

The Relationship Between Body Mass Index (BMI) and Lifestyle of Students in the Faculty of Education at UiTM Puncak Alam Campus

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Abstract. Malaysia occupies the highest chart in Southeast Asia in terms of obese population among adults. This means that Malaysians' awareness of their own Body Mass Index (BMI) is still at a low level and needs to be investigated further. Thus, this study aims to identify, 1) the BMI classification of students in a public university in Malaysia, Universiti Teknologi MARA (UiTM), Puncak Alam Campus, 2) to determine the lifestyle of the students and lastly, 3) determine whether there is any significant relationship between students' BMI classification and their lifestyle. Survey method will be employed using a set of questionnaires. A total of 70 respondents will be chosen as the sample from UiTM's Faculty of Education. The results are expected to show a significant relationship between students' BMI classification and their lifestyle.

Keywords: Body Mass Index, lifestyle, obesity, overweight, physical activity, adults, university students.

1 Introduction

Malaysia now occupies the highest rank in Southeast Asia as it has the highest percentage (15.6%) of obese population [1]. We need to take this issue seriously as the number of Malaysians suffering from obesity is increasing year by year which could lead to potential long term health issues. The method to determine if a person is overweight or obese is to run a Body Mass Index test. Approximately 50.1% of Malaysia's adult population were reported to be above the normal weight, specifically, 30.4% are overweight and 19.7% are obese [2]. This data means that 1 in 2 adults in the country suffers from obesity. Obesity raises the risk of type 2 diabetes sevenfold in males and twelvefold in women when compared to people of normal weight. It can be curbed if prevented from the beginning by providing early awareness to adults about the importance of diet and physical activity. Obesity and overweight have also become more common among university students in Malaysia, according to previous studies [3].

For the past two decades, Malaysia's fast socioeconomic growth has resulted in substantial changes in Malaysians' lives, including food trends. More families are eating out, meals are skipped when people are busy, and the young skip breakfast and rely largely on fast food. Eating habits may be defined in terms of what and how individuals eat, the foods they choose, and how they obtain food [4]. Maintaining a healthy weight can be as simple as eating a variety of foods that are high in fruits, vegetables, and fibre and low in saturated fat, sugar, and salt. Lower body weight has been linked to a dietary pattern that includes frequent breakfast intake [5].

Enrolling in university sometimes necessitates a considerable lifestyle shift in order to meet academic requirements. These changes, along with the stressors of university life, might put university students at danger of developing unhealthy eating habits and becoming overweight or obese, which can have serious consequences for their health and quality of life. As students go through their studies, they may confront more problems, larger expectations and greater responsibilities which can lead to feelings of insecurity, poor sleep, worry, and sadness, all of which can contribute to aberrant eating patterns. Due to the tendency of adolescent poor eating and exercise behaviours to remain throughout adulthood, obesity and overweight appear to have the capacity to progress from adolescence to adulthood. As a result, colleges and universities are likely to be major targets for promoting healthy physical activities and lowering the prevalence of obesity among adults [6].

Students in Malaysia are among the top ten most physically inactive nations in the area [7]. With 61.4% of Malaysians aged 15 and up classified as physically inactive. Lack of physical activities also leads to overweight or obesity. Over 60% of the world's population does not reach the recommended daily minimum of physical exercise. Because overweight and obesity problems can develop early in life and have a long-term impact on morbidity, early identification of risk factors is critical to preventing and reducing obesity [8].

Obese children and adolescents have low levels of physical activity and do not get enough exercise on a daily basis, according to studies. Physically sedentary people have a higher body weight and body fat levels than active people [9]. Physical inactivity was found to be 39% among Malaysian students. [10]. Another study found that 56.5% of Malaysian university students sampled in their study aged 22-25 years were physically inactive. Fifty six percent of male students had a high physical activity level compared to only 24% of female students [11].

The importance of this research is to ensure that university students always lead a healthy lifestyle so that they are balanced in terms of physical and mental health. This is because many previous studies have found that the BMI of university students is at an alarming level. According to a result from previous study in a Malaysian university in 2020, the results revealed that among 350 university students, 43.4% (152) are facing malnutrition which are underweight, overweight and obese. That means almost half of the respondents among university students are facing malnutrition problems [12]. According to WHO, malnutrition may refer to imbalance or not getting a good balance of nutrients in the body. Unhealthy eating habits can lead to malnutrition problems which will result in a person becoming underweight, overweight and even obese. Students frequently express anxiety about their body image, particularly when they are overweight or obese.

A study found that university students in Malaysia more likely didn't get enough of sleep and didn't get maximum quality of sleep which means sleep deprivation. Sleep deprivation is defined as a period of time when you don't get enough sleep or when you get less sleep than you

should which is for adults are 7 to 8 hours a day. [13]. Sleep deprivation is caused by a variety of variables including modern lifestyle and employment. A persistent reduction in sleep length or fragmentation of sleep, resulting in a disturbance of the sleep cycle, may have cognitive, attention, and operant memory repercussions equal to those of severe acute sleep deprivation. [14], Among the total of 313 public university students completed the survey, resulting in a 95.1 % response rate, with 221 students reporting poor sleep quality. In undergraduate students, 70.6 % had poor sleep quality. The majority of people with poor sleep quality (35.5%) were above the age of 21, and 55.3 % were female.

The main expected benefit is notably to enhance the quality of lifestyle among the parties and institution involved which are Malaysian university students in general and in particular, students of Faculty of Education at UiTM Puncak Alam. The research finding could also be used as a reference to draft and improve the activity in university to make sure students are balanced in both mental and also physical development which will provide benefits to the country in the future. In order to find the solutions, the following research questions were posed:

1. What is the BMI classification of UiTM Puncak Alam students?
2. What are the lifestyle habits of students in UiTM Puncak Alam?
3. Is there any significant relationship between the BMI classification of UiTM Puncak Alam students and their lifestyle.

2 Literature Review

2.1 BMI classification of university students

According to a local study [15], they found that more than half of the medical students sampled do not have a normal BMI class, which is only 49.3% who have a normal BMI class. This means that only 1 out of 2 respondents have an ideal weight. The normal BMI class for women is higher (51.6%) than men (46.6%). The results also found that more men have a BMI class of 23.0 (overweight) and above compared to women.

Based on research [3], A total of 1773 respondents from 5 universities in Malaysia participated in the study, which resulted in more than half of the respondents having a normal BMI class (23.0-24.9). The highest percentage was from PhD students who obtained results of 60.1% who have an ideal weight. The number of respondents with overweight and obese BMI classes is higher than underweight.

Confirmed in study [16], By using BMI from the Asian classification, the final result found that less than half of the respondents had a normal BMI class which was only 263 out of 622. All respondents were university students aged between 18 and 24 years old. The results also found that the age group of 24 years and above had the highest average weight compared to other age groups with an average weight of 81.79 kilograms. The difference in BMI class between genders also shows that male students are more likely to have a higher BMI class.

2.2 Eating habits among university students

Developed on the basis [17], International University & Colleges (INTI). Obesity: An emerging health crisis among Malaysian teenagers. 2022 Mar 14. The majority of the causes of obesity

among Malaysia's youth are bad eating habits and lifestyle. Fast food, sweet snacks, and oversized amounts of food tend to poison the diets of young people. "A survey by the Institute of Public Health and the Ministry of Health Malaysia found that the average daily intake of sugar among Malaysian youths increased from seven teaspoons in 2012 to ten teaspoons in 2017, which is more than the advised limit for adults," explained the Associate Professor from INTI International University's Faculty of Business and Communications. "Malaysians generally consume an average of three kilogrammes of sugar per year in the form of sweets. According to survey findings, 36% of Malaysia's youngsters use carbonated beverages daily or more frequently".[5], As mentioned previously, healthy weight is related to healthy eating habits. Thus, we can maintain healthy weight by making small adjustments to our daily diet.

Found in a study [18], regarding eating behaviour, 57.8% of the 300 Malaysian university students sampled believed that they were eating more than most other individuals would under similar circumstances and that their eating was out of their control. The final results of this study show that the respondents who have a normal BMI class are 62.0%. This is one of the highest compared to previous studies. The results of this study also found that the problem of underweight (22%) is more than the problem of overweight and obesity which are 12.7% and 3.3% respectively because the results of the survey found that to regulate their weight, 13.0% (39) and 13.3% (40) of the students used laxatives, diet pills, or diuretics at least once in the previous 6 months.

2.3 Physical activity among university students

Based on the research [8], the suggested daily minimum of physical activity is not met by more than 60% of the world's population. Malaysia is among the top ten least physically active countries in the region, with 61.4 percent of Malaysians aged 15 and over falling into this category.[7], The results of the study found that among the reasons given by students about why they are not active in doing physical activity is due to time constraints. This is because the commitment in studying at the university is seen as a tighter schedule. Almost half of the 480 respondents gave the reason of fatigue and tiredness as one of the reasons for not being able to be active in physical activity. More than half of the respondents also agreed that they have lack of motivation to carry out physical activity. Undoubtedly, as a student it is very busy to pursue the commitment of chasing a good grade in addition to chasing the due date to complete the assignment.

Confirmed by a previous study [19], adults who engage in moderate to vigorous activity for at least 150 minutes per week can live longer than inactive adults or engaging in physical activity for at least 20 minutes three days per week also helps increase mental health and reduce stress. So, as one of the efforts of the university to encourage its students to do physical activity is to hold co-curricular activities. The results found that university students were more interested in sports-based co-curricular activities than art and uniform units.

2.4 Sleeping hours among university students

According to a local study [20], smoking, drinking, food choices, internet/smartphone usage, physical activity, and sedentary behaviour are among the determinants of sleep deprivation among university students in Malaysia. Sleep deprivation was defined as fewer than 7 hours of sleep each day. According to the findings of the survey, the average sleep duration was 6.39

hours, with 6 hours being the most common response (34.7%). The prevalence of sleep deprivation among 1,017 undergraduate students in Malaysia more than half (58.1%). Among the causes obtained is due to caffeine consumption and this shows how important food intake habits are to help a person to achieve quality sleep.

Results in a study [14], showed that 221 out of 313 students experienced sleep deprivation, which is a large number. This study also shows that students under the age of 21 are more likely to experience the problem of not enough sleeping hours and what is more affected is the gender of women compared to men, which shows a large gap of 55.3% compared to 15.3%.

People who are physically fit sleep better and feel energetic during the day and reduce insomnia. A study [21], mentioned that, the less time teenagers sleep, the less quality sleep they get and the more endocrine hormone function is disrupted. Most teenagers need about 7-9 hours of sleep each day. As a result, teenagers are more likely to make poor dietary choices, such as eating foods that are low in nutrients or eating too many calories without boosting their energy expenditure. Adolescents who make these decisions are more likely to become fat throughout their lives.

3 Research methodology

This will be a quantitative study utilising survey design. A 23-item questionnaire consisting of 4 sections will be distributed to answer the research questions of the study. The questionnaire was adapted from 3 instruments which are [22], Pittsburgh Sleep Quality Index (PSQI) of the studied group compared by BMI status, [23], Response to question related to dietary habits and [24], Variable definitions, means, and percentages of the sample by physical activity status. The 4 sections are Section A – Demographic details, Section B – Body Mass Index and personal health information, Section C – Respondents’ awareness of BMI and understanding of healthy lifestyle and Section D – Respondents’ personal lifestyle habits such as eating habits, sleeping habits etc. The population for the study will be students from the Faculty of Education, UiTM. According to Krejcie and Morgan (1970), the number of respondents required for the population is 175. The questionnaire will be distributed through online platform, namely Google Forms. Data will be analysed using descriptive and inferential statistics as follows:

Research Question	Instrument	Respondents/Participants	Type of Analysis
1. To identify the BMI classification of UiTM Puncak Alam students.	Questionnaire	Students of the faculty of education at UiTM Puncak Alam	Descriptive Analysis
2. To ascertain the lifestyle habits of UiTM Puncak Alam students.	Questionnaire	Students of the faculty of education at UiTM Puncak Alam	Descriptive Analysis
3. To determine the relationship between BMI classification of	Questionnaire	Students of the faculty of education at UiTM Puncak Alam	Correlational Analysis

4 Expected Results

The study expects to get a total of 175 respondents from students of the Faculty of Education at UiTM Puncak Alam campus. Based on previous research conducted on Malaysian university students [25], 13.0% of the students were obese or overweight. The study [26], noted that underweight prevalence was higher than that of overweight and obese. This is consistent with a study [27], which found that the prevalence of underweight was higher than that of overweight and obesity at 18.3%. Therefore, it is expected that the results of this study would be similar to those of other studies, which found that the prevalence of underweight will be higher than that of overweight and obesity.

Based on previous [24], gained a result that The chance of being overweight was much lower in physically active smokers than in inactive smokers; therefore, combining PA with smoking is not a healthy way to lose weight. So, this study expect that someone who consumes substances such as tobacco is more likely to experience underweight problems as stated by previous studies. However, a study [28] proved that the increase of alcohol consumption leads to weight gain among the male students. However, a study [29] obtained a different result that the number of alcohol students consumed on a weekly basis and on special occasions were unrelated to changes in their weight and waist measurements over the course of the academic year. As a result, alcohol use did not account for changes in waist circumference and weight that were noted in the research.

This study expect to get the result that healthy eating habits can help a person to get a normal BMI class. This is because a study [30], found that 52.8% of the 422 respondents were overweight and obese due to excessive calorie intake and reduced healthy food intake such as vegetables and fruit. The Malaysian Dietary Guideline recommends two servings of fruits and three servings of vegetables per day. Based on an analysis of the study participants' dietary intake [31], it was determined that they consumed much less fruit and vegetable consumption than that recommendation. Other studies [32] also revealed low levels of fruit and vegetable intake among the native Malaysian populations.

According to a research [33], shows that the value of BMI lowers when physical activity rises. This is comparable to a research [34], that discovered that increasing physical exercise lowers the likelihood of being overweight. Based on the findings, it can be concluded that physical exercise affects the participants' BMIs. The study said [33] individual must engage in greater physical exercise to keep their BMI within the usual range. Increased physical exercise can reduce body fat mass as well. Physical activity may be seen as a helpful activity to reduce the amount of undesirable fat. Based on the previous findings, this study predicts that physical activity would affect the participants' BMI.

According to a study [22], women were more likely to have poor sleep habits (56%) than men (42.8%) and university students (50.9%), respectively. A study [35], recommends a minimum of six hours of sleep each night, and 69% of people who sleep less than that are overweight or

obese. This is a considerable reduction in sleep time compared to those of normal weight. According to this study [22], a higher risk of being overweight or obese is associated with lower sleep quality. This study predicts that those who don't get enough sleep are more likely to be overweight or obese.

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