MENTAL HEALTH, LIFESTYLE, PHYSICAL ACTIVITY, AND OBESITY AWARENESS: A STUDY AMONG HIGHER EDUCATION STUDENTS

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Abstract:

The well-being and health of an individual are at risk when they are obese, which is characterized as an excessive buildup of body fat combined with a lack of fitness or physical activity. There are various factors that contribute to this issue. Therefore, the aims of this paper are (1) to understand the level of awareness of obesity among students, (2) to determine the relationship between mental health conditions and obesity, (3) to determine the relationship between lifestyle and obesity, (4) to determine the relationship between physical activity and obesity, and (5) to determine the most significant factors that lead to obesity awareness among students. A total of 80 questionnaires were distributed to higher education students in the Northern region of Malaysia. Correlation and multiple regression analyses were employed to determine the relationships and examine the most significant factors influencing obesity awareness. The findings revealed that all mental health, lifestyle, and physical activity were related to the dependent variable, with mental health emerging as the most significant factor. The results indicated a high level of obesity awareness among higher education students, signifying their awareness of this issue. The findings of this study would be valuable for the young generations to further improve the present lifestyle and reduce the incidence of obesity.

Introduction

The incidence of childhood obesity in Malaysia is concerning, with 14.8% of children aged 5 to 17 years obese. Cohort research conducted during the recent COVID-19 pandemic discovered that individuals who were overweight had a 44% greater risk of severe illness from COVID-19, while those who were obese had an almost doubled risk. The MCO's implementation may have worsened Malaysia's obesity problem by demanding unexpected lifestyle changes. The data indicates that 60.2% of Malaysian university students gained an average of 3.9 kg during the first four months of nationwide lockdown (Tan et al., 2022).

The rapid development in Malaysia over the past few decades has changed people's lifestyles. The new lifestyle has changed the way of food consumption patterns and dietary habits. Obesity is mostly caused by sedentary lifestyles and poor dietary habits among Malaysian youth. Youth diets have been affected by fast food, sugary treats, and supersized portions. This has occasionally resulted in an increase in Malaysian youth obesity rates. Adewoyin et al. (2025) also highlighted considerable variability in sedentary behaviors among students aged 18–25.

In 2019, 19.7% of Malaysian adults were obese and this percentage increased progressively to 23.4% in 2020. Meanwhile, the obesity issue among students in higher education also needs to be taken seriously. In 2022, the obesity rate among university students was 16.8% (Ali, 2022). The prevalent issue of youth obesity in Malaysia is demonstrated by the rising rate of youth obesity. Interestingly, female students demonstrated a greater level of acceptance towards their obese peers compared to male students, highlighting gender differences in attitudes (Josli et al.,2024).

According to statistics collected from five Malaysian institutions, 16.3% of Malaysian university students are obese, with prevalences of 17.6% among bachelor's degree students, 14.3% among master's degree students, and 18.4% among doctoral students, respectively (Wan Mohamed Radzi et. al, 2019). The overall number of teenagers is rising as they get older, with the BMI range of 25 to 29.9 (obese) for those aged 15 to 17 and above 40 (severe obesity) for those aged 35 to 40. Malaysian university students are more likely to be obese overall than those in certain other countries.

Table 1: BMI (Body Mass Index) Distribution

Category	Bachelor	Master	PhD	Total
Underweight	6.1%	10.9%	3.7%	7.1%
Normal	53.4%	52.9%	60.1%	54.5%
Overweight	23.0%	21.9%	17.8%	21.7%
Obese	17.6%	14.3%	18.4%	16.8%

Source: (Wan Mohamed Radzi et al.,2019)

A person's health and well-being are at risk when they are obese. Obesity is described as an excessive buildup of body fat combined with insufficient physical activity or exercise (WHO, 2016). Obesity can cause a variety of difficulties, including physical limitations, metabolic diseases, heart failure, stroke, high blood pressure, respiratory problems, psychological effects, weight-bearing joint osteoarthritis, decreased life expectancy, and vulnerability to accidents

(Nyaruhucha et al., 2003). Meanwhile, body mass index (BMI) is a measure of body fat for adult men and women based on height and weight (Riggs, 2017). According to survey, 36% of Malaysian youths consume carbonated drinks at least once per day, and 70% consume heavy meals after supper one to six days per week. Sugary drinks lead to obesity and weight gain, as well as diabetes, heart disease, stroke, and cancer. This is an alarming trend for the future workforce of the country.

Objectives and Scope
This study aims to determine obesity awareness in higher education. The conceptual framework will identify and explain the factors that influence awareness of obesity among tertiary students. Specifically, the study seeks to: (1) Understand the extent of awareness of obesity among students, (2) Determine the relationship between mental health conditions and obesity, (3) Determine the relationship between lifestyle and obesity, (4) Determine the relationship between physical activity and obesity, and (5) the most significant factors that lead to obesity awareness among students.

Literature Review
The obesity incidents do not only occur in developing countries, but it also occurs in developed countries. Obesity rates in developed nations were found to be 31% for adults, 15.3% for kids, and 15.5% for teenagers. The alarming rise in obesity rates is brought on by new health issues (Genc et al., 2021). The years spent in university are a time when life habits are shaped, especially with regard to work stress, physical exercise, and diet. Studies reveal that a large percentage of late teenage obesity develops, and that this obesity is permanent, which is a significant concern. Obese people are often criticized as slow, selfish, fond of eating, weak, unmotivated, nervous, lacking confidence, and having a negative body image. There are various factors that contribute to this issue, and among the most important factors are:

Mental Health
Mental health can be described as the absence of mental illness or as a state that integrates biological, psychological, and social factors, all of which contribute to an individual's mental state and ability to function in their environment (Telem et al., 2015). A case study from Universiti Malaysia Sabah's School of Science and Technology was carried out to investigate university students' perceptions on obesity and to evaluate how different the mean scores are based on demographic traits. A questionnaire was used to collect data at random. This research included 321 university students. The findings indicate that the mental health has a 21.470% influence on obesity. Meanwhile, the influence of physical appearance is 15.104%, while the impact of personal characteristics is 13.515% (Suriani et al., 2015). The findings indicate that mental health has a 64% greater influence on BMI compared to poor food intake, which has a 59% influence. Data were collected from five Malaysian universities, with each university issuing 400 questionnaires. In total, 2,000 students participated, comprising 1,000 Bachelor students, 650 Master students, and 350 PhD students.

Lifestyle

Lifestyle refers to the traits of locals at a certain period and place within an area. According to World Health Organization (WHO), it estimates that 60% of factors that affect a person's health and quality of life are connected to their lifestyle. The examples of lifestyle habits include sleeping patterns, eating tendencies, level of physical activity, stress management practices,

and hydration habits. According to Karl (2013), the prevalence of overweight/obesity and central obesity, as well as its related variables, was undertaken among a sample of university students in India. The sample is drawn at random from a group of university students. The sample consisted of 800 university students from Gitam University in India who were enrolled in non-health (mostly science) courses. The students ranged in age from 17 to 20 years, with 541 (67.6%) men and 259 (32.4%) girls. The sample consisted of 800 university students from non-health disciplines picked at random from the Institute of Technology and Institute of Sciences at GITAM University's Visakhapatnam campus in India. The Pearson chi-square was used to compare frequencies and the t-test for independent samples was used to compare mean scores. Saudi females, Kuwait, and one research in Pakistan had higher rates. It is indeed possible that as the university students in this research became more urbanized and adopted a greater calorie diet mixed with a healthier lifestyle, their body weight increased.

Physical Activities

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Racette (2008) conducted a prospective, longitudinal, observational research on changes in body weight and BMI among 204 students at a private institution in St. Louis, Missouri, from the beginning of their freshman year to the conclusion of their senior year. During their freshmen year in 1999 or 2000, the students were recruited. The results were obtained using two-sample t-tests. 29% of freshmen participants did not exercise on a regular basis, while 25% of seniors did not exercise on a regular basis. It shows that, did not exercise on a regular basis will lead to obese. Furthermore, in March 2013, first-year medical students at a medical college in Kancheepuram district, Tamil Nadu, were assessed on their understanding of obesity (Misra et al., 2013). The study used a universal sampling strategy and included all first-year students as participants. There were 138 students in total in the sample. Regular exercise was selected by 107 (77.5%) of respondents as the most effective method for avoiding obesity, followed by dietary changes and yoga/meditation by 74 (53.6%) and 52 (37%), respectively. Physical activity has a positive relationship with obesity.
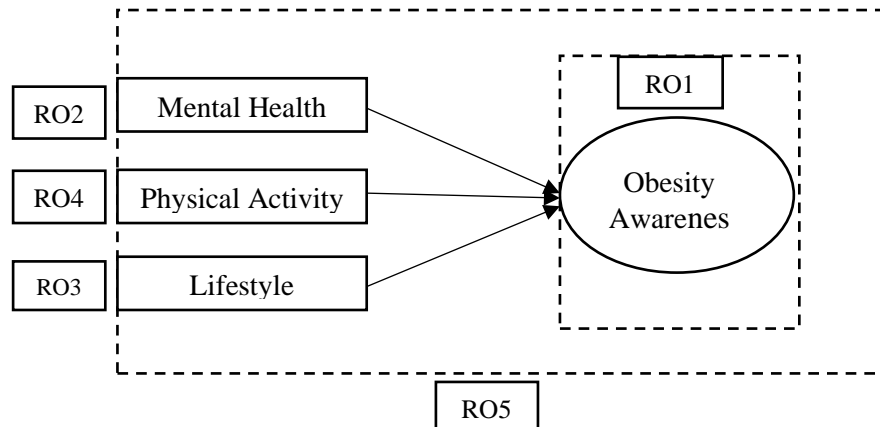
Figure 1: Conceptual Framework of Obesity

Source: (Amended from Schroeder et al., 2009 & Katzmarzyk et al., 2015)

Research Methodology

To address the key research objectives, this study employed a quantitative research design. This method involves quantifying and analysing variables through the utilization of numerical data and specific statistical techniques. The cross-sectional study was conducted among UiTM students in Sungai Petani, Kedah. A convenience sample of 80 UiTM students was analyzed. A questionnaire was employed as the instrument for data collection, offering standardized questions for all respondents, reduced pressure, and avoidance of interviewer bias (Kabilan, 2017).

The questionnaire comprises five sections. Section A details the demographic profile, Section B addresses the dependent variable, which is obesity awareness. Section C covers mental health, Section D focuses on lifestyle, and Section E represents physical activities. Questions in Sections B, C, D, and E are structured on a 5-point Likert scale and ranged from 1 to 5, with 1 representing 'Strongly Disagree,' 2 representing 'Disagree,' 3 representing 'Neutral,' 4 representing 'Agree,' and 5 representing 'Strongly Agree. Table 2 summarizes the research objectives, questions, and data analysis methods. There are five research questions and corresponding objectives, each with distinct data analysis approaches, as detailed below:

Table 2: Summary of Research Questions, Research Objectives and Data Analysis

Research Questions	Research Objectives	Data Analysis
What is the level of obesity's awareness among youth?	To know the level of obesity's awareness among youth.	Descriptive statistic
What is the relationship between mental health and obesity?	To determine the relationship between mental health condition and obesity.	Correlation
What is the relationship between lifestyle and obesity?	To determine relationship between lifestyle and obesity.	Correlation
What is the relationship between physical activity and obesity?	To determine the relationship between physical activity and obesity.	Correlation

| What is the main factor influencing obesity's awareness among youth? | To examine the main factor influencing obesity's awareness among youth? | Multiple Regression |

For the coefficient of reliability, Cronbach's alpha values for obesity awareness (0.75), mental health (0.8), lifestyle (0.85), and physical activity (0.89) were obtained.

Findings and Discussion

Demographic of Respondents
According to Table 3, the study included 70 female respondents (87.5%) and 10 male respondents (12.5%). The respondents' ages were grouped into four categories: 22, 23, 24, and 25 years old. The majority were 23 years old (73 or 91.3%), followed by 22 years old (4 or 5.0%), 24 years old (1 or 1.3%), and 25 years old (2 or 2.5%). Regarding financial aid, the most common source was loans, used by 52 respondents (65.0%). Parental/family support was the second most common (16 respondents or 20.0%), followed by self-funding (7 respondents or

8.8%). Scholarships were the least common source of financial aid, with only 5 respondents (6.3%) receiving them.

Table 3: Respondents' Profile

Profile	Frequency	Percentage
Gender	*80*	
-Male	10	12.5
-Female	70	87.5
Age	*80*	
-22	4	5
-23	73	91.3
-24	1	1.3
-25	2	2.5
Financial aids	*80*	
-Self-funding	7	8.8
-Parent/family support	16	20
-Loan	52	65
-Scholarships	5	6.3

Research Objective 1: To Know the Level of Obesity's Awareness Among Youth
To determine the level of obesity awareness, three categories are applied: low, medium, and high.

Table 4: Level of Awareness

Level	Mean
Low	1.0 - 2.0
Medium	2.1 - 3.9
High	4.0 - 5.0

Based on the finding, the mean for each questions are, *I aware that the BMI scale can be used to measure obesity* (4.40), *I aware that the obesity is associated with heart diseases such as*

heart attack (4.35), *I aware that I often worrying about gain weight* (4.23), *I aware that normal weight is important for health* (4.45), *I am aware that what I eat can have a significant impact on my risk of developing a disease such as heart disease* (4.35), *I aware that excess sugar consumption in the form of added sugars in drinks is a major risk factor for obesity* (4.40). The results indicate a high level of obesity awareness among youth, with mean scores ranging from 4.23 to 4.45.

Correlation

All assumption tests for correlation have been met. These tests include the verification of linearity and normality, homoscedasticity. The data conforms to the requirements, allowing for valid and reliable correlation analysis.

Research objective 2: To Determine the Relationship Between Mental Health Condition and Obesity

Table 5: Correlation of Mental Health and Obesity Awareness

Variable	R - value	P – value	Decision
Lifestyle and obesity awareness	0.534	0.000 ($p < .05$)	H_a accepted

Table 5 indicates a correlation value (r) of 0.534 between mental health and obesity awareness, with a significance level of 0.000. This demonstrates a significant relationship between the two variables. The correlation value of 0.534 suggests a moderate correlation, indicating that individuals with good mental health are generally more aware of obesity.

Research Objective 3: To Determine the Relationship Between Lifestyle and Obesity

Table 6: Correlation of Lifestyle and Obesity Awareness

Variable	R - value	P – value	Decision
Mental health and obesity awareness	0.385	0.000 ($p < .05$)	H_a accepted

Table 6 indicates a correlation value (r) of 0.385 between lifestyle and obesity awareness, suggesting a weak relationship, as r values between 0.3 and 0.5 are typically considered weak. The significance level is 0.000, indicating a significant relationship between lifestyle and obesity awareness ($p < 0.05$). This correlation shows that respondents who practice a healthy lifestyle tend to be more aware of the risks of obesity

Research Objective 4: To Determine the Relationship Between Physical Activity and Obesity

Table 7: Correlation of Physical Activity and Obesity Awareness

Variable	R - value	P – value	Decision
Physical activity and obesity awareness	0.335	0.002 ($p < .05$)	H_a accepted

Table 7 shows a correlation value (r) of 0.335 between physical activity and obesity awareness, indicating a weak relationship, as r values between 0.3 and 0.5 are generally considered weak. The significance value is p=0.002, which is below the 0.05 threshold, indicating a significant relationship between physical activity and obesity awareness, despite the weak correlation value

Multiple Regression

Research Objective 5: To Examine the Main Factor Influencing Obesity's Awareness Among Youth

The variance inflation factors (VIF) for mental health (2.12), lifestyle (2.096), and physical activity (2.23) indicate that there are no multicollinearity issues among these variables. The assumption testing for multiple regression have been met, therefore the findings for the study are robust and reliable, providing strong support for the research hypotheses.

Table 8: Model Summary

Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig
1	.540[a]	.291	.263	.37389	.291	10.403	3	76	.000

a. Predictor: (Constant), Mental Health, Lifestyle, Physical Activity
b. Dependent Variable: Awareness of Obesity

The results indicate that the independent variables account for 29.1% of the total variance in factors influencing UiTM students' awareness of obesity. The remaining 70.9% is explained by other factors.

Table 9: Summary of Multiple Regression

Variable	Beta value	T-value	P value	Decision
Mental health	.529	3.764	.000	Mental health is
Lifestyle	.104	.743	.459	the most
Physical activity	-.094	-.648	.519	influential factor

According to Table 9, among all factors, mental health has the highest standardized beta coefficient, with a value of 0.529. This indicates that mental health significantly contributes to obesity awareness, as the p-value is 0.000 ($p < 0.05$). Therefore, mental health is identified as the most significant predictor of factors influencing UiTM students' awareness of obesity.

Conclusion

The research findings show a significant correlation between mental health, lifestyle, and physical activity with obesity awareness among university students. Mental health emerged as the most influential factor among these variables. This suggests that students with better mental health are more likely to be aware of obesity-related issues. Furthermore, a healthy lifestyle and regular physical activity also contribute positively to obesity awareness. These results underscore the importance of addressing mental health as a priority in health promotion strategies aimed at reducing obesity. By enhancing mental well-being, encouraging active lifestyles, and promoting healthy habits, universities can effectively raise obesity awareness and foster a healthier student population. Therefore, this research contributes to the existing body of knowledge by investigating the relationship between the dependent variable, obesity awareness, and the independent variables, mental health, lifestyle, and physical activity, among higher education students. This study may serve as a valuable reference for future research regarding obesity awareness among university students.

However, it is crucial to recognize some limitations of the study. The study focused on only three factors, revealing that 29.1% of the variables contributed to the dependent variable, while the remaining 70.9% were explained by other variables. Therefore, it is recommended to explore additional factors to achieve more accurate results. Besides, the respondents may feel discouraged from providing accurate, honest answers or may be uncomfortable disclosing information that portrays them negatively. Data should be collected by directly approaching respondents and distributing the questionnaire in person. Relying solely on a questionnaire can lead to various issues, potentially resulting in inaccurate information and data. This approach allows for direct communication with participants during data collection, enabling the researcher to provide a more detailed briefing and explanation of the term "awareness."

Acknowledgement

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