

## THE RELATIONSHIP BETWEEN LIFESTYLES BEHAVIOUR AND BODY HEALTH AMONG TEN SELECTED YOUNG ADULT IN KLANG VALLEY: A PRELIMINARY STUDY

**Koh Puh Fun**

BERJAYA University College of Hospitality, Malaysia.  
pohfun\_koh@yahoo.com

**Haryati Abu Husin**

BERJAYA University College of Hospitality, Malaysia.  
haryati@berjaya.edu.my

### ABSTRACT

*The objective of this study is to examine the relationship of lifestyle behaviour changes towards body health among a selected group of ten young adults working/ non-working in Kuala Lumpur. Many lifestyles are bringing effects toward body health. However, there are many people who are suffered in diseases because of bad lifestyles. Nowadays, many people have ignored the importance of practicing healthy lifestyles. From viewing the literature, many researches have been done on the relationship between lifestyles (television viewing time, eating habit, physical activity) and body health (diseases, BMI, body fat). However, only a handful of such researches to be found in the Malaysian context. Therefore, this study is important to add into the literature of the field of the study. This study exercises qualitative research approach that combine action and case studies. Ten participants in this study were carefully recruited using snowball method. The participants went through 5-week lifestyles changing program. Anthropometry and dietary intake of the participants were recorded throughout the research. The results showed that six out of ten participants lose body fat percentage while five out of ten of the participants had a younger body age at the end of the program. More than 50% of the participants managed to have a healthier lifestyles and results in a healthier body in 5-week program. In addition, this study revealed that positive lifestyles changes could bring benefits or contribute to the improvement of body health status. Further investigation of these outcomes may provide useful information for college students and young working adults a better picture on how to be a healthier person through positive lifestyle changes.*

**Keyword:** Lifestyle, lifestyle changes, body health, dietary patterns, young adults.

### INTRODUCTION

Recently, many people are cautious towards their health. As stated by Mercola (2013), most people nowadays like to use shortcut such as taking vitamin injections, undergo surgery, and other relevant procedure to solve the health problems that they face. Most young adults (within the age range of 20 to 30 years old) have been diagnosed to have health problems such as diabetes and it is a situation whereby is a rare case in the past.

It was said that the causes for this situation to happen is due to overconsumption of junk food and less exercise are done (Marcus, 2011). Kelli (2006) found out that most refugees were found to have problems with their health, as overconsumption of too many sweet and high fat foods and calories which leads them to have higher risk of developing chronic diseases.

The American Heart Association recommended lifestyle changes including weight control and exercise as primary approach to lowering cholesterol, which consist of including fat lowering food and plant based-protein (Kaz, 2010).

Newby et al. (2003) concluded that consuming a diet high in fruit, vegetables, reduced-fat dairy, and whole grains and low in red and processed meat, fast food, and soda was associated with smaller gains in BMI and waist circumference.

According to Ekaterina (2010), there is a need for interventions to prevent excess weight and physical inactivity during adolescence to prevent higher blood pressure in youth. According to Kernion (2005),

adolescents who perceive their weight as being underweight report to eat healthier and engage in a variety of physical activities (vigorous, moderate, and strengthening) than adolescents who perceive their weight as being about the right weight. In addition, they are more likely to be trying to gain weight.

The 24-hour diet recall method is a type of nutritional assessment. It is often triangulated with other methods in nutrition research. It can be utilized by many types of professionals, including medical professionals, social scientists and nutritionist specialists. The goal of this method is to document food and beverage consumption and nutrient intake in a group of samples. This method records the daily, self-reported consumption of samples and is most accurate when administered more than once for each participant (Bernard, 2006).

## **LITERATURE REVIEW**

### **Relationship between Diet and the Risk of Developing Chronic Diseases**

Diet quality is strongly related to cardiovascular disease (CVD) incidence, but little is known about its impact on CVD events in older people at high risk of CVD and receiving effective drugs for secondary prevention. Dehghan (2012) assessed the association between diet quality and CVD events in a large population of subjects from 40 countries with CVD or diabetes mellitus with end-organ damage receiving proven medications. Overall, 31 546 women and men  $66.5 \pm 6.2$  years of age enrolled in 2 randomized trials, the Ongoing Telmisartan Alone and in Combination With Ramipril Global End Point Trial (ONTARGET) and the Telmisartan Randomized Assessment Study in ACEI Intolerant Subjects With Cardiovascular Disease (TRANSCEND), were studied (Dehghan, 2012). Based on this research, a higher-quality diet was associated with a lower risk of recurrent CVD events among people  $\geq 55$  years of age with CVD or diabetes mellitus. Highlighting the importance of healthy eating by health professionals would substantially reduce CVD recurrence and save lives globally (Dehghan, 2012).

### **The 10-Minute Total Body Breakthrough**

According to Foy, Sabin and Smolinski (2009), the 10-Minute Total Body Breakthrough is a program of interval, circuit, aerobic, and resistance training that accrues the benefits of hours at the gym in daily 10-minute workouts. These are workouts that can be done anywhere and anytime.

It was created by Sean Foy, an exercise physiologist and behavioural coach. The 10-Minute Total Body Breakthrough counters the main reason people do not exercise which is not enough time with a scientifically proven, clinically tested 4-3-2-1 program: 4 minutes of high-energy cardio, 3 minutes of resistance, 2 minutes of core, and 1 minute of stretching and deep breathing. The step-by-step illustrated exercises are simplicity itself, include air boxing, wall push-ups, chair jogging, and stationary high-knee marching are presented in three levels geared to the reader's fitness, with four weeks of routines per level. Their potency lies in the benefits of nonstop movement, thermal effect, intensity, and more. In other words, it truly takes just 10 carefully crafted minutes to boost metabolic rate, exercise all the major muscle groups, increase cardiovascular endurance, have a positive effect on blood pressure and cholesterol and deliver a sense of well-being (Foy, Sabin & Smolinski, 2009).

### **The Effectiveness of 24-Hour Dietary Recall**

The 24-hour diet recall method is a type of nutritional assessment. It is often triangulated with other methods in nutrition research. It can be utilized by many types of professionals, including medical professionals, social scientists and nutritionist specialists. The goal of this method is to document food and beverage consumption and nutrient intake in a group of samples. This method records the daily, self-reported consumption of samples and is most accurate when administered more than once for each participant (Bernard, 2006). Some researchers argue that this interview method is most accurate when administered between 3 and 7 times (Cupples et al., 1992).

## **Risk of Death Related to BMI, Diet and Exercise**

The surprising finding by Flegal et al. (2000) that overweight (25 BMI<30) Americans live longer than those of 'normal' weight (18.5<BMI<25) calls for a reassessment of the premise underlying the results and interpretation of the data presented. In 'Actual Causes of Death,' Mokdad et al. (2000) estimated that 'poor diet and physical inactivity' account for 400 000 US deaths (16.6%) annually. Their article states, 'Overweight would account for the major impact of poor diet and physical inactivity on mortality. Diet may have a minor additional effect on mortality mainly from lack of certain essential nutrients'. This commentary will dispute the equating of overweight and obesity with poor diet and physical inactivity that is the basis of the recent finding that overweight people live longer than normal weight people (Cundiff, 2006).

Other factors associated with body weight, such as physical activity, body composition, visceral adiposity, physical fitness, or dietary intake, might be responsible for some or all of the apparent associations of weight with mortality'. There is suspected association of BMI with mortality remained after appropriate adjustments for potentially confounding factors, particularly physical activity, physical fitness, dietary intake, age, and sex. Indeed, previous epidemiological studies found that significant correlations of BMI with mortality disappeared after adjusting for other confounding factors (Cundiff, 2006).

Besides the problem of using BMI>25 as a surrogate for poor diet and inactivity, the analysis reports the actual cause for only 48% of deaths, missing most deaths due to our two biggest killers – cardiovascular disease and cancer. For instance, a non-smoking, physically inactive, normal weight 50-year-old man who dies of a heart attack has an unknown underlying or actual cause of death. Likewise, in a normal weight woman dying of breast cancer at the age of 50, the etiology is undetermined (Cundiff, 2006).

## **Dietary Patterns and Changes in BMI, Waist Circumference**

Obesity has increased more than 20% in the past decade in the United States, and more than one-half of US adults are overweight or obese (Newby et al., 2003). Based upon the research conducted by Newby et al.,(2003), five dietary patterns were derived (healthy, white bread, alcohol, sweets, and meat and potatoes). The mean annual change in BMI was  $0.30 \pm 0.06$  for subjects in the meat-and-potatoes cluster and  $0.05 \pm 0.06$  for those in the healthy cluster ( $P < 0.01$ ). The mean annual change in waist circumference was more than 3 times as great for subjects in the white-bread cluster ( $1.32 \pm 0.29$  cm) as for those in the healthy cluster ( $0.43 \pm 0.27$  cm) ( $P < 0.05$ ) (Newby et al., 2003).

Consuming a diet high in fruit, vegetables, reduced-fat dairy, and whole grains and low in red and processed meat, fast food, and soda was associated with smaller gains in BMI and waist circumference. Because foods are not consumed in isolation, dietary pattern research based on natural eating behaviour may be useful in understanding dietary causes of obesity and in helping individuals trying to control their weight (Newby et al., 2003).

## **Misperception of Healthy Diet**

According to Ekaterina (2010), there is a need for interventions to prevent excess weight and physical inactivity during adolescence to prevent higher blood pressure in youth. Physical activity declined during adolescence and a decline of one physical activity session per week with each year of age was associated with higher Blood pressure. Majority of overweight youth underestimated their weight status. Higher parent and schoolmate BMI were associated with greater weight status underestimation. Weight status misperception may reduce motivation among youth to engage in physical activity, and therefore hinder the success of obesity prevention interventions.

Another research done by Kelli (2006) in Iran, Bosnia, and Cuba, revealed that most perceived a healthy diet as one that included more fruits and vegetables, was lower in fat and salt, and had smaller portion sizes. Many stated that their diets were unhealthy because they consumed too many sweet and high fat foods or calories. Kelli (2006) reported that the high cost and low quality of fresh produce in the United State of America and time constraints were barriers to eat healthy. Similarly, Malinauskas, Raedeke, Aeby, Smith, and Dallas (2006) addressed that dieting practices of individuals and discovered that those trying to lose or maintain weight regularly reported eating low fat and/or fat free foods, consuming sugar free drinks and foods, and counting calories.

Researchers such as Concalves and Gonzalez (2012) revealed that low-income obese adolescents and their mothers perceive obesity as a heritage, caused by family genes, side effects of medication use, and stressful life events. However, low-income eutrophic adolescents emphasize the role of unhealthy diets on obesity development. Among the high-income adolescents, those who are obese attribute it to genetic factors and emotional problems, whereas those who are eutrophic mention unhealthy diets and lack of physical activity as the main causes of obesity.

According to Kernion (2005), adolescents who perceive their weight as being underweight report to eat healthier and engage in a variety of physical activities (vigorous, moderate, and strengthening) than adolescents who perceive their weight as being about the right weight. In addition, they are more likely to be trying to gain weight. However, adolescents who perceive their weight as being overweight are more likely than adolescents who perceive their weight as being about the right weight to be trying to lose weight and choose both healthy and unhealthy dieting routines such as exercising, dieting, taking diet pills, and vomiting or using laxatives in order to lose weight or keep from gaining weight. And adolescents who perceive their weight as being underweight report being less likely to be trying to lose weight and choosing a variety of weight management methods such as exercising, dieting, fasting, taking diet pills, and vomiting or using laxatives than adolescents who perceive their weight about the right weight.

## METHODOLOGY

This study was carried out among ten young adults age between 18 to 27 years old, ranged from working and non-working adults recruited based on snowball method. It is a qualitative study that was held for a period of five weeks, as participants were followed up during the session. They committed themselves for positive changes towards their health.

Data were collected based on two areas. First, anthropometry data, namely BMI, body fat (%), body age, blood pressure and waistline. These were measured in the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> week of the program for all participants. The instruments used in this study were measuring tape, Karada Scan and automatic blood pressure monitor.

Secondly, details regarding lifestyle behaviour which include daily record of meal consumption (time, compositions, portions and descriptions of food and drinks), physical activities (walking, exercising and so on), sleeping period and time to sleep and wake up and other health-related behaviours (frequency of smoking, frequency of drinking alcoholic beverages). Modified 24-hour dietary recall booklet was used to gather the information.

Starting from the first week, participants were consulted and taught on ways to improve their lifestyle (food selections, meals frequency and physical activity). They were asked to record any changes that happen to them during the period of the study. Analysis of the data was done using Excel and tabulated in graphs form.

## RESULTS

### *Respondent 001*

**Table 1: Body Health Analysis for Respondent 001**

	Week 1	Week 3	Week 5
Weight	51.8kg	54.1kg	53.3
Body Fat(%)	28.60%	28.50%	29.1
Visceral Fat	4	5	4
BMI	23	24	23.7
Metabolism Rate	1148	1185	1170
Body Age	29	31	30
Blood Pressure	111/62, 73	101/66,72	107/71,73
Waistline(cm)	68.5cm	70.5	72/92.5

Respondent 001 is a student aged 22 who is slightly overweight. Her lifestyles include always sleep after midnight, normally do not have breakfast before 9am or not having meals at fixed time and seldom exercise. During the first two week of the program, she was motivated to do exercise and control diet. However, she did not continue after 2 weeks and even gain back some weight in week 3 as a result of not exercising. Throughout the 5 weeks until the end, her lifestyles were still the same, she always sleep after midnight, normally do not have breakfast before 9am or not having meals at fixed time and seldom exercise. However, she did a small adjustment on her diet starting from week 5. She was having 3 meals per day.

**Respondent 002**

**Table 2: Body Health Analysis for Respondent 002**

	Week 1	Week 3	Week 5
Weight	76.8	76.6	76.5
Body Fat(%)	34.9	35.6	31
Visceral Fat	8	8	12
BMI	28.6	28.5	28.4
Metabolism Rate	1511	1502	1666
Body Age	42	42	43
Blood Pressure	97/56,70	98/62, 75	98/71,77
Waistline(cm)	88.5/108	88.5/108	88.5/107.5

Respondent 002 is a student aged 20 who is obese. She rarely exercising and always skip her meals especially lunch. Her sleeping time is considered normal as she normally sleep by 11pm. From week 2 onwards, she started exercising almost every day and did not skip meals anymore. As a result, her body weight reduced slightly from week 1 to week 5 while her body fat percentage dropped 3.9% from week 1 to week 5.

**Respondent 003**

**Table 3: Body Health Analysis for Respondent 003**

	Week 1	Week 3	Week 5
Weight	61.9	61.9	62.6
Body Fat(%)	16.3	16.1	17.5
Visceral Fat	4	4	4
BMI	20.4	20.4	20.7
Metabolism Rate	1509	1511	1516
Body Age	21	21	22
Blood Pressure	127/65, 77	127/66,76	128/69, 73
Waistline(cm)	76/95.5	76/95.5	77/96

Respondent 003 is a student aged 21 who has normal body fat percentage. He teaches tuition as his part-time job which makes him unable to have his dinner at the appropriate time. He always sleeping after midnight, normally do not have meals at fixed time and rarely exercise. Throughout 5 weeks, he had shown improvement to his sleeping times. He started exercising from second week onwards.

**Respondent 004**

**Table 4: Body Health Analysis for Respondent 004**

	Week 1	Week 3	Week 5
Weight	65.3	63.4	60.1
Body Fat(%)	31.7	30.2	29.5
Visceral Fat	4	3	3
BMI	22.9	22.2	21
Metabolism Rate	1351	1328	1280
Body Age	33	31	28
Blood Pressure	98/61,82	110/68,83	104/70,82
Waistline(cm)	80.5/99.2	81.5/96	80.5/94.5

She is a 22-year-old student who teaches tuitions as her part-time job. Her weight is normal in BMI classification but her body fat is considered high (31.7%). She sleeps quite late which is 12am normally and do not exercise. Besides, she does not have meals in an appropriate time most of the time. Throughout the program, she started exercising from week 2 onwards, doing 4-3-2-1 exercise and aerobic at home. As a result, her weight and body fat percentage dropped by 5.2kg and 2.2% respectively.

**Respondent 005**

**Table 5: Body Health Analysis for Respondent 005**

	Week 1	Week 3	Week 5
Weight	88.7	83.9	82.3
Body Fat(%)	37.5	36.7	35
Visceral Fat	12	11	9
BMI	33	31.2	30.2
Metabolism Rate	1677	1609	1597
Body Age	48	46	44
Blood Pressure	107/62,74	108/63,74	108/63,74
Waistline(cm)	99/115	98/114.5	98/114

She is a 21-year-old student who is obese. She neither exercising nor control her diet. However, one day right after the first measurement was done, she immediately signs up a gym package and started control her diet. Throughout these 5 weeks, she exercised at least one hour daily and drank oat or soy as her breakfasts but still eat normally for her lunches and dinners. As a result, she lost 6.4kg of weight and 2.5% of fat in 5 weeks.

**Respondent 006**

**Table 6: Body Health Analysis for Respondent 006**

	Week 1	Week 3	Week 5
Weight	67.7	67.6	68.4
Body Fat(%)	21.2	20	16.7
Visceral Fat	4	4	4
BMI	20.3	20.3	20.4
Metabolism Rate	1593	1589	1618
Body Age	29	28	26
Blood Pressure	112/61,75	110/60,75	127/71,75
Waistline(cm)	84.4/97	84.4/96.9	82.5/95

Respondent 006 is a 29-year-old working adult who is also a vegetarian. His BMI is classified under normal range but his body fat percentage is slightly high which is 21.2%. He maintains healthy lifestyles including no taking of supper always eat at the right time and sleep early. However, he seldom exercises. Throughout this program, he gained weight and maintained his healthy diet.

**Respondent 007**

**Table 7: Body Health Analysis for Respondent 007**

	4 <sup>th</sup> July(2months before the program)	Week 1	Week 3	Week 5
Weight	77.4	73.4	73	70.7
Body Fat(%)	25.3	22.1	22	18.4
Visceral Fat	10	8	8	7
BMI	26.2	23.7	24.1	22.8
Metabolism Rate	1713	1669	1662	1645
Body Age	43	37	37	32
Blood Pressure	113/77,85	134/72,65	118/77,69	126/72, 84
Waistline(cm)	87.5/97.5	87/97	84/98.5	86/96

Respondent 007 is 29-year-old working adult who is overweight and too high in body fat percentage. Few months before this 5-week program, he had already putting in efforts for a healthier weight. He lost weight and body fat consistently in months with good discipline in controlling in his diet and increased in daily physical activities. Throughout the 5-week program, with his strong self-discipline, he lost 2.7kg of weight and 3.7% of body fat in total.

**Respondent 008**

**Table 8: Body Health Analysis for Respondent 008**

	Week 1	Week 3	Week 5
Weight	50	49.8	49
Body Fat(%)	31	31.2	26.6
Visceral Fat	2	2	2
BMI	19.8	19.7	19.4
Metabolism Rate	1115	1111	1114
Body Age	28	27	24
Blood Pressure	97/60,63	102/60,64	96/61,76
Waistline(cm)	68.7/97	68/93.5	65/93.5

She is a 26-year old working adult who has normal body weight but slightly high in body fat percentage. She has an unhealthy lifestyle. She sleeps quite late which is normally around 12am/1am and does not have meals at the right time. Throughout the program, she demonstrated a well-disciplined lifestyle. She had done exercises regularly. She took meals in more appropriate times and rarely skipped them. As a result, she lost 1kg of her weight and 4.4% of her body fat.

**Respondent 009**

**Table 9: Body Health Analysis for Respondent 009**

	Week 1	Week 3	Week 5	After 1 month
Weight	66.1	64.9	66.1	63.4
Body Fat(%)	34.4	35.1	34.3	34.6
Visceral Fat	8	7	7	7
BMI	27.2	26.7	27.2	26.1
Metabolism Rate	1346	1324	1346	1303
Body Age	43	43	43	42
Blood Pressure	99/70,70	96/59,82	93/56,72	94/60,74
Waistline(cm)	79/104.5	85/103	85/104	85/104

Respondent 009 is a 27-year-old working adult who is overweight and very high body in fat percentage. She consumed largely in high carbohydrates like rice and noodles but less in vegetables and fruits. For the first 4 weeks, there weren't many changes on her lifestyle. However, in week 5 she managed to sleep earlier which was 10.30pm compared to 12-1am previously. Besides, she started exercising 3-15 minutes daily. After the end of 5 week program, she decided to sign gym package and continue control her diet. As a result, one month after the program, she started losing weight.

**Respondent 010**

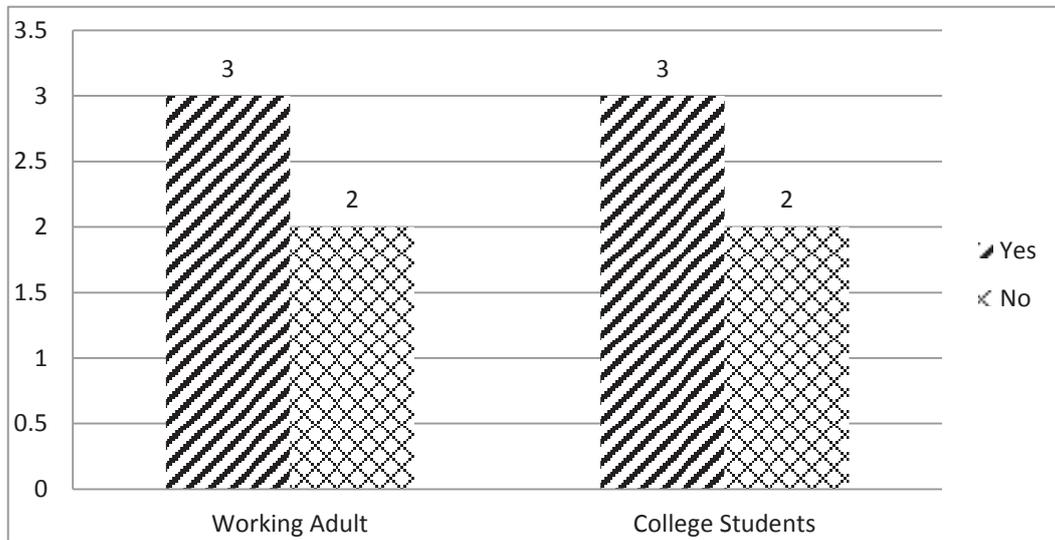
**Table 10: Body Health Analysis for Respondent 010**

	Week 1	Week 3	Week 5	After 1 month
Weight	65.3	64.2	65.5	61.9
Body Fat(%)	34.5	35.1	35	34.5
Visceral Fat	7	7	7	6
BMI	26.8	26.4	26.9	25.4
Metabolism Rate	1333	1313	1333	1281
Body Age	42	41	42	40
Blood Pressure	112/75,77	112/76,72	97/66,68	98/68,70
Waistline(cm)	83.5/102.5	83/101	81/101	81/100

She is a 25-year-old working adult. She practises similar lifestyles as Respondent 009. She consumed largely in high carbohydrates but little in vegetables and fruits. However, with her high level of commitment shown throughout this five weeks program, she managed to lose her body weight and fat simultaneously.

## CONCLUSION AND DISCUSSION

### Body Fat Reduction

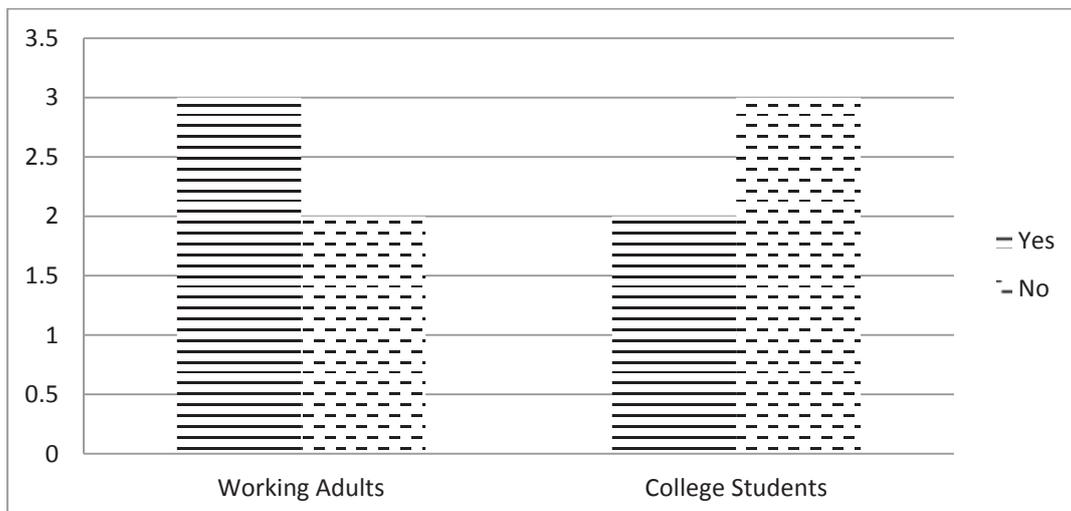


**Figure 1: Body Fat Reduction Over Five Weeks of Monitoring**

Based on Figure 1, after five weeks of monitoring, it was found that 60 percent of the respondents managed to lose weight as they made minor adjustment towards their lifestyle behaviour after the first anthropometry data were collected.

During the first session, participants were advised to change their lifestyle behaviour such as having routine breakfast, lunch and dinner every day, limiting the meals consumption to three main meals a day, increase the intake of vegetables in their meals, quit smoking and increase in physical activity; which involved in exercising and using up more energy such as using the staircase instead of elevator. Most of the participants had an initiative to enrol themselves to the gymnasium to ensure they have a proper guided trainings and exercises.

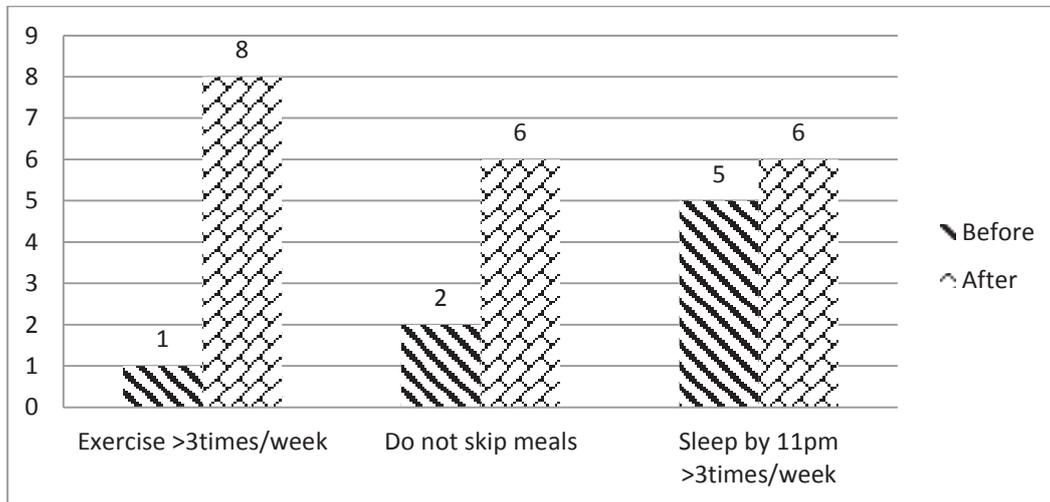
### Body Age Value



**Figure 2: Younger Body Age Value of Participants at the End of the Program**

In referring to Figure 2, based on the measurement taken from Omron Karada Scan which automatically calculates the body age, it was found that 50% of the participants have younger body age in comparison with their actual age. Most of them are from the working adult group, where their actual age is slightly higher (in the range of 2- 5 years) than their body age stated.

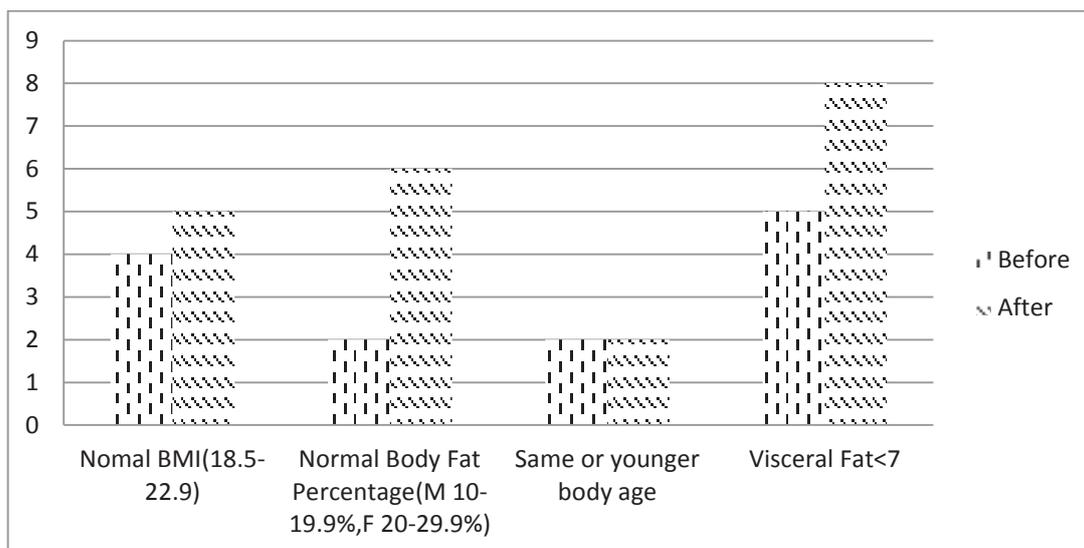
### Lifestyle Changes



**Figure 3: The Lifestyle Changes Before and After 5 weeks of Monitoring**

Based on Figure 3, only 10% of the respondents performed exercising more than 3 times per week at the beginning of the program. After 5 weeks, the number of participants who exercised at least 3 times per week increase to 80%. The number of participants who never skip meals increase from 20% to 60%, while the number of participants who sleep by 11pm at least 3 times per week increase from 40% to 60%. As this study focus on monitoring and educating participants to have better lifestyle behaviour, most of the participants made their effort to change their lifestyle behaviour to ensure better body health.

### Body Health



**Figure 4: Body Health Before and After 5 weeks of Monitoring**

Figure 4 shows the body health status comparison before and after the program. At the beginning of the program, only 40% of the participants obtained normal BMI which was ranged between 18.5 and 22.9. The number increased to 50% at the end of the program. The number of respondents who has normal body fat percentage increased from 20% to 60% towards the end of the program. While there was equal number of respondents in younger body age compared to the actual age. Finally, there was an increase of 10% for visceral fat values among the participants.

Based upon these results, it is clear that lifestyles behaviour could affect the overall body health. However, this study could not represent the entire population holistically. As this is a preliminary study. Further study need to be carried out in order to deepen the understanding of the relationship between lifestyle behaviour and body health.

## REFERENCES

- Berkey, C. S., Rockett, H. R., Field, A. E., Gillman, M. W., Frazier, A. L., Camargo, C. A. (2000). Activity, dietary intake, and weight changes in a longitudinal study of preadolescent and adolescent boys and girls. *Pediatrics*, 105(4), 56 - 64.
- Bernard, Russel H. (2006). *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Walnut Creek: Altamira Press.
- Centers for Disease Control and Prevention (2014). Physical Activity Guidelines for Americans. Available at: <http://cdc.gov/physicalactivity/everyone/guidelines/adults.html>. [Accessed 30 March 2014]
- Concalves,H ,Gonzalez, D. (2012). Adolescents' perception of causes of obesity: Unhealthy lifestyles or heritage? *Journal of Adolescent Health*.
- Cundiff, D. K., (2006). BMI: a poor surrogate for diet and exercise in assessing risk of death. *International Journal of Obesity*, 30, 1173–1175.
- Cupples, Janet L. Cobb, Ernst Schaefer, Donald R. Miller and Ralph B. D'Agostino. (1992). Comparison of techniques for estimating nutrient intake: The Framingham study. *Epidemiology* 3(2), 171-177.
- Dehghan, M, Mente,A, Teo KK, Gao P, Sleight, P, Dagenais, G, Avezum, A, Probstfield, JL, Dans, T, Yusuf, S. (2012), Relationship Between Healthy Diet and Risk of Cardiovascular Disease Among Patients on Drug Therapies for Secondary Prevention: *A Prospective Cohort Study of 31 546 High-Risk Individuals From 40 Countries*.
- Ekaterina, M. (2010). *The Role of Physical Activity, Obesity and Perception of Weight Status in the Prevention of Elevated Blood Pressure in Youth: Biological and Behavioural Investigations*. Canada McGill University: UMI Dissertations Publishing.
- Eriksson, P and Kovalainen, A. (2008). *Qualitative Methods in Business Research*. Sage Publications.
- Flegal K. M., Graubard B. I., Williamson D. F., and Gail M. H. (2005). Excess deaths associated with underweight, overweight, and obesity. *JAMA* 2005; 293, 1861–1867.
- Foy, S., Sabin, N., and Smolinski, M. (2009). *The 10-Minute Total Body Breakthrough*. (Special edition) Workman Publishing Company.
- Katz, D. (2010). Lifestyle Changes vs. Medication: When Each Is Right. Available at: [http://www.huffingtonpost.com/david-katz-md/health-and-nutrition\\_life\\_b\\_610128.html](http://www.huffingtonpost.com/david-katz-md/health-and-nutrition_life_b_610128.html). [Accessed 20March 2014]
- Kelli, W. (2006). *Cultural Perceptions of a Healthy Diet and Healthy Weight among Rural Appalachian Youth*. The Ohio State University: UMI Dissertations Publishing.
- Kernion, N. (2005). *Adolescents' Lifestyles and Body Weight Perception*. The University of Alabama at Birmingham: UMI Dissertations Publishing.

- Kresser, C. (2010). The Diet-Heart Myth: Statins Don't Save Lives in People Without Heart Disease. Available at: <http://chriskresser.com/the-diet-heart-myth-statins-dont-save-lives-in-people-without-heart-disease>. [Accessed 20March2014].
- Malinauskas, B. M., Raedeke, T. D., Aeby, V. G., Smith, J. L., and Dallas, M. B. (2006). Dieting practices, weight perceptions, and body composition: a comparison of normal weight, overweight, and obese college females. *Nutrition Journal*, 5(11).
- Mercola (2013). Just Say No: When It Makes Sense Not to Take Your Medicine. Available at: <http://articles.mercola.com/sites/articles/archive/2013/10/30/prescription-drugs-medical-problems.aspx>. [Accessed 20th September 2014].
- Mokdad, A. H., Marks, J. S., Stroup, D. F., and Gerberding, J. L. (2000). Actual causes of death in the United States. *JAMA* 2004; 291: 1238–1245.
- Oregon State University. (2010). Snowball Sampling. Available at: <http://oregonstate.edu/research/irb/snowball-sampling>. [Accessed 21 March 2014].
- Proctor, M. H., Moore, L. L., Gao, D., Cupples, L. A., Bradlee, M. L., and Hood, M. Y. (2003). Television viewing and change in body fat from preschool to early adolescence: the Framingham Children's study. *International Journal of Obesity*, 27, 827 - 833.
- The Real Truth. (2014). Society's Dependence on Prescription Drugs. Available at: <http://realtruth.org/articles/448-msdopd.html>. [Accessed 20March 2014].
- Value Base Management. (2013). Force Field Analysis. Available at: [http://www.valuebasedmanagement.net/methods\\_lewin\\_force\\_field\\_analysis.html](http://www.valuebasedmanagement.net/methods_lewin_force_field_analysis.html). [Accessed 25 March 2014].
- Zucker, D. (2001). Using Case Study Methodology in Nursing Research. Available at: <http://www.nova.edu/ssss/OR/OR6-2/zucker.html>. [Accessed 25 March 2014].