Satisfaction Index on Factors That Affect Healthy Lifestyle among University Students

Ong Ai Lee, Suliadi Sufahani, Mustafa Mamat

ABSTRACT--- Women are an equal soul of men by comprises men in her name itself but really they are treated equal among men. There is a broad gap in between past and present centuries. Women are treated poorly on past centuries by getting huge works, asking more dowries and even killing female infant but in present century these has been reduced and crimes are increased more in numbers against women like abducted, murdered, raped and harassed in various ways. This assessment is on women's tracking system which helps them in their safety and security. Although there are n numbers of tracking devices still crimes against women are in an increasing rate. These crimes have to be reduced in an effective ways of implementing versatile tracking system by combining various technologies into a single integrated unit.

Keywords— Audio and Image, GPS, GPRS, GSM, Sensors.

I. INTRODUCTION

In opinion of [20], healthy lifestyle is an introduction towards a healthier life and prevent having disease in future due to the unhealthy habits in our daily life. Eating habits, health factors, exercise and entertainment play an important role to prove that a person is following a healthy lifestyle [19].

Nowadays, bad eating habits became one of the major health concern among the university students in Malaysia. University students are more likely to make their eating choice according to the available food and the price of food. However, most of them do not have enough understanding about what kind of food will bring better effects toward their health status [11].

According to [6], they claimed that when people do not do any single exercise, the probability of getting sick will be doubled. Even though when comparing with the other habits like smoking and overweight, working out will be a more important determinant of health as when do not working out at all will even cause the lifespan being shorten.

Health factor can be divided into physical factor and mental factor. Psychological factors which like stress, anxiety and happy can affect the health of bodies. For physical factor, nowadays, there are more people that are facing the problem of obesity. In the opinion of University Malaysia Sarawak (UNIMAS) Department of Community Medicine and Public Health associate professor, Dr. Zafar Ahmed claimed that the Malaysian did not see the problem of obesity as a very serious issue but in fact it could cause a massive health problem like Cardiovascular Disease (CVD) and stroke [27], [36], [37].

When citizens are watching television, surfing internet or going out with their friends, it can actually give some benefits toward their mental health but in the condition of doing it in the right way or for the right amount. For example, if watching television show caused the university students addicted to it, this will be a bad issue as this will limit the time to do other useful things [1].

University students composed a large part in the young adult population [16]. However, there are only very less research that had been conducted before to determine whether the university students are healthy or not. Therefore, a survey is conducted to find out the factors that affect healthy lifestyle of Faculty of Applied Sciences and Technology (FAST) in Universiti Tun Hussein Onn Malaysia (UTHM) students in order to make them healthier.

In the previous research, most of the research mentioned that before move on to the analysis part, it is necessary to use the descriptive statistics to obtain the essential highlights of the information in a study Percentage are mostly being used. In the research of [14], the percentage was being used in order to describe the predominance of obesity among variables of gender and living areas which are rural and urban. Besides, percentage was also being used in the research of [15] to show which kind of people in United States were more likely to adopt a healthy lifestyle according to four criteria and in the research of [5] in order to describe behavior of healthy lifestyle among school-aged pupils. Then, in 2013, average and percentage were used to describe the health behavior of their respondents after they done the survey [2].

There are many types of statistical tests that can be used for the analysis. For health behavior, Research of [4] used the item analysis, the result showed that male had less good health behavior. A survey was carried out to measure the association between health habits and psychological variables. During the statistical analysis, the gender difference of the scores was identified and then analyzed by using analysis of variance [3].

Chi square test is a very popular statistical test. For example, the researchers used Chi-square test to find out is there any difference for the response of male and female when they were answering the questions about the eating habits and exercise and the why did they do the exercise [26]. Research of [16] used it to know either male or female

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Ong Ai Lee Department of Mathematics and Statistic, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Pagoh Campus, 84600 Pagoh, Johor, Malaysia.

Suliadi Firdaus Sufahani Department of Mathematics and Statistic, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Pagoh Campus, 84600 Pagoh, Johor, Malaysia.

Mustafa Mamat, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin, Kampung Gong Badak, 21300 Kuala Terengganu, Terengganu, Malaysia.

had a better health habits and inspiration to follow a healthy lifestyle and to determine the relationship between self-evaluated health and inspiration to adopt a healthy lifestyle.

A survey was carried out to measure the association between healthy lifestyle habits and having the practice of yoga among the Australia female. Chi-square tests were used to do a comparison on the women who always practiced yoga with the women who did not practice yoga to know whether this practice affects the health habits or not [8]. A study was undergone in order to find out the association between body condition in both mental and physical and their health habits by using chi-square test and compared the result between demographic factors [17], [30], [38].

After that, for the formal analysis which is to measure the satisfaction level, it already exist of many countries tried to use ACSI method in many areas including Malaysia. Research of [12] used ACSI to find out My HealtheVet consumers' satisfaction level and the results allowed the readers have a better understanding about attributes, requirements and inclinations of consumers and also their strength and weakness and make some improvement so that the satisfaction level can be higher.

According to the quantitative analysis, Mineful Customer Satisfaction Index (MCSI) and ACSI were being used to measure the satisfaction level of Malaysians according to many elements. At the end, the researchers found out that for every state in Malaysia, the satisfaction level were all at the stage of moderate [29]. In the research of [24] mentioned how to use ACSI method to measure the overall satisfaction level of the online travel customer in India.

II. METHODOLOGY

Design

The questionnaire was divided into 5 parts with a total of 30 questions. The first part which is part A in the questionnaire was about the demographic questions with multiple choices. Part B, C, D and E are satisfaction level towards eating habits, health factor, sport area and entertainment field respectively which used 5 point Likert-type scale. The questionnaire was ended with an open-ended question which asked the respondents to give their own suggestion to improve the lifestyle.

Data Collection

Primary data is used in this study. The primary data is collected randomly from the respondents of bachelor degree students from FAST in UTHM Pagoh. Before starting a formal study, a pilot study needed to be undergone first. By using the formula stated in [28], the sample size needed for the pilot study is identified:

$$n_p = \frac{\ln(1-\gamma)}{\ln(1-\pi)} \quad (1)$$

where n_p = participants for a pilot study, γ = confidence level and π = probability of getting wrong answer.

After that, Cronbach's alpha is being used to test the internal consistency of the questionnaire to ensure that the statements consisted in the survey are reliable [10].

Then, calculation of the sample size needed for a formal study is required by using the Cochran's sample size formula stated in research paper of [7] as below:

$$n_0 = \frac{Z^2 pq}{e^2} \quad (2)$$

where n_0 = sample size needed, Z = z score, p = available estimated proportion of an attribute in whole population, q = 1- p and e = margin error.

Since the total population equals to 858 persons, so the exact number of sample size was being found which is shown in below:

$$n_1 = \frac{n_o}{1+\left(\frac{n_o - 1}{N}\right)} \quad (3)$$

where n_1 = sample size and N = population.

After the calculation, the sample size that needed was 266 respondents.

Descriptive Statistics

The frequency of each statement in five parts was being displayed in number so that the readers especially students of UTHM can know which area that they need to work harder so that they can live out a healthier life.

Satisfaction Level

Satisfaction index for each section is identified in the result. In this research, the ACSI score can be derived from three manifest variables among the survey questionnaire. Each of the question is answered on a 1-5 scale by the respondents and the representation of those five scale used was being stated which was obtained from the round table discussion and the weighted average is estimated on 0-100 ACSI score for the survey. The table for manifest variables for the scale of one and five is shown as below.

Table 1: Likert scale representation

Scale	1	2	3	4	5
Ranking	Very low	Low	Medium	High	Very high

In order to calculate the ACSI score, the weightage of each variable will need to be identified first which through some discussion [29]. Through the discussion with Mr. Mohd Firdaus Akhimullah Mohd Fauzi Chan which is a

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professional trainer and Madam Nornazatul Shima, the weightage of each variable is able to be estimated. After that, a discussion with Professor Dr. Zuhaimy Ismail, an expert in satisfaction index from Universiti Teknologi Malaysia was being done for further confirmation of the research.

Table 2: Weightage of each variable

Variable	Weightage
Eating habit	0.35
Mental health and physical health	0.25
Sport	0.30
Entertainment	0.10

The ACSI will be calculated according to the (4):

$$ACSI = \frac{(X_1 - 1)*W_1 + (X_2 - 1)*W_2 + (X_3 - 1)*W_3 + (X_4 - 1)*W_4}{4*100} \quad (4)$$

where X = average of variable and W = weightage for each variable.

Cross Tabulation Tests

Cross tabulation test is used when there are two or more categorical variables which follows a joint frequency distribution [21]. The test used is Chi-squared test which can identify whether there is an association between the variables or not.

Another method that can be used is the Kendall'tau *b* test. It is a test of measuring the strength and direction of the relationship. Value of correlation coefficient is between negative one to positive one. When the value is closer to one, this means that the association between the variables are stronger [22].

III. RESULTS AND DISCUSSION

Frequency of Satisfaction

The frequencies of satisfaction level of respondents towards all the statements consisted inside each variables are presented for variables of eating habit, mental health and physical health, sport area and entertainment area.

For variable of eating habit, all of the statements showed the highest frequency at scale of satisfied which are 82 respondents for statement of eating breakfast every day, 118 respondents for habit of having a regular meal every day, 127 respondents for statement of I never drink alcohol, 98 respondents for habit of drinking at least two liters of water in a day and 115 respondents for having a balanced diet every day. However, there are two statements with the highest frequency at scale of unsatisfied which are statement of do not eat snack and do not eat fast food. This is bad as eating snacks will lead to the excessive body weight as it only consist of a low nutritional quality [13] while for the fast food, according to [9], the compound consisted inside fast food will more easily increase the risk of obesity and high cholesterol and which will eventually lead to the heart disease.

For health factor, there are two statements showed the best result at scale of very satisfied which are 79 respondents for statement of my BMI shows that I am in normal weight and 157 respondents for statement of I never smoking cigarette. However, for statement of I can overcome the stress when about to exam or presentation, most of the respondents unsatisfied with the statement which consist of 90 respondents. This means that most of them are not capable to overcome the stress. In fact, stress can give negative impacts of affecting their physical health and cause psychological problems [18].

In sport area, there are three statements showed a bad result the highest frequency at scale of unsatisfied and another statement at scale of very unsatisfied. The statements are I play ball game every week and I do indoor activity every week for highest frequency at scale of unsatisfied while the statement of I cycle every week showed the highest frequency at scale very unsatisfied which consisted of 74 respondents. This maybe was due to the reason of cost and they did not have the habit of cycling.

The students are satisfied with two statements which there are 89 respondents for statement of doing a regular exercise every week and 83 respondents for habit of walking into college every day. Walking can actually bring benefits which it not only just reduce our weight but also can reduce blood pressure and eventually reduce the risk of getting heart disease [25].

In entertainment field, there are 93 respondents agree with statement of I do not go to the cafeteria to watch television show every day and 89 respondents agree with statement of I do not go out with my friends for fun every day. At the scale of strongly agree, habit of I do not play computer game every day and I do not night out until midnight unless there is an emergency happened showed the highest frequency at that scale.

Statement of I do not surf internet for entertainment every day and I do not watch drama or entertainment show every day showed the highest frequency at scale of disagree which are 95 respondents and 100 respondents respectively. They should change their unhealthy habits as the students might be acting differently in their daily life, sleeping less than usual, headache and lead to other psychological problems [23].

Pareto Analysis of Suggestion

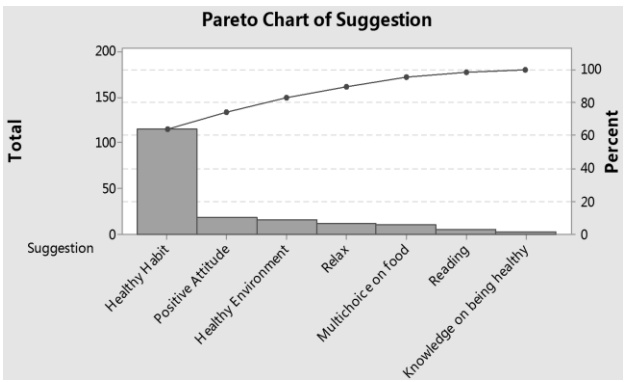

Fig. 1: Pareto chart of suggestion

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According to the Pareto analysis, suggestion of healthy habit was the suggestion that most recommended by the respondents, which means that students thought that having a good habit in their daily life is more applicable compared with other method in order to stay healthy. The least recommendation is other which are the combination of reading and having knowledge on being healthy. According to the Pareto principle of 20:80, the chart showed that 20% is the suggestion of healthy habit which is the most important and critical criteria in order to be healthier while 80% are the other six suggestions [29], [31]-[35].

ACSI Calculation

Table 3: ACSI score calculation

Variable	Grand Average , X	$X-1$	Weightage , W	$(X-1)*W$
Eating habit	3.399	2.399	0.35	0.8397
Physical health and mental health,	3.4467	2.4467	0.25	0.6117
Sport	2.9256	1.9256	0.30	0.5777
Entertainment	3.4273	2.4273	0.10	0.2427
Total				2.2718
$ACSI = \frac{2.2718}{4*100} = 56.7937$				

At last, after the calculation, the ACSI score equals to 56.7937. This can be consider as a high value [29]. It indicated that the UTHM FAST students are having good healthy habits. However, this value is still consider quite low even though it is in the category of healthy which means that there is still some space for improvement in order to be more healthier.

Chi-Squared Test and Kendall'tau b Test

There are 45 combinations of statements with the *p*-value smaller than 0.05. This means that for those statements, the null hypothesis for Chi-square was being rejected. Hence, it can be said that 95% confident that there is an association between those statements.

After that, for Kendall's tau *b* coefficient correlation, it can be said that for the 45 combinations of statements, all of it only consisted of a weak association between each other since their coefficient correlation values are not larger than 0.3 [18].

There are nine combinations of statements had a weak negative association between each other. For the other 36 combinations of statements had a weak positive association with each other.

IV. CONCLUSION

The objectives in this study are being achieved which for the first one, there are four factors that affect healthy lifestyle which are eating habits, physical health and mental health, sport and entertainment. It can be proven by identifying the weightage of these factors, the results of satisfaction of the statement consisted in these factors gave an impact towards the ACSI score. For the second and third objectives, it can be clearly proven through the ACSI score and its interpretation. A high value of ACSI score showed that in overall, the UTHM students are satisfied towards the factors affect healthy lifestyle. In a more detailed way, it can be said that the FAST UTHM students are following a healthy lifestyle. However, the students of FAST UTHM still need to work harder in order to have more healthy health habits.

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