

# Sedentary Lifestyle and Body Weight Status among Youth at Public Secondary Schools in Selangor

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**Abstract:** *Background:* Prior research indicates that youth are more at risks for developing obesity, where obesity are associated with several health complications as well as significant healthcare costs. Malaysia has been categorised as the fattest country in South-East Asia with its obesity rates are alarming and on the rise. *Aim:* To determine the level of body weight status and sedentary behaviour among youth at public secondary schools in Selangor. *Methods:* Data were obtained through a cross sectional study where questionnaires were distributed to students aged 16 years old through cluster sampling method. After data was cleaned and prepared for the statistical analysis, the sample was reduced to 385 students: 195 female and 190 male. Body Mass Index (BMI) and Sedentary Behaviours Questionnaires adapted from Project EAT II were used to assess inactive lifestyle. *Results:* It indicates in which n=115 of respondents were on the worrying categories either overweight, obese type I, obese type II or obese type III. Meanwhile, the inactive duration for majority of the respondents due to sedentary lifestyle were calculated as 5 hours per day.

**Keywords:** Body Mass Index, Obesity, Sedentary Lifestyle, Youth, Public Secondary Schools

## Introduction

Overweight and obesity have over the years been two major concerns in relation to Malaysians' health. Having been on the rise both locally and internationally, it is now unsurprisingly considered as one of the most dangerous threats in the 21<sup>st</sup> century, as far as public health is concerned (Morgen & Sorensen, 2014). Convincing evidences presented by means of recent studies have indicated that a person's obesity along with a wide range of other health risks can be traced back to his or her childhood obesity which is believed to have been accumulated since the formative stage of childhood (Zainuddin, et al., 2014). In the event of excess body fat gained at the stage of childhood and adolescence going unchecked and therefore persisting into adulthood, the individual concerned may run an increased risk of developing chronic diseases at a later stage in life such as cardiovascular diseases (Hasnain, Singer, Bradlee, & Moore, 2014), type-II diabetes and hypertension (Sung, et al., 2016).

National Health and Morbidity Survey (NHMS) statistics in the year of 2011 indicated two categories of Malaysians namely, 18 years old and above 18 years are suffering from overweight and obesity, respectively (Institute of Public Health, 2011). Despite the studies in Malaysia many of which have widely examined the surrounding issues of overweight and

obesity among school-aged children (Zainuddin, et al., 2014) and adults (Tan, Dunn, Samad, & Feisul, 2010), comprehensive looking into such issues concerning individuals belonging to other categories, particularly between adolescence and young adulthood, are of utmost importance, too. Upon closely looking at the large-scale statistical findings from the NHMS, it can be learnt that though overweight and obesity were prevalent health issues among Malaysian youths of both 18 and 19 year old categories 14.1% and 9.9%, respectively, more interestingly, the corresponding rates reportedly rose to 18.1% and 10.8% among young adults of those who were between 20 and 24 years old (Institute of Public Health, 2011).

The extensiveness of obesity in Malaysia is similar to other developing countries. The number of overweight for Malaysian population is 29.1% and obesity is 14% (National Health and Morbidity Survey, 2006). A recent report revealed more serious statistics where 49% of women and 44% of men in Malaysia were found to be obese. Malaysia was also rated as heavyweight at 45.3% of its population, followed by South Korea (33.2%), Pakistan (30.7%) and China (28.3%) (The Star, 2014). Besides being weighed down by obesity, Oxfam International pointed out a striking findings where Malaysia was ranked as the fattest country in Southeast Asia (The Straits Times, 2014).

Among the many reasons which merit focus on youth: adolescence and young adulthood age groups is the young individuals at such stages are observed to be the most vulnerable to life-changing decisions. Such decisions may include susceptibility to unhealthy eating habits, substance abuse, inter-personal and psychological problems, physical inactivity, and other undesirable lifestyle elements (Gan, Mohd, Zalilah, & Hazizi, 2011). The promotion of healthy lifestyle interventions at an early stage in their lives may therefore help prevent running the risks of lifestyle-related illnesses for the rest of their lives.

Furthermore, in Malaysia, the basic understanding of youth is crucial as most of Malaysian population 30.26 million is comprised of youth 13,880,000 million or 45.88% of it (Indeks Belia Malaysia, 2015). With the great composition of youth, this means youth are the most important asset and wealth of the country. They hold the key to the country's peace, development and contribute extensively to Malaysian human capital development.

Notably, adolescence is the stage at which individuals by and large undergo transition and therefore they may gain more independence and greater freedom in relation to decision making, especially with regards to health behaviours. It is also noteworthy that at such transition adolescents may need to begin to deal with many influences which may have wider ramifications on their lifestyle choices which may include intrapersonal relations and influences as well as physical environmental and societal aspects including social and cultural norms, mass media, marketing and advertising (Story, Neumark-Sztainer, & French, 2002).

## **Methods**

### *Sample Size*

This study was be conducted among Malaysian youth where the total population is 1,373 million (Department of Statistics Malaysia, 2014). The participants were recruited based cluster sampling method. Out of the total population, researcher will utilize Raosoft sample size calculator based on 95% confident interval which means the targeted number of participants require are at least 385 youth.

### *Sampling Process*

Sampling process is referring to units of selection from a population of interest to be studied so that by studying the sample the results can be generalised and infer back to the population from which the participants were chosen. Sampling begins with precisely defining the target population which is public secondary school children. The data population of youth was obtained with permission from Institute for Youth Research Malaysia (IYRES). Based on the 2014 statistics, data of the targeted population comprised of 13,882,400 youth. The present study accentuated to the Malaysian's population specifically on Malaysian youth in public secondary schools with geographical boundaries focal point in Selangor where it consists of 2,867,400 youth. Based on these figures, it encompassed 278,200 male youth and 264,000 female youth between 15 to 20 years old. Occupying the sample size determination by Krejcie and Morgan (1970) and confirmed through Raosoft Sample Size Calculator, N=385 sample size were needed by considering 95% of confidence interval.

The sampling process was further progressed by gathering all of public secondary schools in Selangor. Researcher then segregated the schools based on 10 areas of locality according to *Pejabat Pendidikan Daerah Negeri Selangor* with 217 public secondary schools in Selangor registered with Ministry of Education. The researcher further narrowed down the cluster of all the schools according to two zones. At the final stage of sampling process, the number of units of analysis were obtained from from both zone 1 and 2 which equivalent to N=385.

#### *Research Procedures*

The research procedures involved six stages from the beginning until the end of the data collection of this study. Initially, the research explained the objectives of the study to the participants as part of the social contract. This is because the researchers are ethically obligated to describe the research procedures clearly, identify any potential risks that might influence individuals' willingness to participate and answer any questions participants have about the research. Secondly, the respondents were required to read the instruction before answering the question as to avoid confusion. The procedure then followed by the questionnaire distributions to the participants by giving ample time for them to answer. Upon the return of the survey instruments data analysis for both descriptive and inferential statistics were carried out and reported.

### **Measures**

#### *Demographic Profiles*

Two demographic variables that were assessed in this study namely participants' gender and ethnicity.

#### *Anthropometric Measurements*

In this study, the focal is to assess the Body Mass Index (BMI) with priority to overweight and obesity. Since body weight status has great impact on health, an effective assessment of body weight status is demanded. BMI as the commonly method for assessment is used for this purpose (Centers for Disease Control and Prevention, 2011). The formula to calculate BMI is as below and interpreted in Table 1.

$$\text{Formula: weight (kg) / [height (m)]}^2$$

**Table 1: BMI classification for adults (WHO, 1995)**

BMI	Body Weight Status
< 18.5	Underweight
18.5 – 24.99	Normal
25.0 – 29.99	Pre-obese
30.0 – 34.99	Obese (Class I)
35.0 – 39.99	Obese (Class II)
> 40	Obese (Class III)

*Sedentary Behaviour*

Measured by using media use sedentary behaviour subscale adapted from Project EAT II Questionnaire by Neumark-Sztainer, et al. (2006). Participants indicated the duration spent for each activities listed on an average weekday with the following activities) watching television (TV) or videos, reading, doing homework, studying, using a computer (for fun, Facebook and others.). Response categories were assigned the values 0, 0.5, 1, 2, 3, 4, and 6 hours per week.

**Results**

**Table 2: Frequencies and Percentages of Respondents' Demographic Background**

	Female n(%)	Male n(%)	Frequency n(%)
Gender	195 50.6%	190 49.4%	385 100%
Ethnicity			
Malay	134 (34.8%)	125 (32.4%)	259 (67.2%)
Chinese	31 (8.1%)	27 (7%)	58 (15.1%)
Indian	21 (5.5%)	36 (9.4%)	57 (14.9%)
Others	9 (2.3%)	2 (0.5%)	11 (2.8%)
Total	195	190	385

Table 2 shows the demographic profile of respondents based on gender and ethnicity. It shows that the female respondents are higher than the male respondents which n=195 equal to 50.6% are male and n=190 equal to 49.4%. This means the total amount of respondents is n=385 and equal to 100% respondents. The table also shows the number of respondents from the provided ethnicities. There are five ethnicities listed with one specified as other. The highest frequencies are Malay Ethnicity with n=259 equal to 67.3%, followed by Chinese Ethnicity n=58 equal to 15.1% and Indian Ethnicity n=57 equal to 14.8%.

**Table 3: Frequency Analyses of Sedentary Behaviour based on Duration**

	Duration	Female n(%)	Male n(%)	Frequency Percentage %
Watching TV & videos	0 hr	3 (0.8%)	5 (1.3%)	8 (2.1%)
	1/2 hr	34 (8.8%)	26 (6.8%)	60 (15.6%)
	1 hr	32 (8.3%)	33 (8.6%)	65 (16.9%)
	2 hrs	50 (13%)	39 (10.1%)	89 (23.1%)
	3 hrs	32 (8.3%)	39 (10.1%)	71 (18.4%)
	4 hrs	19 (5%)	20 (5.2%)	39 (10.2%)
	5 + hrs	25 (6.5%)	28 (7.2%)	53 (13.7%)
	<b>Total</b>		<b>195</b>	<b>190</b>
Using a computer (for fun, Facebook)	0 hr	15 (3.9%)	17 (4.4%)	32 (8.3%)
	1/2 hr	31 (8.1%)	31 (8.1%)	62 (16.2%)
	1 hr	40 (10.4%)	32 (8.3%)	72 (18.7%)
	2 hrs	36 (9.4%)	29 (7.5%)	65 (16.9%)
	3 hrs	29 (7.5%)	32 (8.3%)	61 (15.8%)
	4 hrs	12 (3.1%)	15 (3.9%)	27 (7.0%)
	5 + hrs	32 (8.3%)	34 (8.8%)	66 (17.1%)
	<b>Total</b>		<b>195</b>	<b>190</b>

Reading & doing homework/studying	0 hr	2 (0.5%)	3 (0.8%)	5 (1.3%)
	1/2 hr	31 (8.1%)	31 (8.1%)	62 (16.2%)
	1 hr	43 (11.2%)	32 (8.3%)	75 (19.5%)
	2 hrs	56 (14.6%)	61 (15.8%)	117 (30.4%)
	3 hrs	34 (8.8%)	37 (9.6%)	71 (18.4%)
	4 hrs	15 (3.9%)	14 (3.6%)	29 (7.5%)
	5 + hrs	14 (3.6%)	12 (3.1%)	26 (6.7%)
	<b>Total</b>	<b>195</b>	<b>190</b>	<b>385</b>

Based on Table 3, it represents the respondents duration spent on sedentary behaviour on weekly basis. The sedentary lifestyle were divided to three types: watching Televisions (TV) and videos, using a computer for fun website surfing, reading and doing homework or studying. The results indicate in which most of the respondents n=89 (23.1%) spent at least 2 hours per day to watch TV and videos. Respondents were also spent at least 1 hour per day for fun website surfing n=72 (18.7%) and also minimum of 2 hours spent for reading and studying n=117(30.4%). Therefore, from the results, it indicates in which the inactive duration for majority of the respondents for sedentary lifestyle were calculated as at least 5 hours per day.

**Table 4: The Level of Body Weight Status**

	<b>Female n(%)</b>	<b>Male n(%)</b>	<b>Frequency n(%)</b>
Underweight	62 (16.1%)	67 (17.4%)	129 (33.5%)
Normal weight	76 (19.7%)	65 (16.9%)	141 (36.6%)
Overweight	36 (9.3%)	21 (5.5%)	57 (14.8%)
Obese I	19 (4.9%)	24 (6.2%)	43 (11.1%)
Obese II	1 (0.3%)	8 (2.1%)	9 (2.4%)
Obese III	1 (0.3%)	5 (1.3%)	6 (1.6%)
<b>Total</b>	<b>195</b>	<b>190</b>	<b>385</b>

Table 4 represents the prevalence of body weight status of respondents n=385. From the table it indicates in which n=57 (14.8%), 36 female, 21 male respondents were overweight. Furthermore, n=43 (11.1%), 19 female, 24 male respondents were reported to be obese type I, followed by n=9 (2.4%), 1 female, 8 male for obese type II and n=6 (1.6%) 1 female, 5 male were categorised as obese type III.

### **Conclusion and Recommendation**

The findings of the current study have demonstrated that in which at least 5 hours of inactive lifestyle by the means of watching TV, using computer, reading, doing homework and studying. When the long hours of inactive duration emerged, this indicated where the lack of physical activity could explain the formation of overweight and obesity. Being overweight and obese are damaging as it will cause numerous illnesses and diseases. Although the present research was a preliminary study, the information gained from this study would be useful to the public in general and youth in particular to observe, to be vigilant and to limit screen time as part of sedentary lifestyle. Important data regarding obesity can be used as evidences and guidance in policy making for the public health as part of the preventive techniques to curb the obesity rates.

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