

Attitude and Knowledge Towards Fruits and Vegetables Consumption Among Adults in Malaysia

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Abstract

Intake of fruits and vegetables is important for human health because these foods are primary sources of essential nutrients such as fibre, minerals, and vitamins. The presence of many vitamins and other substances in fruits and vegetables provides nutrients to the human body that can prevent major diseases such as noncommunicable diseases (NCDs), including certain types of cancer. However, the majority of Malaysian adults were unconcerned about the importance of fruit and vegetable consumption to their health. A global challenge is adults' low intake of fruits and vegetables. Therefore, this study is conducted to assess the attitude and knowledge of Malaysian adults toward fruit and vegetable intake. A cross-sectional study was conducted among adults in Malaysia using an online questionnaire. A total of 291 adults were randomly chosen to participate in this study. Based on the attitude findings, more than 40% of the respondents 'strongly agree' that they want to consume more vegetables and enjoy eating fruits. Furthermore, more than 40% of respondents "disagree" that eating vegetables can lead to less energy. Knowledge was assessed in the areas of nutrition, protection, and general knowledge. Half of the respondents demonstrated a lack of knowledge about nutrients and protection, including general knowledge. On the mean score of nutrition knowledge of respondents toward fruit and vegetable consumption, there is a significant difference between age groups, with the difference being obvious between the age groups of less than 30 and 30 to 49 years old, as well as 50 and above. Thus, more effort is needed from the government to educate Malaysians on improving and increasing their fruit and vegetable intake. These education programs must consider the trade-off required for families to purchase more fruits and vegetables and consume the recommended number of servings per day.

1. Introduction

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Intake of fruits and vegetables is important for human health because these foods are primary sources of some essential nutrients such as fibre, minerals, and vitamins. The presence of many vitamins and other substances in fruits and vegetables provides nutrients to the human body. At least two servings of fruits and three servings of vegetables should be consumed each day, according to the Malaysian Dietary Guidelines 2020 published by the Ministry of Health (MOH). However, nearly 95% of Malaysian adults do not consume the recommended daily servings of fruits and vegetables [1]. They did not know the daily recommended servings of fruits and vegetables [2]. Thus, it increases the risk of non-communicable diseases (NCDs) like diabetes, hypertension, and anaemia.

According to the World Health Organization (WHO) (2022), low fruit and vegetable consumption is responsible for 16 million (1.0%) disability-adjusted life years (DALYs) and 1.7 million (2.8%) deaths globally. There is strong evidence that, compared to low-energy meals like fruits and vegetables, eating many high-energy foods, such as processed foods high in fat and sugar, encourages obesity. It is generally known that an appropriate intake protects people's health [3], [4]. One of the most important aspects of a healthy diet is encouraging daily fruit and vegetable intake, which is important for preventing both malnutrition and non-communicable diseases in adulthood [5]. McGuire (2011) suggested improving the diet by consuming more fruits and vegetables. A diet rich in fruits and vegetables can boost metabolism and improve nutritional status. According to a number of studies, consuming more fruits and vegetables decreases the risk of obesity and non-communicable diseases (NCDs), including cardiovascular disease, cancer, and all-cause mortality [2], [6].

Verain et al. (2020) stated that there is still much to learn about what motivates individuals to consume the recommended amounts of fruits and vegetables. Consumption of fruits and vegetables by adults is influenced by personal factors such as attitude, habit, environmental, and socio-demographic factors. These factors have been identified as a priority area for identifying dietary behaviour factors and changes. Attitudes, habits, social influences, and availability all play a significant role in how much fruit and vegetables people consume [7]. It is also suggested by Hassan et al. (2015). The intakes of fruit and vegetable among adults relate to their knowledge, attitudes, and practises toward consuming fruit and vegetable. Understanding the relationship between knowledge, attitude, and practices regarding fruit and vegetable consumption is important because it may provide suggestions for developing efficient interventions to increase fruit and vegetable intake among adults, which can lower the rising risk of malnutrition [8]. According to the social cognition theory, increasing knowledge and having a positive attitude may also be able to influence behaviour (Rosenstock et al., 1988).

The majority of Malaysian adults were unconcerned about the health benefits of consuming fruits and vegetables. A global challenge is adults' low intake of fruits and vegetables. They were unaware of the daily recommendations for dietary fibre and the portions of fruits and vegetables [9]. There were little data on adults' knowledge, attitudes, and practices about fruit and vegetable eating in Malaysia. Since minimal research was done in Malaysia, it is crucial to evaluate adults' attitudes and knowledge of eating fruits and vegetables as well as their understanding of nutrition. This research is also important to the researcher in terms of gaining new knowledge about the consumption of fruits and vegetables in our daily lives, as well as gaining a better understanding of the importance of fruit and vegetable consumption to our health. At the same time, it will help direct public policies toward creating healthy environments.

2. Literature Review

Several past studies were conducted on adults' consumption of fruits and vegetables [2], [10], [11], [12], [13], . There are various fruit and vegetable consumption patterns among the respondents. The results showed that vegetables like garlic and onions are consumed often every day. Meanwhile, the majority of respondents reported eating a great deal of fruit, particularly oranges, watermelon, bananas, and guava [2]. Another study by Ali et al. (2020) found that those respondents liked sweet fruits and vegetables such as bananas, watermelon, apples, carrots, and cucumbers. This finding is consistent with the study by Dresler et al. (2017), which found that mild and sweet vegetables such as carrots, corn, potatoes, broccoli, and cauliflower were most preferred by the respondents.

Findings from Othman et al. (2013) showed that chili, cabbage, cucumber, leaf mustard, tomatoes, and water convolvulus are the most liked vegetables among adults, while fruits like apple, orange, banana, watermelon, and papaya were the most liked fruits. The findings show that the quality of fruits and vegetables is the main reason Malaysian adults eat both of them. In addition, the adults' preferences for particular types of food are influenced by the texture of the food [14]. Meal patterns may also be related to taste and preference, which may differ between cultures and people [15]. Fruit and vegetable consumption is also influenced by taste [16], [17]. Food intervention may improve the food's quality. For example, offering healthy and tasty alternatives to French fries and offering fresh and attractive fruits.

Another study in North Central Nigeria found that the cost and the seasonal availability of fruits and vegetables were the most influential factors on adult consumption [18]. However, a study conducted by Izzah et al. (2012) proved that preferences for the consumption of these seasonal fruits were not solely influenced by price. Similar results were obtained from previous studies, which found that price was only a moderate

determinant of food choice [19], [20]. On the other hand, adequate intake of fruits and vegetables was also connected with educational status. As education levels rose, so did awareness of the advantages of fruits and vegetables. Despite the fact that fruit and vegetable consumption is generally low, it is interesting to note that consumption increases with educational level [21]. This suggests that those with higher levels of education are more likely to be aware of the advantages of eating fruits and vegetables [14]. Based on Lee et al. (2022), education may also guarantee that people are aware of the appropriate serving sizes of fruits and vegetables and how to include them in meals and snacks.

Fruit and vegetable consumption knowledge, attitude, and practises are generally related to adult intake of fruits and vegetables [22]. According to Shertzer et al. (2006), a lower frequency of consuming fruits and vegetables was associated with a lack of knowledge of the daily fruit and vegetable recommendations. Furthermore, the practises of eating fruits and vegetables implied a decrease or increase in the consumption of fruits and vegetables by individuals [23]. It was agreed upon by Lo et al. (2022). They stated that physical activity levels, ethnicity, knowledge, and attitudes toward fruits and vegetables are all related to fruit and vegetable consumption. Individuals with high knowledge levels tended to consume fewer servings, whereas those with high practice levels were likelier to consume more. Lack of capacity to use knowledge of fruits and vegetables to make practical dietary decisions causes a large proportion of individuals to have high levels of knowledge, but low practises levels for fruits and vegetables [24]. Less parental involvement and more exposure to fast food restaurants also affected the consumption of fruits and vegetables among people [25]. Most people had positive attitudes toward fruits and vegetables. Although they were aware of the benefits of fruits and vegetables for health, they were unaware of the suggested intake [26] [27].

3. Methodology

A cross-sectional study was carried out to determine the attitude and knowledge of fruit and vegetable consumption among adults in Malaysia. This study involved 291 adults chosen at random to participate by providing their cooperation in completing the questionnaire. The data was gathered once over a period of four weeks. The data was collected through an online survey using a Google Form to gain information from the respondents. This method was chosen because it was suitable, had a lower budget, and allowed respondents to complete the questionnaire at their leisure.

The questionnaire consisted of three major sections. The first section contains several items on demographic information, such as age group, gender, race, marital status, occupation, education level, and residence. The second section is about the medical history of the respondents, which consists of smoking status and disease status. The third section consists of the knowledge and attitude domains. The knowledge domain includes 28 questions. It addresses nutrition, protection, and general aspects of fruit and vegetable consumption. Categorical responses (true, false, or don't know) were used for this item. The scoring system is as follows: 1 for true, 0 for don't know, and 0 for false. Total knowledge was calculated by adding all respondents' answers to each question.

The attitude domain comprises four questions. Positive questions consist of Q1, Q2, and Q3, while Q4 is defined as a negative question. The Likert-type scale matrix with pre-coded numerical scales was used to measure the extent of the respondent's view in the attitude section. A five-point Likert scale was adopted. For positive attitude, the scoring is: 5- Strongly Agree; 4- Agree; 3- Neutral; 2- Disagree; and 1- Strongly Disagree. For a negative attitude, they are: 1- Strongly Agree; 2- Agree; 3- Neutral; 4- Disagree; and 5- Strongly Disagree. A Likert scale, also known as the method of summarizing ratings, was used because it was highly effective in classifying people based on their attitudes. In addition, the Likert scale was regarded as superior to other semantic differential scales in terms of producing validity when used to measure attitudes.

In this study, several types of analysis were used. Firstly, descriptive statistics were used to examine the demographic profile of the respondents. The frequency table was employed. The profiles that would be analyzed are age group, gender, residential location, and family income. Secondly, the independent T-test is used for comparing the means of the variables between two independent groups. Then, Analysis of Variance (ANOVA) is also used to test for differences between more than two groups. Aside from that, Cronbach's alpha coefficient is used to indicate the reliability of measurement scales. The measure of internal consistency of the measured items for each construct must exceed a minimum value of 0.6. In this study, a total of 40 respondents were chosen at random for the pilot study. The results of the analysis showed that the items in the attitude domain had a Cronbach's alpha reliability coefficient of 0.765, and the knowledge domain had a Cronbach's alpha reliability coefficient of 0.877. These results proved that the instruments were reliable.

4. Results

4.1 Demographic Profile of The Respondents

According to Table 1, demographic information was available for 291 respondents. It shows that 57% of the respondents are female, and the remaining 43% are male. Meanwhile, approximately 38.1% (111) of respondents are from the age group of 30 to 39 years old. This was followed by those less than 30 years old (37.5%, 109), while the lowest percentage came from the age group more than 50 years old with 24.4%, 71. The percentages of respondents representing urban and rural areas are quite comparable at 48% and 52%, respectively. Furthermore, in this study, more than half of the respondents (86%) had a family income of less than RM3000, while only 14% had a family income of more than RM3000.

Table 1: Demographic data of the respondents (n = 291)

Variables	Frequency	Percentage (%)
Gender		
Male	125	43
Female	166	57
Age (years)		
Less than 30	109	37.5
30 to 39	111	38.1
More than 50	71	24.4
Residential		
Urban	139	47.8
Rural	152	52.2
Family Income (RM)		
Less than 1000	116	39.9
1000 to 3000	133	45.7
More than 3000	42	14.4

4.2 Attitude Towards Fruits and Vegetables Consumption

Table 2 shows the attitude of respondents towards fruit and vegetable consumption. More than 40% of the respondents "strongly agree" that they want to eat more vegetables and that they like eating fruits. While more than 40% of the respondents "disagree" that eating vegetables can cause less energy.

Table 2: Attitude of the respondents toward fruit and vegetable consumption

Attitude	Frequency (%)					Mean Score
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
I want to eat more vegetables (Q1)	127 (43.6)	109 (37.5)	45 (15.5)	10 (3.4)	0	4.21
I like to eat vegetables (Q2)	104 (35.7)	132 (45.4)	45 (15.5)	10 (3.4)	0	4.13
I like to eat fruits (Q3)	125 (43.0)	138 (47.4)	27 (9.3)	1 (0.3)	0	4.33
Eating vegetables causing me less energy (Q4)	11 (3.8)	10 (3.4)	37 (12.7)	141 (48.5)	92 (31.6)	4.01

4.3 Knowledge Towards Fruits and Vegetables Consumption

Table 3 depicts adults' knowledge of fruit and vegetable consumption in Malaysia. Knowledge was assessed in the areas of nutrition, protection, and general knowledge.

Based on respondents' knowledge about nutrients, more than 70% replied with the correct answer that fruits and vegetables contain vitamin C. While, based on respondents' knowledge about protection, more than 70% replied with correct answers that fruit and vegetable consumption could help prevent cancer, heart disease, obesity, digestive problems, poor eyesight, and dry skin. And lastly, based on respondents' general knowledge, more than 60% replied with correct answers that cooking vegetables or fruit will destroy their nutrients and that eating fresh is better than canned fruit and vegetables.

Table 3: Knowledge of the respondents towards fruits and vegetables consumption

Knowledge	Frequency (%)		
	True	False	Don't Know
Nutrients in vegetables and fruits:			
Vitamin A	193 (66.3)	5 (1.7)	93 (32.0)
Vitamin B	169 (58.1)	9 (3.1)	113 (38.8)
Vitamin C	244 (83.8)	2 (0.7)	45 (15.5)
Vitamin D	159 (54.6)	15 (5.2)	117 (40.2)
Vitamin E	170 (58.4)	10 (3.4)	111 (38.1)
Mineral	156 (53.6)	15 (5.2)	120 (41.2)
Fiber	197 (67.7)	11 (3.8)	83 (28.5)
Anti-oxidant	146 (50.2)	23 (7.9)	122 (41.9)
Protein	104 (35.7)	78 (26.8)	109 (37.5)
Carbohydrate	97 (33.3)	79 (27.1)	115 (39.5)
Fat	56 (19.2)	125 (43.0)	110 (37.8)
Fruits and vegetables can against:			
Cancer	217 (74.6)	10 (3.4)	64 (22.0)
Heart disease	214 (73.5)	15 (5.2)	62 (21.3)
Diabetes	193 (66.3)	37 (12.7)	61 (21.0)
Hypertension	200 (68.7)	21 (7.2)	70 (24.1)
Intestine	196 (67.4)	21 (7.2)	74 (25.4)
Obesity problem	218 (74.9)	23 (7.9)	50 (17.2)
Digestive problem	240 (82.5)	17 (5.8)	34 (11.7)
Poor eyesight	227 (78.0)	20 (6.9)	44 (15.1)
Dry skin	236 (81.1)	18 (6.2)	37 (12.7)
5 servings of vegetables and fruit a day	167 (57.4)	38 (13.1)	86 (29.6)
Cooking vegetables or fruit will lose their nutrients	202 (69.4)	62 (21.3)	27 (9.3)
Orange juice is better than whole orange	93 (32.0)	129 (44.3)	69 (23.7)
Eating fresh are better than canned fruit and vegetables	255 (87.6)	15 (5.2)	21 (7.2)
A plate of vegetables has less energy than a plate of rice	102 (35.1)	80 (27.5)	109 (37.5)
A piece of guava less energy than a piece of fried chicken	82 (28.2)	71 (24.4)	138 (47.4)
Orange colour vegetables and fruits contain beta carotene	115 (39.5)	21 (7.2)	155 (53.3)
Green vegetables contain folic acid	93 (32.0)	33 (11.3)	165 (56.7)

4.4 Test of difference in mean score attitude of the respondents between gender and age categories

Table 4 shows that, with p-values greater than 0.05, the mean score attitude of respondents toward fruit and vegetable consumption is not significantly different between gender categories.

Table 4: Differences in Mean Score of the Respondents' Attitude

Variables	Category	Mean Score	t-test	p-value
Gender	Male	3.437	1.885	0.060
	Female	3.346		

*Significant at 0.05

Table 5: ANOVA table for the mean score attitude between age categories

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Attitude	0.355	2	0.177	1.035	0.357
Error	49.044	286	0.171		
Total	49.399	288			

Table 5 shows that there is no significant difference in the mean score attitude of the respondents towards fruit and vegetable consumption between age categories.

4.5 Test of difference in mean score knowledge (nutrition) of the respondents between gender and age categories

Table 6 shows no significant difference in the mean score knowledge (nutrition) of respondents towards fruit and vegetable consumption between males and females.

Table 6: Differences in Mean Score of the Respondents' Knowledge (Nutrition)

Variables	Category	Mean Score	t-test	p-value
Gender	Male	5.560	1.068	0.286
	Female	5.190		

*Significant at 0.05

Table 7: ANOVA table for the mean score knowledge (nutrition) between age categories

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge (nutrition)	82.575	2	41.288	4.977	0.008
Error	2372.664	286	8.296		
Total	2455.239	288			

*Significant at 0.05

Table 7 shows that there is a significant difference in the mean score knowledge (nutrition) of the respondents regarding fruit and vegetable consumption between age categories. Since the mean score knowledge (nutrient) is significant, this analysis proceeds with Post Hoc Multiple Comparison (Tukey's test) among the mean score knowledge (nutrition).

Table 8: Multiple comparisons mean score knowledge (Nutrition)

Age (years)		Mean Differences	P-value	Result
Less than 30	30 to 49	1.020	0.025*	$\mu_{<30} \neq \mu_{30-49}$
Less than 30	More than 50	1.210	0.017*	$\mu_{<30} \neq \mu_{>50}$
30 to 49	More than 50	0.190	0.901	$\mu_{30-49} = \mu_{>50}$

*The mean difference is significant at 0.05

Table 8 shows that the mean score knowledge of respondents aged less than 30 differs from the mean score knowledge of respondents aged between 30 to 49 years old. While the mean score knowledge of respondents aged less than 30 differs from the mean score knowledge of respondents aged 50 and above. Then, the mean

score knowledge of respondents aged between 30 to 49 years old is the same as that of respondents aged 50 and above.

4.6 Test of difference in mean score knowledge (protection) of the respondents between gender and age categories

There is no significant difference in mean score knowledge (protection) towards fruit and vegetable consumption between male and female respondents, as shown in Table 9.

Table 9: Differences in Mean Score of the Respondents' Knowledge (Protection)

Variables	Category	Mean Score	t-test	p-value
Gender	Male	6.740	0.449	0.654
	Female	6.580		

*Significant at 0.05

Table 10: ANOVA table for the mean score knowledge (protection) between age categories

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge Protection	12.101	2	6.050	0.629	0.534
Error	2748.972	286	9.612		
Total	2761.073	288			

Table 10 shows that there is no significant difference in the mean score knowledge (protection) of the respondents towards fruit and vegetable consumption between age categories.

5. Discussion

In this study, Malaysian adults had a high attitude toward fruit and vegetable intake, with a mean score of 4.17. The majority of the adults agreed that they liked to eat both fruits and vegetables. The respondents had a good attitude toward vegetable consumption since they believed that consuming vegetables frequently would improve their health [23]. However, they prefer to consume fruits over vegetables. Meanwhile, about 80% of adults disagreed with the statement that eating vegetables can reduce energy. Although most of the adults demonstrated strong attitude levels, their degree of fruit and vegetable consumption behaviour was only moderate. This is in line with the study conducted by Ali et al. (2020). The respondents assigned their attitude toward eating fruits and vegetables a moderate score. The majority of them stated that they enjoy eating fruits, while only a minority stated that they enjoy eating vegetables. It was also agreed upon by Webb (2013), who observed that respondents strongly agreed that they liked eating fruits compared to vegetables. This observation is due to the fact that fruits have more colorful and sweeter flavours, making them seem more attractive than vegetables.

Many respondents in this study were unaware that fruits and vegetables were packed with nutrients. Most of them are unaware of other nutrients and only know that fruits and vegetables include vitamin C. About 52.8% of them had a fair understanding of the nutritional significance of fruits and vegetables. This result is consistent with the study by Banwat et al. (2012), who discovered that the majority of the respondents had a fair understanding of the nutritional benefits of fruits and vegetables. However, this knowledge level was significantly lower than that reported by Beech et al. (2011), who discovered that most people strongly understood the nutritional benefits of fruits and vegetables. Meanwhile, most Malaysian adults were aware that fruits and vegetables could help prevent diseases such as cancer, heart disease, obesity, digestive problems, poor eyesight, and dry skin. This is pertinent to the research conducted by several studies. The respondents were aware of how healthy fruits and vegetables are [28]. Ezeh and Ezeh (2016) also found that most adults were aware of the health benefits of eating fruits and vegetables, but only 33% did so regularly. According to the Health Belief Model by Janz et al. (1984), perceived benefits are a major factor influencing an individual to take preventive action. This study shows that several factors led to low fruit and vegetable consumption among adults, such as residential areas and low family income [12], [29].

Malaysian adults, on the other hand, demonstrated a lack of general knowledge regarding fruit and vegetable consumption. Half of the respondents did not know the daily recommended servings of fruits and vegetables. Although most of the adults demonstrated strong attitude levels, their degree of fruit and vegetable consumption on knowledge was moderate. This proved that the respondents knew about the benefits of fruits

and vegetables but not their recommended amounts. This finding is consistent with a few previous studies. Many people were unaware of the daily recommended number of fruits and vegetables [22], [30]. Frank et al. (2019) found that most people were least likely to follow the fruit and vegetable suggestion. A small percentage of respondents met the recommended amounts of fruits and vegetables. Another study stated that only 69.2% of respondents reported having adequate consumption patterns, which is lower than knowledge of fruit and vegetable eating [31]. While overweight or obese respondents scored better on knowledge of vegetable consumption than those in other categories. They are aware of all the suggestions and advantages of vegetables but fail to put them into practise due to personal preferences and perceived behaviour [23], [25].

This study also found that there were no significant gender or age differences in the mean attitude of the respondents toward fruit and vegetable consumption. This indicated that the mean score attitudes of females toward fruit and vegetable consumption were not different from those of males. Aside from that, adults' attitudes toward the consumption of fruits and vegetables are similar to those of their age group. According to Izzah et al. (2012), it was shown that women consumed more fruits and vegetables than men, but the differences were not statistically significant. Aside from that, there is no significant difference in the mean score of male and female respondents' knowledge (nutrition) of fruits and vegetables. It was also agreed upon by Jamaludin et al. (2022). They showed that there was no significant difference in attitude and nutrition knowledge scores between male and female respondents. Meanwhile, on the mean score of nutrition knowledge of respondents toward fruit and vegetable consumption, there is a significant difference between age groups, with the difference being obvious between the age groups of less than 30 and 30 to 49 years old, as well as 50 and above. There is a slight difference in knowledge between age groups, according to Kollajtis-Dolowy & Zamojcin (2016). Respondents aged 26 to 34 are more interested in nutritional information. In Australia, respondents over 34 provided significantly more correct answers than younger respondents, indicating a similar dependence of knowledge on age [32].

Adults' knowledge cannot ensure the needed attitude changes. Individuals must make the necessary effort to transform their newly acquired knowledge into the required mindset in order to ensure the success of their fruit and vegetable intake practises. Furthermore, it is widely accepted that any required behavioral changes would be accompanied by a favourable mentality based on new knowledge. Thus, it demonstrates that knowledge is necessary before a change in attitude can result in a behaviour change. In other words, knowledge influences attitude, which influences practise or behaviour patterns.

6. Conclusion

This study concluded that Malaysian adults had a positive attitude and fair knowledge about nutrition, protection, and general knowledge about fruits and vegetables. However, the recommended consumption of these food items is low. This study also revealed a significant difference in the mean knowledge score (nutrient) of respondents towards fruit and vegetable consumption between age categories, with the difference being most obvious between the age groups of less than 30 and 30 to 49 years old and 50 and above.

Therefore, more effort is needed from the government to educate Malaysians on improving and increasing their fruit and vegetable intake. These education programs must consider the trade-off required for families to purchase more fruits and vegetables and eat the recommended number of servings per day. Promoting the importance of eating fruits and vegetables among adults is significant in order to enhance the low level of adult consumption of fruit and vegetables in the research area. Furthermore, health professionals must use the media, health talks, and one-on-one health education of patients and customers in healthcare facilities to increase adult fruit and vegetable consumption. Adults with more knowledge were more likely to change their attitudes toward eating fruits and vegetables, which could lead to better intake habits. Adults can employ this successful attitude and behaviour to practically implement fruit and vegetable consumption.

Findings from this study can be used to give a clear view of the importance of fruit and vegetable consumption and assist people in keeping healthy in the right way. The result from this study will be useful to the respondent to enable them to adopt an appropriate diet and control body weight. At the same time, this study also can give people credible information on how to prevent major diseases such as cancer, obesity, diabetes, cardiovascular disease, and respiratory disease. Hopefully, the research would also benefit society in Malaysia by helping them double the number of fruits and vegetables they eat daily. As for recommendations, there is a need for further research to determine the factors associated with fruit and vegetable consumption among adults and to extend the analysis to a more representative sample.

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