# Factors Influencing Obesity among Malaysian Young Adults in Kuala Lumpur

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**Abstract:** *The purpose of this study is to examine the factors influencing obesity among Malaysian young adults in Kuala Lumpur. The study examined the relationship between awareness, attitude, behaviour, and perception towards factors affecting among Malaysian young adults. Social cognitive theory and the theory of planned behaviour were used to measure the findings of the study. Self-administered questionnaire was employed using non random sampling method. 263 participants took part in the in the study. The analysis of the data included inferential as well as descriptive analyses. Bivariate tests were performed on perception of obesity against independent variables which were awareness, attitude and behaviour. Results indicated, that out of the three variables tested, two positively correlated with perception and one was negatively correlated. This study highlighted, that awareness and attitudes are very important factors in curbing obesity among young adults in Kuala Lumpur. The prevalence of obesity in Malaysia has been fairly well established by numerous studies over the past decade but nothings seems to have been done. So the government should consider establishing mechanisms of controlling obesity especially among the youths, but this should be followed up with well-timed surveys to monitor the changing trends with the aim of improving services to Malaysian people at large.*

**Keywords**: Obesity, young adults, social cognitive theory and theory of planed behaviour, Kuala Lumpur

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## 1. Introduction

An article about obesity has been hanged on *The Star.com* website with a very big and bold font saying *"Malaysia is Asia's fattest country"* according to results from a WHO report of August 2018. This is the call for attention from Malaysian people to be aware of the issue of obesity and overweight. Malaysia is Asia's fattest country with approximately half of the population overweight or obese (Milton, 2018).

According to World Health Organization (WHO), overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to your health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered overweight. Obesity means having too much body fat. It is different from being overweight i.e. weighing too much. Both terms mean that a person's weight is greater than that considered healthy for his or her height.

Obesity is a global issue especially among the developed and developing countries. Malaysia in the last two decades has been recognized as one of those with the fastest economic growth among other countries in Asia. While the economic growth, the urban citizen's lifestyle has changed and people have adopted modernization lifestyle. The increase in fast-food chains in Malaysia, the rate of sugar and fat consuming is high and less activity becomes one of the most reasons that lead young adult in Malaysia to be obese. Many studies have been conducted on the issue of obesity in Malaysia since the rate of obesity increases rapidly among adult and children from time to time.

According to the 2018 World Health Organization (WHO), one out of three persons of Malaysian young adult who occupy 30% are in the category of overweight and obese. According to the 2015 National Health and Mobility Survey (NHMS), 17.7% of the Malaysians are obese as compared to the survey done in 1996 by (NHMS) that captured only 4.4% as being obese. The number of people who become overweight and obesity have rapidly increased to approximately 80% in just merely two decades (Milton, 2018).

## Problem Statement

The rise of obesity has happened mostly on children and young adult. This phenomenon started simultaneously with the growth of the economy and the changing of modern lifestyle among Malaysian people in the last two decades especially among the urban population. People started adopting the new modern lifestyle which caused the decreasing number in physical activities, and that's the most crucial reason that leads to obesity.

Malaysia has been reported to be one of the countries with the highest rate of obesity among ASEAN countries according to a 2017 report by WHO and has recently been ranked second highest in East and Southeast Asia in terms of being overweight. In a study conducted on obesity among Malaysian people, results found out, that among the obese people, women are more than men and Malays and Indians are more obese than Chinese. The latest estimation from the World Health Organization (WHO), 14% of Malaysian people are considered as obese and 40% are overweight. Among them female are more obese than male. Among the most root causes of obesity are unhealthy food, lack of physical activities and engaging in unhealthy habits.

Obesity affects people in many aspects of life especially healthy related issues, productivity, depression and even more serious than that is life-threatening conditions like cardiovascular diseases, diabetes, stroke, gall stones, and some cancers like breast, uterine and colon.

There are many health risks caused by obesity such as blood pressure, cardiovascular disease, type II diabetes mellitus, hypertension, dyslipidemia and certain types of cancer which are related to overweight/obesity, and can further enhance the burden of diseases and the mortality rate. After the health issue challenges, obesity also has negative effects toward productivity which lead to the loss of economic growth of the country as well. According to *The Economist Intelligence Unit in 2017, a*mong Malaysian obese males, obesity-linked diseases reduce their productive years by six to eleven while the productivity of obese females has been put at seven to twelve years.

## Research Objectives

Looking at the statement of the problem as mentioned above, this study clearly emphasizes on the factors influencing obesity among Malaysia young adult in Kuala Lumpur. Therefore, throughout this paper, the following Objectives will be dealt with:

i. To identify the awareness toward factors affecting obesity among Malaysian young adult in Kuala Lumpur.
ii. To determine the attitudes toward factors affecting obesity among respondents.
iii. To examine the behaviors toward factors affecting obesity among respondents.
iv. To find out the relationship between awareness, attitudes, and behaviors toward factors affecting obesity among respondents and perception towards obesity.

**Research Questions**
The research questions for this are:
i. What is the level of awareness towards factors affecting obesity among Malaysian young adult in Kuala Lumpur?
ii. What is the attitudes toward factors affecting obesity among respondents?
iii. What is the behavior towards factor affecting obesity among respondents?
iv. What is the relationship between awareness, attitude, and behaviors toward factors affecting obesity among respondents and perception towards obesity?

**Significance of Study**
This study will contribute to the many studies conducted to create awareness among Malaysian young adult regarding to the issue of obesity and overweight and how to prevent this calamity. There are many studies that have been done in this regard in this recent years. Within the last 15 years, from 2000 to 2015, there are more than 265 articles extracted and whose literature has been examined regarding the issue of adult obesity in Malaysia (Ghee, 2016).

This research contributes to the existing body of knowledge on obesity and overweight through the underlying framework of the social cognitive theory and the theory of planed behavior. As will be noted in the literature review, much of academic research in the area of Obesity talks about the population's awareness, attitude and perception of the issue of obesity.

There is minimal research also that is conducted in relation to specifically young adults in Asia and Malaysia in particular. Most of the studies are general in nature and hence this study attempts to fill the gap of literature on young adults in the Malaysian context.

The increasing importance of the issue of prevalence of obesity will force the government and parliament to enact legislations pertaining the issue and some restrictions will be put in place to regulate the problem causers because the issue is no longer national, but it is on a global scale.

In terms of practical implications, this research hopes to provide health institutions, government agencies as well as health NGOs insight into the perception of Malaysian youth on the issue of prevalence of obesity.

## 2. Literature Review

**Obesity**
The criteria and measures of obesity have been investigated before from way back, such as the relevance of abdominal obesity, and the Asian criteria or Body Mass Index (BMI) cut-offs value of 23.0 kg/m2 for overweight and 27.0 kg/m2 for obesity, with the view that the risk of diabetes and other chronic diseases start to increase at lower values in Asians

compared to Europeans. Nevertheless, the standard World Health Organization (WHO) guidelines for obesity are still most widely used and hence it is the best common reference.

The WHO criteria for Body Mass Index (BMI) classifies a BMI of 25-29.9 kg/m2 as overweight and above 30 kg/m2 as obese. The adoption of body mass index (BMI) by (WHO) which is calculated by dividing the body weight in kilograms (Kg) by the square of the height in metres (m), as a replacement measure of total body fat. BMI correlates well with the percentage of body fat in the young and middle aged where obesity is most prevalent. With this index, obesity is defined when the value is equal to or more than 30Kg/m2. This process has been termed as nutrition transition, from low availability of calories mainly in the form of plant products to diets high in fats, sugars and energy dense processed foods. This in turn has been the result of rapid economic development which has taken place in Malaysia in the last quarter of the twentieth century. Malaysia has recently been ranked second highest in East and Southeast Asia in terms of being overweight.

**Factors Affecting Obesity**
Obesity is a global epidemic disease especially among the developing and developed country. Malaysia is one of the highest in ranks for obesity as compared to other countries in the region. There are many factors associated with obesity. The most common factors affecting obesity are over-nutrition, low physical activity, change of dietary habits, urbanization, modernization, the socioeconomic class and in a minority of patients to a physical condition or metabolic disturbance.

Over intake such as calorie, high consumption of fatty and oily foods, and high alcohol consumption combined with low physical activity are likely to lead to obesity. The habit of consuming too much of nutrition of food which consists of calories, fat and oil are a habit embroiled in most Malaysian people. In addition to food consumption, leisure activities to those that require low energy expenditure may also lead to obesity. As a result, slowing metabolism and reduced physical activity results in weight gain, which if not watched predisposes to obesity.

Generally, eating to the extent that is inappropriate with one's physical activity seems to be the direct cause of obesity. Obesity is thus a behavioral disorder that is classifiable as a psychiatric disorder. Cultural factors also seem to influence the tendency to obesity. Adolescents tend to eat more than adults, while boys may eat more than girls. Individuality also affects food intake and therefore the tendency to adiposity and potential obesity. Many other seemingly unconventional factors are currently being considered as contributing to obesity. These include "sleep debt" (sleeping less than one should), pollution due to the many chemicals in the environment, which can affect hormonal balance and may influence obesity, as hormones control body weight CDC. Normally, being in a hot or very cold environment encourages the burning of calories. However, being in an air conditioned environment reduces calorie utilization.

**Awareness towards Obesity**
According to Robert Arp, awareness refers to the process that occurs as a result of the interaction of an animal's nervous system (including sensory apparatuses) and its environment, whereby this processing results in a basic ability of the animal to react to stimuli from the environment (cf. Kandell et al., 2000; Bear et al., 2001; Brefczynski and DeYoe, 1999; Farah, 1997). He said that, awareness is associated with terms like sentience, perception, feeling, and cognition.

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The level of awareness of the factors affecting obesity is really important to help individuals running from prevalence of obesity. In a study conducted in India on Obesity Reduction and Awareness and Screening of Non communicable Diseases through Group Education in Children and Adolescents showed that there is a lack of awareness among parents about healthy eating options, and their busy work schedules force them to opt for convenience foods, thus they are unable to pay attention to their children's diet (Milton, 2018).

Lack of awareness of patients' body mass index (BMI), or fear of offending patients is the berried in diagnosis the obesity problem. These factors lead to under-diagnosing obesity and hence not initiating proper treatment. Awareness among physicians and patients is the pivotal first step in diagnosing and reducing obesity-related risks factors.

Many studies have reported that patients are not aware of their BMI and hence it is difficult to counsel them about lifestyle modifications and diet. Interestingly, there are few studies in literature that discusses the importance of identifying BMI in patients and increasing their awareness.

**Attitude towards Obesity**
Negative societal attitudes are often directed towards obese youth and adults, who are frequent targets of weight-based stigma, prejudice, and discrimination. Obese persons face bias in employment settings, health care facilities, educational institutions, interpersonal relationships, and in the media, where portrayals of obese persons are especially harsh (Farah, 1997). Unfortunately, this form of bias is rarely challenged, resulting in a normative acceptability of anti-fat attitudes.

Crandall and colleagues conclude, that just-world beliefs, conservatism and beliefs in the protestant work ethic contribute to obesity stigma. According to these views, individuals with obesity are perceived as diametrical to values of healthy individuals, who are seen as contributing to society. Research shows that obesity is generally perceived as a self-inflicted condition that lies under an individual's control. The perception of controllability in turn was associated with higher levels of negative attitudes in several studies. This touches on a key focus of public health messaging about obesity. While prevention as well as intervention strategies often focus on individual behavior that recommend to eat less and exercise more, this kind of messaging may contribute to the general public's view of controllability of obesity in general.

While there is an amassing literature documenting obese persons as targets of weight bias, little work has examined the nature and extent of weight expressed by overweight and obese individuals themselves. (Storey K. E. et. al 2012). Perhaps stemming in part from the socially acceptable nature of weight, several studies have demonstrated that weight-based stereotypes can also extend to obese persons who have been found to express anti-fat attitudes.

One of the factors associated with obesity is perceived stigmatization and discrimination. The stigma process includes the labeling of differences, negative attitudes, including blame, and social distance and exclusion. Evidence for negative attitudes towards individuals with obesity is substantial, and has been shown in the general public as well as various other settings. These negative attitudes include labeling individuals with obesity as lazy, indulgent and weak-willed. Likewise, discrimination has been recognized and also seems to be increasing according to self-report.

Changing causal assumptions has been one starting point for anti-stigma efforts in smaller scale studies. A recent review of such studies reveals mixed results regarding their effectiveness in changing attitudes towards obesity. A variety of strategies to alter causal beliefs about obesity have been applied, including verbal and written presentations.

**Behavior towards Factors Affecting Obesity**
Obesity is a public health concern worldwide associated with significant health risks and comorbid conditions. Current research indicates, that more than half a billion adults worldwide are obese; more women than men are obese, with estimates of more than 300 million and 250 million, respectively. Young adulthood obesity is increasing at a similar pace. In 1990, 4.2% of children were overweight and obese, and this percentage increased to 6.7% in 2010. Of great concern is the forecasted number of youths who are to be obese by the year 2020: an estimated 9.1% or 60 million young people worldwide. Moreover, given that childhood obesity has been shown to track into adulthood and has been lined with significant health-related conditions and psychological effects, obesity prevention is imperative.

Over the years, research has focused behavioral influences on obesity, that is, specific behaviors that may contribute to weight gain through overeating or reduced physical activity and the mechanisms by which the environment can affect health. The review in this study points to the specific eating behaviors that are associated with obesity. These behaviors may include regular fast food consumption, frequent eating away from home, high consumption of beverages that are high in sugar, and breakfast omission. In addition, multistructural variables such as the physical environment and socioeconomic status have been shown to have a significant influence on food intake and energy expenditure.

Environmental influences consist of the proximity of large supermarkets, the concentration of fast food establishments and restaurants in any given area, the availability of recreational areas for physical activity, and socioeconomic status, each of which may favorably or negatively influence dietary behaviors and physical activity patterns. For example, large supermarkets provide a wide variety of healthful foods at reasonable prices, which may influence food purchasing behaviors and thus the availability of more healthful foods at home.

Using cross-sectional data from a national study, Z. Abdeen and colleagues (2012) observed that slightly more than 60% of Palestinians who were between the ages of 18 and 64 years were overweight (38%) or obese (24.4%), and obesity was prevalent in urban areas. While the study design did not permit the investigators to examine potential contributing factors for the prevalence of obesity the results illuminate the changes in food consumption and physical activity patterns which were associated with urbanization. Demographic variables including age, educational level, sex, and marital status were also associated with BMI. Relative to men, higher levels of obesity and lower physical activity levels were documented among less educated Palestinian women. The authors noted that low physical activity among females may be partly due to the lack of exercise facilities for girls and women in Palestine

Technology has enabled investigators to obtain data from all fifty-nine public and private schools in Alberta, Canada to employ a web-based method of surveillance of behavioral factors relating to weight and physical activity among students in grades seven to ten. K. E. Storey and colleagues (2012) found that non overweight adolescents consumed more healthful breakfast meals and snacks. These healthful eating habits were related to a higher consumption of carbohydrate and fiber, pointedly less fat, and meaningfully greater activity

levels compared to obese adolescents. Meal behaviors were also examined by location, while consuming food outside of the home eating environment has been associated with increase in weight.

Eating behaviors among youth are influenced by foods available not only at home, but also at school, where they spend a significant proportion of their time. Studies by (L. H. McArthur et al., 2012; K. E. Storey et al., 2012) highlight the importance of the school environment, for both adolescents and college students, in terms of availability of healthful meals and snacks and providing programs which promote healthful eating and daily physical activity. In addition to a healthy school environment, ensuring that the home food environment provides healthful foods will assist with efforts to control body weight.

**Theoretical framework**

The theoretical basis of this study is cognitive theory and the theory of planned behavior. One of the most widely used theories in designing nutrition education and physical activity programs, particularly for obesity prevention among young people, is the social cognitive theory. Designed by Albert Bandura (1960), The theory suggests that human behavior is the result of dynamic relations between personal, behavioral and environmental factors. People's thoughts and feelings are the major components of personal factors. Behavioral factors include health-related information and skills referred to as behavioral capability, and skills in regulating and taking action.

Social Cognitive Theory provides a wide framework for understanding the determinants of behaviors and goes ahead to describe the potential mediators and procedures for behavioral change. In most studies, Self-regulation and goal-setting are the major components of social cognitive theory that are applied along with behavior capabilities. When applied to the current study, self-regulation in reducing obesity is very important as the regulator is is the one supposedly being affected by the problem so they are responsible for their health and so they have to employ all measures to reduce the escalation of the issue.

Although a number of previous studies have evaluated the impact of physical activity and obesity-related behaviors in young adults world over, the current study is an additional voice as its main objective is to examine the factors that are influencing obesity among young adults in Kuala Lumpur.

Secondly, an analysis of characteristics of different human populations may provide insight into the causes of obesity. There are other various theories explaining causes of obesity and among them are The Theory of Planed Behavior, Behavioral Susceptibility Theory of Obesity, Fat Cell Theory and many others in the same category.

**The Theory of Planed Behavior and Obesity**

The theory of Planned Behavior is a theory that links beliefs and behavior. The concept was proposed by Psychologist Icek Ajzen to improve on the predictive power of the theory of reasoned action by including perceived behavioral control. It states that, attitude toward behavior and perceived behavioral control together shapes an individual's behavioral intentions and behavior. It is one of the most predictive persuasion theories applied in studies of attitudes, behavioral intentions and behaviors in various fields such as health care.

A study by Kassem (2003) identified factors that influence regular soda consumption among female students of North Los Angeles Country Public Schools aged 13-18 years. The

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Participants completed a group-administered Theory of Planned Behavior based on questionnaire. Attitude, subjective norms and perceived behavioral control had statistically significant positive association with intention and were each significant predictors of intention to drink regular soda and together explained 64 per cent of its variance. The strongest predictor was attitude, followed by perceived behavioral control and subjective norm. Perceived behavioral control and attitudes predicted children's intention to participate physical activity.

Clearly, all factors considered, the theory of planned behavior is also an appropriate theory to guide the current study because of its variables that control the behaviors and attitudes of the human being in order to reach a desired action which in this case is referred to as perceived behavioral control. In that way, the current study will also employ the theory of planned behavior to examine the factors influencing obesity among Malaysian young adults in KualaLumpur.

A framework of the theory of planned behavior is shown in figure one below and it highlights how one realizes the perceived behavioral control while using the variables of the theory. The hypothesis of the study is also explored below;

**Hypothesis**
H1: There is a high level of awareness towards obesity
H2: There is a high level of attitude towards obesity
H3: There is a high level of behavior towards obesity
H4: There is a high level of perception towards obesity
H5: There is a positive relationship between awareness and attitudes towards obesity among young adults in KualaLumpur
H6: There is a positive relationship between awareness and behavior towards obesity among young adults in KualaLumpur.
H7: There is a positive relationship between awareness and perception of obesity among young adults in KualaLumpur.
H8: There is a positive relationship between Attitude and behavior towards obesity among young adults in KualaLumpur.
H9: There is a positive relationship between Attitude and perception of obesity among young adults in KualaLumpur.
H10: There is a positive relationship between behavior and perception of obesity among young adults in KualaLumpur.
H11: There is a relationship between awareness, attitude, behavior towards obesity and perception of obesity among young adults in KualaLumpur.
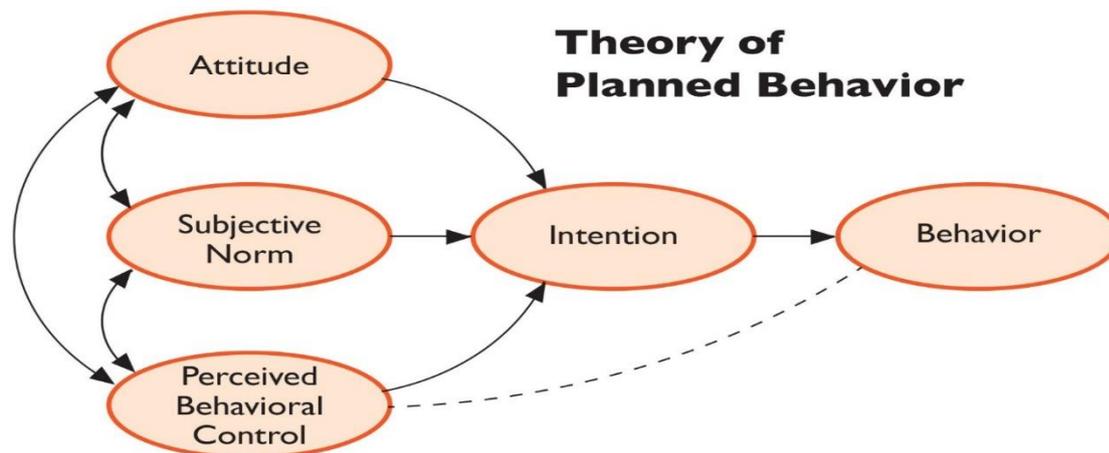
**Figure 1. The conceptual framework of the theory of planned behavior**
*Source: http://en.wikipedia.org/wiki/Theory of planned behavior*

## 3. Research Methods

### Research Design
The study employs the quantitative research design using the survey method. This is required to facilitate the data collection process in obtaining large sets of data in a short time.

### Population and sample
The population of the study was young adults in KualaLumpur, Malaysia aged between 18 and 35. These were chosen because WHO (2015) in their report has ranked young people in Malaysia with the most obese people. Therefore, they were appropriate to reflect the accurate data for the study.

A sample size of 263 responses were obtained through a convenient non-random sampling, where the population is chosen according to their suitability to the study. Permissions were sought and gained from the respondents themselves upon collection of the data through the survey questionnaire.

### Data collection and instrument
Survey questionnaire was the preferred technique for data collection. The survey was conducted in two weeks starting on the 19th march up to 2nd April 2019. The data was then computed for analysis.

The questionnaire used for data collection was divided into three sections (A, B and C). Section A features demographic information about the respondents. Section B measures factors affecting obesity under which we see Awareness, attitude and behavioral factors whereas Section C measures perception of obesity by asking respondents how they perceived obesity in Malaysia.

All items were measured on a 5-point Likert scales where 1 = strongly disagree, 2 = disagree, 3 = slightly agree, 4 = agree and 5 = strongly agree and also another scale of never to always. The overall variable was then computed to form a mean score with a minimum of 1 and a maximum of 5. To calculate the overall percentage of an item, the mean for each item was multiplied by 20, this is based on the 5-point scale which is equivalent to 100%. Therefore, an overall percentage would be gained by multiplying the mean score by 100 divided by 5 as Wok & Hashim (2014) highlight in their study.

## Validity and reliability

A pilot study (N=32) was conducted before the actual study to measure the flow and content of the questions, and any problems faced by the respondents. The questionnaire was also reviewed and approved by an expert in the field. Reliability tests were carried out on the complete set of items, each item was tested against Cronbach's alpha of .70 to indicate the reliability of the variables. Table 1 shows that the results confirm internal cohesiveness and consistency of the research variables with Cronbach alpha values ranging from .751 to .940.

**Table 1: Mean, standard deviations and reliability of Variables in the study**

| No. | Variables (N = 221) | M | SD | No. of items | Reliability (Cronbach's α) | | |
|-----|---------------------|-----|-----|-----|-----|-----|-----|
| | | | | | Pilot study (N = 32) | No. of items | Actual study (N = 221) |
| 1 | Awareness towards Obesity | 3.723 | 0.592 | 11 | .737 | 8 | .796 |
| 2 | Attitudes towards Obesity | 3.691 | 0.588 | 11 | .898 | 9 | .813 |
| 3 | Behaviours towards Obesity | 3.615 | 0.793 | 6 | .735 | 6 | .897 |
| 4 | Perception of Obesity | 3.469 | 1.016 | 8 | .921 | 6 | .954 |
| | Overall Obesity | 3.193 | 1.858 | 4 | .729 | 4 | .783 |

The study's data was compiled and analyzed using SPSS v. 23. Then descriptive and inferential statistical analysis was carried out. The Descriptive analyses include frequencies, percentages, means and standard deviations, while the inferential analysis includes t-test, zero-order and partial correlations.

## 4. Findings

### Demographic characteristics of respondents

The study analyzed a sample of 221 respondents from the target population. Table 2 below shows the details of the demographic characteristics of the respondents. This sample consists of young adults from KualaLumpur between the ages of 18 to 35. All the three age groups of the sample almost have the same respondents where 18 to 23 and 24 to 29 years old have the same respondents (34.6) respectively while the rest of the respondents aged between 30 to 35 years are (30.8%). The number of males (66.5%) is higher than that of female (33.5%). In terms of race, there are considerably more Malaysians (79.8%) followed by Chines (17.1) and lastly are the Indians at (3.0%). On their level of education, a little half of the respondents are at degree level (51.3.9%), followed by those at masters with (27.41%) those on Diploma and PhD are at 10.6% and 5.7% respectively. Lastly are the respondents who are at SPM (4.9%). The biggest number of respondents (88.0%) are single compared to 12% who are married. In terms of employment, three quarters 63.5% of the total respondents are still students while (35.0%) are employed and the rest 1.5% represent those who are self and un employed respectively.

**Table 2: Demographic Characteristics of Respondents**

| Demographic characteristic | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Age | 18 - 23 years' old | 91 | 34.6 |
| | 24 - 29 years' old | 91 | 34.6 |
| | 30 - 35 years' old | 81 | 30.8 |
| | Total | 221 | 100 |
| Gender | Male | 175 | 66.5 |
| | Female | 88 | 33.5 |
| | Total | 221 | 100 |
| Race | Malay | 210 | 79.8 |
| | Chinese | 45 | 17.1 |
| | Indians | 8 | 3.0 |
| | Total | 221 | 100 |
| Level of education | SPM | 13 | 4.9 |
| | Diploma | 28 | 40.6 |
| | Degree | 135 | 51.3 |
| | Master | 72 | 27.4 |
| | PhD | 15 | 5.7 |
| | Total | 221 | 100 |
| Marital status | Single | 184 | 88 |
| | Married | 79 | 12 |
| | Total | 221 | 100 |
| Employment status | Student | 167 | 63.5 |
| | Employed | 92 | 35.0 |
| | Self-employed | 3 | 1.1 |
| | Unemployed | 1 | 0.4 |
| | Total | 221 | 100 |

**Awareness towards obesity**

Table 3 below shows one sample t- test results for young adults in KualaLumpur awareness towards obesity. Results show, that the highest percentage is for question number 7 ($M =$ 4.312, $SD = .767$) where 86.2% say, that they need weight loss treatment. The lowest item on awareness towards obesity is item number Q3 ($M = 2.936$, $SD = 0.887$) reflecting, that almost three quarters (58.7%) of respondents do not know, that doing less exercise also creates more chances of obesity. This item (Q3) also reflected a negative and insignificant $t$ value of -1.062 ($p = .290$) indicating, that knowing that doing less exercises reduces obesity is not important to the respondents. However, on average, table 3 also reveals that the young adult's level of awareness is significantly high ($t = 18.140$, $p = .000$). this means that 74.4% ($M = 3.723$, $SD = 0.592$) indicates a high level of awareness of obesity, a finding that supports H1.

**Table 3: One-sample t-test for awareness towards obesity**

| No. | Awareness towards Obesity (N = 221) | M | SD | % | t** | df | P |
|---|---|---|---|---|---|---|---|
| 1 | Q7 I need weight loss treatment. | 4.312 | .767 | 86.2 | 25.430 | 220 | .000 |
| 2 | Q6 I am aware that obesity decreases my daily productivity. | 4.289 | .975 | 85.7 | 19.647 | 220 | .000 |
| 3 | Q5 I need to improve my diet. | 3.900 | 1.099 | 78.0 | 12.178 | 220 | .000 |
| 4 | Q2 I know that eating unhealthy food causes obesity. | 3.678 | 1.247 | 73.5 | 8.090 | 220 | .000 |
| 5 | Q1 I agree that obesity brings about discrimination in the society. | 3.601 | 1.219 | 72.03 | 7.339 | 220 | .000 |
| 6 | Q8 I understand that obesity increases my risk of being hospitalized. | 3.547 | .978 | 70.9 | 8.316 | 220 | .000 |
| 7 | Q4 I understand that obesity increases health problems like high blood pressure, diabetes, | 3.520 | .657 | 70.4 | 11.762 | 220 | .000 |
| 8 | Q3 I understand that people doing less exercise creates more chances of obesity. | 2.936 | .887 | 58.7 | -1.062 | 220 | .290 |
| | Total awareness | 3.723 | .592 | 74.4 | 18.140 | 220 | .000 |

*5-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4=agree, 5 = strongly agree. 74.4%

**Attitude towards obesity**

One sample t-test was run to test the level of attitudes towards obesity among young adults in KualaLumpur. Table 4 demonstrates, that 77.1% respondents feel comfortable being around people who are obese. This is illustrated with item Q7 that has that scored the highest mean ($M$ = 3.859, $SD$ = 0.973) and the item with the lowest means being Q8 ($M$ = 3.487, $SD$ = 1.060) meaning, that the young adults do not feel confident that those who are obese can ever reach a normal weight. overall, the levels of attitudes towards obesity among young adults in KualaLumpur shows a significant $t$-value of 6.853 ($p$ = .000) which translates, that the largest portion of the sample 73.8% ($M$ = 3.691, $SD$ = 0.588) show a high level of attitude towards Obesity among the respondents. This result also shows, that all items are positively related. The finding also supports H2, which states that there is a high level of attitudes among young adults in KualaLumpur.

**Table 4: One-sample t-test for attitude towards obesity**

| No. | Attitude towards Obesity (N = 221) | M | SD | % | t** | df | P |
|---|---|---|---|---|---|---|---|
| 1 | Q7 I feel comfortable being around obese people. | 3.859 | .973 | 77.1 | 13.124 | 220 | .000 |
| 2 | Q6 I believe that obesity is due to lack of self-control. | 3.837 | 1.022 | 76.7 | 12.167 | 220 | .000 |
| 3 | Q9 I am confident with my ideal weight. | 3.778 | .977 | 75.5 | 11.838 | 220 | .000 |
| 4 | Q2 Exercising to reduces my weight. | 3.701 | .832 | 75.5 | 12.532 | 220 | .000 |
| 5 | Q5 I feel comfortable talking to people about their weight. | 3.674 | 1.214 | 75.5 | 8.252 | 220 | .000 |
| 6 | Q4 Eating habits are one of the causes of obesity. | 3.642 | .865 | 75.5 | 11.038 | 220 | .000 |
| 7 | Q1 I am satisfied with my weight. | 3.624 | 1.179 | 72.4 | 7.873 | 220 | .000 |
| 8 | Q3 Obese people feel more isolated in sports activities. | 3.615 | .739 | 72.3 | 12.371 | 220 | .000 |
| 9 | Q8 I am confident that most people who are obese can reach a normal weight. | 3.487 | 1.060 | 69.7 | 6.853 | 220 | .000 |
| | Total attitude | 3.691 | .588 | 73.8 | 17.471 | 220 | .000 |

*5-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4=agree, 5 = strongly agree. 73.8%

**Behavior towards obesity**

Table 5 below shows results from one sample t-test for young adults in KualaLumpur behavior towards obesity. They indicate, that the highest percentage 82.7% of respondents eat healthy food Q7 (*M* = 4.135, *SD* = 0.914). The lowest item on behavior towards obesity is item number Q3 (*M* = 2.936, *SD* = 0.887) reflecting, that almost three quarters (58.7%) of respondents do not read any information regarding obesity from the internet. Item (Q3) also showed a negative and insignificant *t* value of -1.612 (*p* = .108) indicating, that getting information from the internet about obesity is less important to the respondents. However, on average, table 5 also reveals that the young adult's level of attitude is significantly high (*t* = 11.531, *p* = .000).  which translates, that 72.3% (*M* = 3.615, *SD* = 0.793) of the respondents have a high level of attitude towards Obesity. Therefore, H3 is supported.

**Table 5: One-sample t-test for behavior towards obesity**

| No. | Behaviour towards Obesity (N = 221) | M | SD | % | t** | df | p |
|---|---|---|---|---|---|---|---|
| 1 | Q6 Eating healthy food | 4.135 | .914 | 82.7 | 18.466 | 220 | .000 |
| 2 | Q5 I always control my eating habits | 3.805 | 1.058 | 76.1 | 11.309 | 220 | .000 |
| 3 | Q2 watch my deity to avoid becoming obese | 3.755 | 1.251 | 75.1 | 8.973 | 220 | .000 |
| 4 | Q1 Work out regularly to maintain weight | 3.579 | 1.213 | 71.5 | 7.096 | 220 | .000 |
| 5 | Q4 I am more productive whenever I do my exercise. | 3.520 | .766 | 70.4 | 10.096 | 220 | .000 |
| 6 | Q3 Read information on obesity from the internet. | 2.895 | .959 | 57.9 | -1.612 | 220 | .108 |
| | Total behavior | 3.615 | .793 | 72.3 | 11.531 | 220 | .000 |

5 - point Likert scale where 1 = Never, 2 = Rarely, 3 = Sometimes 4 = Often, 5 = Always.

## Perception of obesity

Table 6 below shows results from one sample t-test for young adult's level of perception towards obesity. The highest level of response is for item Q5 (I often associate obesity to bad appearance). Here, 75.4% of respondents are in agreement ($M = 3.773$, $SD = 1.229$) that obesity is associated with bad appearance of people. The item with lowest mean is Q6 ($M = 3.117$, $SD = 1.063$) indicating, that they believe that Obesity does not affect them in their individual lives. The remaining items are also significant and agreeable apart from item Q3 that says (I think that eating healthy can help reduce my weight) ($M = 3.140$, $SD = 1.075$). The overall perception of information on obesity has a moderate but significant $t$ value of 6.872 ($p = .000$) with an average of 69.3% ($M = 3.469$, $SD = 1.016$) of respondents in agreement. This implies, that most of the respondents have high levels of perception on obesity, and hence therefore, H4 is accepted.

**Table 6: One-sample t-test for perception towards obesity**

| No. | Perception of Obesity ($N = 221$) | M | SD | % | $t$** | df | P |
|---|---|---|---|---|---|---|---|
| 1 | Q5 I often associate obesity to bad appearance | 3.773 | 1.229 | 75.4 | 9.354 | 220 | .000 |
| 2 | Q2 Physical appearance is important in my life. | 3.656 | 1.182 | 73.1 | 8.245 | 220 | .000 |
| 3 | Q1 I am concerned about my weight. | 3.642 | 1.255 | 72.8 | 7.608 | 220 | .000 |
| 4 | Q4 obesity affects my emotions. | 3.488 | 1.189 | 69.7 | 6.108 | 220 | .000 |
| 5 | Q3 I think that eating healthy can help reduce my weight. | 3.140 | 1.075 | 62.8 | 1.938 | 220 | .054 |
| 6 | Q6 Obesity affects much in the individual life. | 3.117 | 1.063 | 62.3 | 1.644 | 220 | .102 |
| | Total for Perception towards Obesity | 3.469 | 1.016 | 69.3 | 6.872 | 220 | .000 |

*5-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4=agree, 5 = strongly agree.

## Correlation and Regression Analyses

Bivariate correlation is done to measure the significant relationships between the variables. Results indicate, some variables tested emerged significant and others insignificant. The strengths of the relationship found were both weak and moderate. However, two correlations turned out to be highly statistically significant at .000 and the remaining four were insignificant which means, that some items are positively related and others are not.

There is a weak insignificant relationship between awareness and attitude towards obesity ($r = .169$, $p = .006$) therefore H5 is not accepted. while that between Awareness and behavior is negative but statistically significant ($r = -.321$, $p = .000$) hence H6 is not accepted. Additionally, the relationship between awareness and perception is insignificantly weak ($r = .112$, $p = .049$) which means, that H7 is also not accepted. That between attitude and behavior is weak and also insignificant relationship ($r = .145$, $p = .015$) rejecting H8 and the other relationship between attitude and perception is weak and insignificant ($r = .060$, $p = .188$) which also translates into H9 being rejected henceforth. lastly, there is a negative but statistically significant relationship between behavior and perception of obesity ($r = -.458$, $p = .000$) hence rejection of H10.

Similarly, the results of the test also indicate, that there is no relationship between awareness, attitude, behavior and perception of obesity among young adults in KualaLumpur and hence rejecting H11.

**Table 7: Bivariate correlation between Awareness, attitudes, behavior and perception of obesity**

| Variable (*N221*) | Mean | SD | Total Awareness | Total Attitude | Total Behavior | Total Perception |
|---|---|---|---|---|---|---|
| Total Awareness | 3.723 | 0.592 | 1 | | | |
| Total Attitude | 3.691 | 0.588 | r=.169**, p=.006 | 1 | | |
| Total Behavior | 3.615 | 0.793 | r=-.321**, p=.000 | r=.145**, p=.015 | 1 | |
| Total Perception | 3.469 | 1.016 | r=.112**, p=.049 | r=.060**, p=.188 | r=-.458**, p=.000 | 1 |

** p<.001 (1-tailed).

**Discussion**

The first objective is to find out the level of awareness towards factors affecting obesity among Malaysian young adults in kuala Lumpur. Results show, that there is a high level of awareness of obesity among young adults in Kuala Lumpur. This is because, the mean score results exceed the test value of 3 that was based on for measurement of the levels. Malik et al (2013) believes, that the more aware one is, the more familiar they get to a particular issue. this collaborates with the finding, that people are aware of the factors influencing obesity and in other words they are willing to work on the eliminating the problem among young people. In addition, LaBerge (1997) associates awareness with an experience and attention which is linked to our expression, enhancement and control. This indicates that, once you gain experience the way you express yourself against an issue affects your emotions and control. Which is the same issue with obesity where by once you become aware of it, your expressions change into finding the control measure of to the problem.

This is followed by attitude. Results also indicate, that respondent's attitude towards factors affecting obesity were relatively high because the results were above the set value in the measurement scale. This is in agreement with Culbertson (1968) who defined attitude as a set of belief which helps in deciding if something is good or bad. Meaning, that people have a good attitude towards eliminating obesity among young people.

With behaviors, Chaiklin (2011) notes, that if in any case a person's attitude changes, behavior shall automatically change accordingly. This means, that a person's behavior is based on the attitude they give towards a particular subject. In this case, the results of the study reveal a high positive behavior that is above the default set scale value of three, which translates, that the respondent's behavior towards eliminating obesity is high and that that their willingness to change is bound to happen.

As for perception, the highest mean score indicated, that it also exceeds the set minimum scale value of three. Meaning, that after being aware about the problem their perception of obesity becomes high because they have knowledge of the issue in question; this is because perception is a very sensitive matter that is attached to people's minds which becomes very hard for an onlooker to know what someone is thinking about. This is in line with Wang (2007), he considers perception to be the human sixth sense since almost our cognitive functions rely on it. Adding, that it also helps in detecting, connecting, interpreting, and searching for internal information. Because it is closely linked to cognitive process, it helps in the development of our personality because once we perceive a message, we develop it until

we get meaning out of it. It is related to human feelings and emotions since it interprets a situation for them.

## Conclusion

This research is set out to examine the factors influencing obesity among Malaysian young adults in Kuala Lumpur. Independent variables were awareness, attitude and behavior towards factors affecting obesity whereas the dependent variable was perception to obesity. The research aimed at investigating the level and relationship of all the variables in the study.

The findings reveal, that there are mixed relationships between all the variables. In recent studies, the general public has come out to agree with public health officials who view obesity as a critical global concern. A 2012 survey found that 81% of the American public believes that obesity is an "extremely" or "very serious" problem. The prevalence of obesity in Malaysia has been fairly well established by numerous studies over the past decade but this should be followed up with well-timed surveys to monitor the changing trends.

According to abdeen (2012) obesity is prevalent in urban areas. Malaysia is one of the highest in ranks for obesity as compared to other countries in the region. There are many factors associated with obesity. The most common factors affecting obesity are over-nutrition, low physical activity, change of dietary habits, urbanization, modernization, the socioeconomic class and in a minority of patients to a physical condition or metabolic disturbance. so such factors need to be controlled because they are not immune to human beings these are also some of the issues that were reflected in this study.

## Future research direction for obesity in Malaysia

There are many ways to treat and prevent obesity. Today's market is flooded with weight loss drugs, surgeries, and fat oiled diets especially on the side ways of the roads. However, results from this study indicate, that eating a proper diet and maintaining a relatively active lifestyle is the most effective means to preventing and treating of obesity. Although it seems simple enough, there is still a need for research in this area. Further studies are needed on the genetic aspects of obesity and how to overcome them for the betterment of the future of our children There is also a strong need for long-term weight maintenance studies. Previous studies focus on short-term weight loss, but not maintaining the weight loss. Finally, there is a need to study the effects of obesity in sports. In recent years, some questions have been raised about the health of professional athletes who carry 300+ pounds. While most are athletically talented, they are still clinically obese. Thus, there is a growing need to evaluate the physical stress associated with obesity in athletes.

Alongside the programs to manage obesity, research needs to be conducted to monitor the outcome of obesity reduction programs. There should be some measures for prevention of overweight and obesity in the local situation to be put in place. Environmental, behavioral, social and ecological factors that contribute to obesity in different segments of the population should be mitigated.

In a nutshell, Research on the influence of marketing practices in food industry and food outlets and cost effectiveness of community directed measures to prevent and manage obesity should be given priority. Researchers in Malaysia should keep abreast with new findings about the prevalence of obesity and where relevant study the outcomes and then relay them to the world for adequate control of obesity.

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