah Che Hussain[5]

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Healthy diet is essential for adolescents to prevent multiple diseases especially in later years of life. The purpose of this study is to determine the weight status based on body mass index (BMI) categories of a sample of undergraduate students and to examine their eating habits between gender. A total of 240 students from the Universiti Teknologi MARA (UiTM), Kedah Branch participated in this study. A sample of 100 (41.7%) male and 140 (58.3%) female aged 18 to 20 years were randomly chosen from various faculties and programmes. Primary data collected by distributing self-administered questionnaire and Pearson's Chi-Square was used to examine the association between significant gender differences with their eating habits. This study showed that 78.3% of students were normal weight and 10.8% overweight (14% male compared to 8.6% female). Frequency of meal intake for snacks, fruit, fried food, and smoking history were associated with gender.

***Keywords*:** Eating habits; Body Mass Index (BMI), University students

1. Introduction

Overweight and obesity among adolescence is prevalence in Malaysia. According to World Health Organization (WHO), overweight and obesity are defined as abnormal or excessive fat accumulation that can be harmful to health. To classify the category of obesity and overweight for adults, the Body Mass Index (BMI), a simple index of weight for height is commonly used. It is computed by taking a person's weight in kilograms and dividing it by his height in meters squared (Obesity and Overweight, 2021). BMI is a predictor of excellent physical function, sleep quality, and smoking habit among university students (Wan Mohamed Radzi et al., 2019).

Overweight and obesity have complicated history that is not fully understood. Diet, sufficient physical activity, genetics, social factors, behavioural cultural, environmental, or socioeconomic situations are all the variable that can be related with or contribute to youth overweight and obesity (Intiful et al., 2019). Fast food and soft drinks, as well as social media use and stress, are the factors that contribute to overweight and obesity among Malaysian university students (Wan Mohamed Radzi et al., 2019). Study by Patidar (2013), stated three types of obesity are upper truncal obesity or apple type, lower truncal obesity as known as pear type and third type of obesity.

The data reported from National Health and Morbidity Survey (NHMS) 2019, showed the national prevalence of underweight, normal, overweight, and obese for adults aged 18 and above was 6.5%, 43.3%, 30.4% and 19.7% respectively and generally obesity among adults was reported 52.6%, ranked Malaysia as the highest among all the six Southeast Asian. This problem is related to unhealthy dietary patterns, physical inactivity, and misperception of body image (Hoque et al., 2016). Unhealthy dietary habits also contribute to chronic diseases for the population in Malaysia. Nearly half of Malaysian adults suffered from high cholesterol or hypercholesterolemia, diabetes, and hypertension (Carvalho et al., 2016).

Therefore, eating habits have been a major concern among university students as a determinant of health status (Ganasegeran, 2012). Research by Yun et al. (2018), stated most university students had poor eating habits, although the majority had good nutrition knowledge. Only 6% of Malaysian adults eat enough fruits and vegetables, which is two servings of fruits and three servings of vegetables on their menu as suggested by the Malaysian Dietary Guidelines 2010 (Carvalho et al., 2016). Food habit, the way we use foods, from how it was chosen, acquired, distributed, prepares,

serve and eats is also an important aspect that should be given consideration by all (Hai et al.,2017). For having a healthy lifestyle, students should start with good food habit, eating well and physically active. Globally, students are aware of the importance of eating healthy foods (Mamun et al., 2020). Therefore, the purpose of this study is to determine the weight status based on body mass index (BMI) categories and to examine gender association with their eating habits.

2. Research Methodology

2.1 Sample

A total of two hundred and forty undergraduate students from the Univesiti Teknologi MARA, Kedah Branch had participated in this study. A sample of 100 (41.7%) male and 140 (58.3%) female aged 18 to 20 years were selected using simple random sampling chosen from various faculties and programmes.

2.2 Data Collection

Primary data was collected by distributing self-administered questionnaire. There were three sections in the questionnaire. The first section (Section A) consists of questions about demographic information such as gender, age, programme, part of the semester and residential zone. The second section (Section B) about height and weight information to determine the body mass index (BMI) of the respondents. Body mass index (BMI) used to categorize the weight status was calculated by using the formula body weight in (Kg) / body height (m^2). According to guidelines stated by the National Institutes of Health, the weight status was classified into four categories: underweight (BMI below 18.5), normal weight (BMI 18.5 to 24.9), overweight (BMI 25 to 29.9) and obese (BMI above 30). The third section (Section C) consisted of nine questions about lifestyle practices included the eating, drinking and smoking habits. The instrument used was adopted English-language questionnaire used in previous study by (Alshahrani and Chandramohan 2017, Yahia et al., 2008) consisted of nine multiple choice questions that need to be answered:

Q1. Do you take your meals regularly?
Q2. Do you take breakfast?
Q3. How many times do you eat meals except snacks per day?
Q4. How often do you take snacks apart from regular meals?
Q5. How often do you eat vegetables?
Q6. How often do you eat fruits?
Q7. How often do you eat fried food?
Q8. What type of foods do you think you should eat to maintain a healthy diet?
Q9. Please state your smoking history.

2.3 Data Analysis

Statistical analyses were performed using IBM SPSS Statistics. Analysis of Pearson's Chi-Square reported p-values were made on the basis of 2-sided tests and compared to a significance level of 5%. For comparing groups with less than five participants in each group, the Pearson Chi-square test was done. The association between significant gender differences with their eating habits was analysed using p-value based on Pearson Chi-square test for categorical variables.

3. Result and Discussion

3.1 Characteristic of participants

Table 1 presented the characteristics of the participants. A total of 240 students which is 100 male students and 140 female students participated in this study with the range of age 18 to 20 years. The mean and standard deviation of weight and height of the students were 57.66 ± 10.549 kg and 162.67 ± 9.156 cm.

Table 1: Characteristics of the participants (mean and standard deviation)

Variable	Male	Female	Total
Number of students	N=100	N=140	N=240
Weight (kg)	64.32 ± 8.664	52.91 ± 9.122	57.66 ± 10.549
Height (cm)	169.78 ± 6.170	157.59 ± 7.390	162.67 ± 9.156

3.2 Weight status

Table 2 indicated the weight status based on the measurements of BMI. The outcome in the study shows around (78.3%) of students are normal weight (81% of the male students compared to 76.4% of the female students). 10.8% of students are overweight (14% male compared 8.6% female) and only one female student is obese. In underweight category, female students had a highest percentage (14.3%) compared to male students (5%).

Table 2: Prevalence of weight status among university students based on BMI categories.

Variable	Male		Female		Total	
Weight Status	N	Percentage	N	Percentage	N	Percentage
Underweight	5	5	20	14.3	25	10.4
Normal	81	81	107	76.4	188	78.3
Overweight	14	14	12	8.6	26	10.8
Obese	0	0	1	0.7	1	0.4

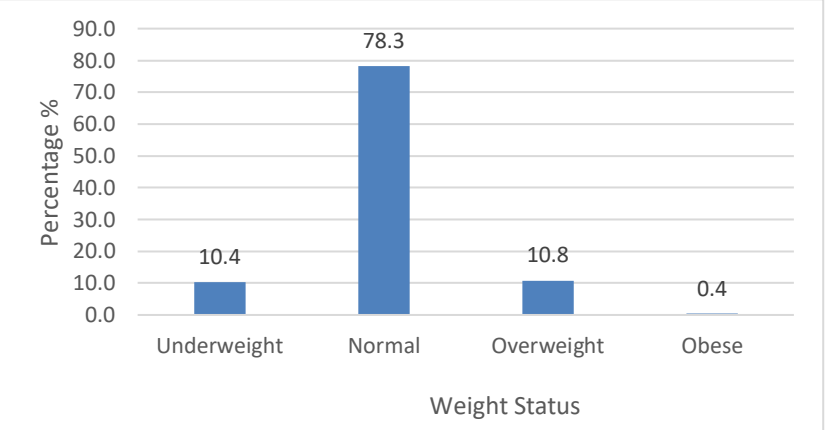

Figure 1: Weight status based on BMI categories

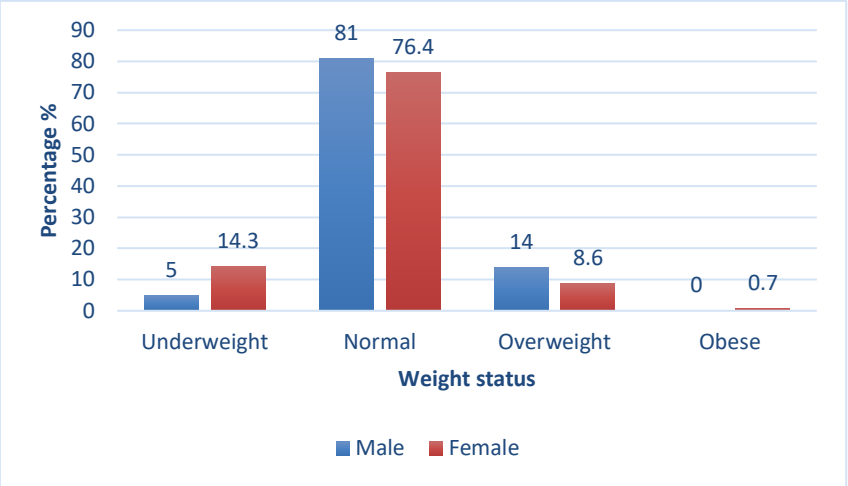

Figure 2: Weight status based on BMI categories by gender

3.3 Lifestyle practices

Table 3 shows the data analyses of students' lifestyle practices including the eating habits, meal patterns, food intake (snacks, vegetables, fruits, and fried food), and smoking habits were compared by gender. The majority students (58.8%) reported taking meal regularly which is 67% male compared 52.9% females. There was a significant gender difference in the frequency of meal intake ($p = 0.028$). In terms of breakfast consumption, male students had healthy habits than female students. 59% male students reported eating breakfast daily or three to four times per week compared to 45% female students. A total of 142 (59.2%) students eating two meals per day which is 63.6% females compared to 53% male students. Daily intake of snacks apart from regular meals was common among males than females (35% vs 18.6% respectively). There was a significance gender difference for frequency of snacks intake ($p = 0.000$). The data shows, only 17.9% students ate vegetables for daily meals with no gender differences (18% males vs 17.9% females). Majority 36.3% students reported rarely ate fruits which is 52% male compared to 25% female students. The unhealthy eating practice was indicated by the fact that the many (34.6%) of students taking fried food for the daily meals. Among males, 45% reported eating fried food daily per week compared to 27.1% female students. There was a significance gender difference in the frequency of eating fruits and fried food ($p=0.000$). For having the balance nutrition, 60% females compared to 49% male students ate meat, vegetables, and other varieties of food. Smoking was not common among students, almost of the students (72.5%) stated never smoke on the smoking history, 21.3% were current smoke and 6.3% were ex-smokers.

Table 3: Student's lifestyle practices including eating habits, meal patterns, fruits and vegetables intake, fried food, and smoking habit based to gender.

		Total		Male		Female		
Questions	Levels	N	%	N	%	N	%	p-value
Q1	*Do you take your meals regularly?*							
	always regular	141	58.8	67	67	74	52.9	0.028
	Irregular	99	41.3	33	33	66	47.1	
Q2	*Do you take breakfast?*							
	Daily	76	31.7	38	38	38	27.1	0.183
	three or four times per week	46	19.2	21	21	25	17.9	
	Once or twice per week	42	17.5	14	14	28	20.0	
	Rarely	76	31.7	27	27	49	35.0	

Q3	*How many times do you eat meals except snacks per day?*							
	one time	38	15.8	14	14	24	17.1	0.099
	two times	142	59.2	53	53	89	63.6	
	three times	49	20.4	26	26	23	16.4	
	four times	11	4.6	7	7	4	2.9	
Q4	*How often do you take snacks apart from regular meals?*							
	Daily	61	25.4	35	35	26	18.6	0.000
	three or four times per week	44	18.3	12	12	34	22.9	
	Once or twice per week	66	27.5	18	18	48	34.3	
	Rarely	69	28.8	35	35	34	24.3	
Q5	*How often do you eat vegetables?*							
	Daily	43	17.9	18	18	25	17.9	0.317
	three or four times per week	71	29.6	28	28	43	30.7	
	Once or twice per week	70	29.2	25	25	45	32.1	
	rarely	56	23.3	29	29	27	19.3	
Q6	*How often do you eat fruits?*							
	daily	31	12.9	12	12	19	13.6	0.000
	three or four times per week	55	22.9	18	18	37	26.4	
	Once or twice per week	67	27.9	18	18	49	35.0	
	rarely	87	36.3	52	52	35	25.0	
Q7	*How often do you eat fried food?*							
	daily	83	34.6	45	45	38	27.1	0.001
	three or four times per week	67	27.9	17	17	50	35.7	
	Once or twice per week	42	17.5	13	13	29	20.7	
	rarely	48	20.0	25	25	23	16.4	
Q8	*What type of foods do you think you should eat to maintain a healthy diet?*							
	mainly meat	19	7.9	8	8	11	7.9	0.233
	mainly vegetable	54	22.5	24	24	30	21.4	
	Meat, vegetables, and other varieties of food	133	55.4	49	49	84	60.0	
	others	34	14.2	19	19	15	10.7	
Q9	*Please state your smoking history.*							
	current smoker	51	21.3	48	48	3	2.1	0.000
	ex-smoker	15	6.3	15	15	0	0.0	
	never smoke	174	72.5	37	37	137	97.9	

4. Conclusion

As a conclusion, the prevalence of overweight and obesity among the population of university students was 11.2% and affected males 14% and females 9.3%. Majority of the students were aware about the type of food intake to have a balance nutrition; however, they tend to eat oily food instead of fruits and vegetables for daily consumption. There was a significant gender difference in the frequency of meal intake (0.028), frequency of taking snacks and eating fruits (0.000), frequency of eating fried food (0.001) and smoking history (0.000).

Public health intervention is required to avoid the number of obesities among university students increased. Hence, multilevel nutritional interventions can also be precious to promote healthy eating behavior and dietary consumption among university students.

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