

# Purchasing functional foods to stay fit

Functional  
foods to stay  
fit

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## Abstract

**Purpose** – Health fitness has become a major issue in Malaysia since the population of overweight and obesity is becoming critical. One of the ways to achieve optimum health fitness is by consistently consuming balanced diet meals. Hence, this paper aims to focus on the willingness of society to purchase functional foods as an alternative for their daily meals to stay fit.

**Design/methodology/approach** – The research framework was developed based on a combination of findings by other research scholars within a similar field. The willingness to purchase functional foods to stay fit is positioned as the dependent variable, while lifestyle adaptation, social media influence and food consumption awareness are placed as the independent variables. Quantitative research was conducted by collecting primary data from respondents in Kuala Lumpur, Malaysia. The collected data were analysed using descriptive and regression analyses.

**Findings** – The willingness to purchase functional foods to stay fit is dependent on the lifestyle adaptation, social media influence and food consumption awareness.

**Research limitations/implications** – Although the current market for functional foods in Malaysia is still at a small scale, the market for this industry seems very promising. Nevertheless, greater awareness on functional food is still needed.

**Practical implications** – Functional food producers should make an effort to gain the untapped market by focussing on the lifestyle adaptation, social media influence and food consumption awareness.

**Originality/value** – This research is a breakthrough to discover the willingness of Malaysians to purchase functional food to stay fit, which is influenced by lifestyle adaptation, social media and food consumption awareness.

**Keywords** Functional food, Fitness, Food consumption awareness, Lifestyle adaptation, Social media influence, Willingness to purchase

**Paper type** Research paper

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## Introduction

Malaysian competitiveness seems to pivot on its concern for fitness since the percentage of overweight and obesity among the population is continuously increasing. Out of 32.4 million Malaysians (Department of Statistics Malaysia, 2018), half of the population is considered as either overweight or obese due to an imbalance in their nutritional intake (Astro Awani, 2018). In Malaysia, the majority of the population is eating more than what they really need, and the sedentary lifestyle causes the excessive calorie intake to be retained in the body as fat. Accordingly, if no initiative is taken to reduce the excessive fat in the body, it will lead to overweight, and, if prolonged, to obesity. Obesity may begin in children as young as five or six years old or during adolescence (Vikneswaran *et al.*, 2015). This unhealthy lifestyle behaviour is due to poor self-rated health (Chan *et al.*, 2015). An individual is considered as overweight if the body mass index measurement is equal or more than 25, and obese if the body mass index measurement is equal or more than 30 (World Health Organization, 2018).

Overweight and obesity are non-communicable diseases and can be cured or prevented if a particular individual is concerned about their personal health and fitness. Nevertheless, due to a lack of concern about enhancing the level of health and fitness, the percentage of the population in Malaysia who are overweight or obese is expected to increase continuously in the next few years. Currently, Malaysia has the most obese population in South East Asia (Chandranayagam, 2017). Furthermore, the fitness issue is expected to become even more critical since many children are overweight and obese. Research in 2013 found that one out of five children (19.9 per cent) between the age of 7 and 12 years old were overweight (Naidu *et al.*, 2013). Furthermore, after three years, Malaysian children were labelled as the fattest in Asia (Andexer, 2016). This issue is exacerbated once the children enter secondary school since many of them spend at least five hours per day engaged in inactive activities, such as watching television, using a computer, reading, doing homework, and studying (Mansor *et al.*, 2017). In addition to a sedentary lifestyle, the food consumption of the children is highly dependent on their parents, and it is impossible for the children to reduce their weight if the parents themselves are not consuming meals that constitute a proper daily diet. Further discovery has also shown that pharmaceutical students have similar health conditions to the overall population even though they are going to be professionals in health care (Sahudin *et al.*, 2017). This proves that the issue has been ignored by society and is becoming worse.

Many people tend to perceive the overweight and obesity issue solely in terms of the physical appearance of the individual rather than the real health impact (Sand *et al.*, 2015) for which the cost implications are considerable. Accordingly, some overweight and obese people who do not really bother about their appearance have overlooked the importance of controlling their daily diet. Indirectly, this means that even though some people realise that their weight is increasing, they never consider that the potential for negative health problems is also increasing. In fact, it is rare for Malaysians, especially the younger generation, to have a complete health medical check-up (Teo *et al.*, 2017) unless they have fallen sick or suddenly admitted to hospital. The negative impact from an imbalanced nutritional intake is as harmful as smoking (Schoepp, 2017). As a consequence of the lack of fitness, 17.5 per cent of the population have diabetes, 20.2 per cent of the population suffer from hypertension, and the cholesterol level of 47.7 per cent of the population is high. These serious health issues have been highlighted by the Health Minister of Malaysia in an effort to create further awareness among the people (Astro Awani, 2018). This research is a breakthrough to discover the willingness of Malaysians to purchase functional food to stay fit, which is influenced by lifestyle adaptation, social media, and food consumption awareness. Each of these variables is explained in the literature review. This is followed by

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the research methodology, analysis and results, discussion and recommendations, managerial and policy implementation and, finally, the overall conclusion of the research findings.

## Literature review

### *Functional food*

One way to enhance health fitness is by taking meals that form part of a healthy daily diet (Lewis *et al.*, 2015). Healthy meals refer to nutritious foods, such as fruit and vegetables, while unhealthy food normally refers to snacks or junk food (Cobb *et al.*, 2015). Although many people perceive fresh organic food from natural resources without any chemicals as high quality healthy food (Bryła, 2016), some processed food, known as functional food, has good nutrients for health. In line with the modernisation revolution, the innovation of the food industry has developed rapidly worldwide to cater to the demand from the population based on the current lifestyle (Baugreet *et al.*, 2017). This revolution started from pure organic or raw food up to processed food that is well packed and sold in modern grocery stores. Nowadays, the new generation tends to be attracted towards processed food since it is very convenient, as it can be kept for a long time and consumed as and when required. The most common types of processed food that are normally consumed by people are either fully processed food that they can consume immediately after purchase or semi-processed food that they have to cook or heat before consumption. These processed foods normally contain a lot of fat that will cause people to gain weight if they consume it consistently. Out of concern for the harmful impact from continuously consuming unhealthy processed food, the food industry has been revolutionised yet again to another phase and is now producing processed foods that emphasise balanced nutrition for the benefit of human health; such foods are known as functional foods (Mellentin and Heasman, 2014). The term functional food started in Japan, before being adopted by the European Union and the USA. Over the past 30 years, the definition of functional food has been continuously defined and redefined (Martirosyan and Singh, 2015). However, at present, the definition of functional food is still inconclusive in the Malaysian context (Arshad, 2003).

Due to health concerns, some functional foods have been processed by adding extra health benefits beyond the basic nutrients (Barauskaite *et al.*, 2018), such as vitamins, minerals and antioxidants (Ibrahim *et al.*, 2015). The availability of functional foods has changed the way a healthy processed food is produced, stored, distributed and consumed by consumers (Sharif and Zahid, 2018). Oats are one example of a functional food in that they are a processed food that is packed with healthy nutrients to promote optimal health benefits if the product is consumed consistently. Another example of a functional food is orange juice that has extra calcium added to provide extra nutrients for bone health (Zeratsky, 2018). Functional foods are being innovated by adding nutrients while they are being processed. Since functional foods are processed foods, the consumer can easily purchase them from any grocery store as well as online. In addition, functional foods are not as perishable as fresh food and, hence, can be kept for a considerable time to consume before the expiry date.

Functional foods have been widely introduced in well-developed countries and are becoming a new food phenomenon. The commercialisation of functional foods is growing at a faster pace than the knowledge development for production (Ranjan *et al.*, 2014). However, functional foods are not very well understood by Malaysians due to a lack of concern about health and fitness. Indeed, the majority of Malaysians still believe that all healthy food is supposed to be fresh and perishable, and it is not easy to find a community who really knows about healthy processed food and the need for it to be taken on a daily basis.

Nevertheless, although the momentum of functional foods has started on a small scale, it constitutes a new potential market in a developing country (Sybesma *et al.*, 2015). This research is expected to expose the knowledge concerning functional foods to the community, especially among those who participated in the survey questionnaire as the respondents. The main aim of this research is to discover the willingness of people to purchase functional foods based on lifestyle adaptation, social media influence and food consumption awareness.

### *Lifestyle adaption*

With the continuous development of technology, almost everyone tends to be obsessed with the modern lifestyle that requires less physical movement on a daily basis (Egger and Dixon, 2014). For example, instead of washing clothes by hand or cleaning the household with normal tools, such work can be done by an automatic washing machine and robotic cleaning tools. The effortless lifestyle is not only applicable at home but also at workplace. Nowadays, the majority of people is working in an office environment that requires very little physical movement. Similar to home, almost all the tasks in the office can be completed with minimum physical movement; for example, requesting documents, filing documents, searching for information and communicating with other colleagues, etc. In fact, almost all working environments have experienced such innovation including those of farmers, fishermen and manufacturing, and such innovations will continue, as there is always someone inventing new technology to make the lives of humans easier.

The food consumption lifestyle is also changing (Qi *et al.*, 2014). Traditionally, the daily meal was supposed to be procured, prepared, and supervised by mothers (Yang *et al.*, 2015), or more precisely housewives. However, it seems that the number of housewives is reducing, as the majority of modern mothers prefer to join the workforce to generate additional income for the household. As a consequence, the majority of people tend to eat less fresh food because of insufficient time to purchase and prepare the meal. Due to the lack of time to prepare proper homemade meals from scratch, many, especially working mothers, prefer to purchase processed food for the daily meals. Some might just purchase readymade food from restaurants. The availability of functional foods with balanced nutrition, as an alternative to the normal processed food that is high in fat, is expected to provide an additional option for the career-oriented mothers to grab an easy meal as and when they need, not only for main meals but also for snacking (Kim *et al.*, 2015). This has made food consumption expenditure more diversified (Ishida *et al.*, 2003). The positive perception of functional foods that are enriched with balanced nutrients is expected to attract a lot of potential consumers. However, the price of these functional foods has made many potential consumers think twice before deciding to purchase, which, indirectly, has diverted the target market of functional foods to those who are earning slightly more than the average income and have greater purchasing power; RM2501 and above (Rezai *et al.*, 2012).

### *Social media influence*

Social media influence is an integral element of twenty-first century business (Felix *et al.*, 2017) in terms of marketing any new invented foods (Panagiotopoulos *et al.*, 2015), and social media influencers are those individuals who self-brand themselves to become well-known (Khamis *et al.*, 2017). Such influencers include normal people as well as celebrities who have a huge number of followers in their social media account. Hence, the target scope of population coverage for social media influencers is dependent on the number of followers of a particular social media influencer. This innovative marketing tool has opened another marketing channel (Kilgour *et al.*, 2015) to expose new functional foods to society. Due to the borderless connectivity, the impact from social media influencers is broader than through

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celebrity endorsements broadcast through television advertisements. In fact, if the product is sellable online to a worldwide market, marketing through social media is the fastest way to grab the potential market attention. Nowadays, most companies will upload a teaser video in their social media as a preliminary alert to the people, which is followed-up by the official launch of the product. The momentum from social media marketing can be easily boosted within a few hours since the majority of social media influencers are competing with others to gain a high number of viewers by being among the first reviewers for the newly launched functional food.

Many social media influencers focus on food, fitness, beauty and health care, and encouragement from these influencers to look and feel good through physical health and appearance is expected to inspire other people to keep themselves fit and healthy (Vaterlaus *et al.*, 2015). The consumption of proper meals as part of the daily diet is very important to gain optimum health fitness. Hence, functional food producers may need to collaborate with the social media influencers as a main attraction to encourage people to consume healthy processed food. In line with the digital environment (Stephen, 2016), it is expected that the social media influencers will positively influence the willingness of potential consumers to purchase the functional food and enjoy the food for better health and appearance (Kraus, 2015).

#### *Food consumption awareness*

Due to the high number of the population that is categorised as overweight or obese, it can be predicted that there are many people who are not actually aware that they are consuming more food than what is required. This indirectly means that the energy that is consumed is more than what is being used. The imbalance from the excess energy that is not burned will be retained in the body as fat, and only those people who are concerned about their appearance might notice the difference and take action before their body size becomes obese. However, there are also many people who do not really bother about their appearance, even though they realise that some of their clothes are now smaller than their existing body size. The environment, especially in terms of the increasing proportion of the population who are oversized, has made it the norm to wear a slightly larger size than before, especially as the person ages (Cheah *et al.*, 2018). This has led to many people misperceiving their body size (Muttarak, 2018). In fact, there has been a continuous increase in the clothes size in that the majority of companies purposely produce clothes that are a slightly bigger size to ensure the clothes are sellable. Indirectly, this means that the clothes that are currently being labelled as small are actually far bigger than the clothes labelled as small 20 years ago. This is because the clothing size chart is normally revised every 10 years (Workman, 1991).

As food is a basic necessity for living, it is highly expected that people should have at least a basic knowledge concerning food consumption awareness. The knowledge that is gained from educational institutions, reading materials, social media and advertisements is expected to create awareness about the type of food preference for daily meals. With a good educational background and a continuous increase in income, nowadays, people are supposed to be more knowledgeable and mature in making the best decisions for their long-term health and fitness (Siegrist *et al.*, 2015). Hence, food consumption awareness is expected to influence the willingness of potential consumers to purchase functional foods as their main preference for daily meals (Miranda *et al.*, 2015). With the current issue of overweight and obesity, the behavioural intention to consume functional foods is expected to be more encouraging (Salleh *et al.*, 2015) as both a prevention and treatment (Corbo *et al.*, 2014).

*Willingness to purchase*

Almost everyone will purchase food, as it is fundamental to life. However, the willingness to purchase a particular food is dependent on the individual's preference and their purchasing power. Those earning a higher income will have greater purchasing power and have more options to choose from. Nevertheless, many factors could influence food-purchasing preferences, such as convenience to prepare or serve, the location of where the product is sold, price, promotion, habit, advertisements, and trends. The acceptance of the consumer of a new processed food is also dependent on the innovativeness personality with a combination of either cognitive or emotional dimensions (Hoppe *et al.*, 2018). There are also findings proving that the purchasing intention is dependent on the attitude and health consciousness of a particular individual (Asif *et al.*, 2018). Hence, labelling the ingredients on the packaging is important to attract consumers to purchase the products (Schnettler *et al.*, 2018) and to influence the consumer purchasing decision (Oliveira *et al.*, 2016). In fact, some consumers do not mind paying slightly extra to gain an additional benefit for their health and the environment in general (Paci *et al.*, 2018), especially if the food producer's brand is well-known (Mundel *et al.*, 2018). Further findings also prove that other than being health conscious, the willingness to purchase functional food is also dependent on the willingness to compromise on taste (Moons *et al.*, 2018).

Many factors might influence the willingness of people to purchase functional food for their main daily meals. Due to the borderless scope for studying the willingness of potential consumers to purchase functional foods, this research only looks at three independent variables – lifestyle adaptation, social media influence and food consumption awareness. The willingness to purchase functional foods is placed as the dependent variable to determine the main factors that influence the decision of consumers to purchase functional foods.

**Research methodology**

This research only focuses on four main variables – lifestyle adaptation, social media influence, food consumption awareness and the willingness to purchase functional food. The willingness to purchase functional food is placed as the dependent variable while the other three variables are placed as independent variables. This is because a few researchers have considered lifestyle adaptation (Goetzke and Spiller, 2014; Szakály *et al.*, 2012), social media influence (Chung *et al.*, 2018; Tuten and Mintu-Wimsatt, 2018) and food consumption awareness (Bornkessel *et al.*, 2014; Rosa *et al.*, 2018) as possible determinants for consumers' willingness to purchase functional foods. Parallel to the former findings, the willingness to purchase functional food in this research is based on the three chosen variables, as these variables are part of the modern lifestyle, especially for those staying in the capital city of Kuala Lumpur. Hence, this research is developed based on a combination of the findings previously made by other research scholars and the surrounding lifestyle of the respondents. The objectives of this research are to:

- discover the respondents' background;
- examine the relationship between lifestyle adaptation and the willingness to purchase functional food;
- examine the relationship between social media influence and the willingness to purchase functional food; and
- examine the relationship between food consumption awareness and the willingness to purchase functional food.

The research framework is as shown in [Figure 1](#).

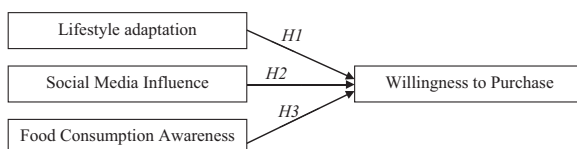
The hypotheses for this research are developed based on the relationship in the research framework:

- H1.* The lifestyle adaptation significantly influences the willingness to purchase functional food.
- H2.* The social media influence significantly influences the willingness to purchase functional food.
- H3.* The food consumption awareness significantly influences the willingness to purchase functional food.

Quantitative analysis was conducted to determine the relationship of the willingness to purchase functional food through lifestyle adaptation, social media influence and food consumption awareness. The survey questionnaire for the four variables was developed based on a five-point Likert scale, while the respondents' background was developed based on categorical data. In Malaysia, the term youth is used for those whose age ranges between 15 and 30 years ([Yunus and Landau, 2019](#)). However, this research focuses on respondents who are mainly young people between the ages of 15 and 24 years from the capital city of Kuala Lumpur, Malaysia, and who are studying and working. A brief explanation of functional food and the research objectives was given to the respondents, and the respondents were advised that they could seek clarification while answering the survey for further clarity. The collected data were manually screened once the respondents provided their feedback to avoid major missing data. Further screening and analysis were undertaken using Statistical Package for the Social Sciences (SPSS). Overall, 200 data were used for statistical analyses to determine the findings for this research. The collected data were sufficient since they met the minimum statistical requirement based on the formula  $50 + 8k = N$  ([Green, 1991](#)). Since there are four variables in the research framework, a minimum of 82 data were required for the analysis [ $50 + 8(4) = 82$ ].

### Analysis and results

A total of 143 male respondents (71.5 per cent) and 57 female respondents (28.5 per cent) participated in this survey. All of the respondents have purchased functional foods. While those who never purchased functional foods have been excluded from this analysis. For individual income, 102 of the respondents (51.0 per cent) earn at least RM4,001 per month. This is followed by 49 respondents (24.5 per cent) who earn between RM3,001 and RM4,000 per month, and 28 respondents (14.0 per cent) who earn between RM2,001 and RM3,000. Only 13 respondents (6.5 per cent) earn less than RM1,000, and 8 respondents (4 per cent) earn between RM1,001 and RM2,000. The respondents earning less than RM1,000 are mostly students since the minimum wage in Malaysia is RM1,500 ([Ismail, 2018](#)). While those earning between RM1,001 and RM2,000 are a combination of students and working adults. In general, the respondents have a higher tendency to purchase more functional foods if they are earning a higher income. This can be seen from the percentage of the purchasing



**Figure 1.**  
Research framework

frequency of the respondents. There is a higher frequency percentage for those earning less than RM1000 than for those earning between RM1001 and RM2000 because the majority of students are well informed and knowledgeable concerning the significance of functional foods as a basic processed food necessity. This analysis is presented in [Table I](#).

In terms of the amount usually spent on functional food per week, 99 of the respondents (49.5 per cent) spend more than RM120. This is followed by 39 respondents (19.5 per cent) spending between RM91 and RM120 and 33 respondents (16.5 per cent) spending between RM61 and RM90. Only 19 respondents (9.5 per cent) spend between RM31 and RM60, and 10 respondents (5.0 per cent) spend a maximum of RM30. The higher the range of spending, the higher the frequency percentage of the respondents to purchase the functional foods. The trend of the frequency percentage for the amount spent on functional food per week appears to be similar to the frequency percentage of the individual salary ranges. This analysis is shown in [Table II](#).

In terms of the functional food consumption frequency per week, 102 respondents (51.0 per cent) consume functional food more than seven times; 51 respondents (25.5 per cent) consume functional food between six and seven times per week, and 31 respondents (15.5 per cent) consume functional food between four and five times per week. A minority of nine respondents (4.5 per cent) consume functional food between two and three times per week, and only seven respondents (3.5 per cent) consume functional food either just once a week or not at all. Based on the analysis, slightly more than half of the total respondents consume functional foods at least 8 times per week. This is followed by fewer consumption times. The trend seems to be similar to the individual salary range and range of spending. In general, more respondents purchase functional food frequently than the number of respondents who purchase the functional food less frequently. The frequency percentages of consumption are presented in [Table III](#).

The reliability of each variable was tested before proceeding with the regression analysis. Overall, all the variables are reliable since the Cronbach's alpha values are more than 0.60 ([Nunnally, 1978](#)). The result of the reliability test for willingness to purchase (0.887), lifestyle adaptation (0.874), social media influence (0.893) and food consumption

**Table I.**  
Individual salary

Individual salary range	Frequency	(%)
Below RM1000	13	6.5
RM1,001-RM2,000	8	4.0
RM2,001-RM3,000	28	14.0
RM3,001-RM,4000	49	24.5
RM4,001 and above	102	51.0
<i>Total</i>	<i>200</i>	<i>100</i>

**Table II.**  
Amount spent on  
functional food per  
week

Range of spending	Frequency	(%)
RM0-RM30	10	5.0
RM31-RM60	19	9.5
RM61-RM90	33	16.5
RM91-RM120	39	19.5
More than RM120	99	49.5
<i>Total</i>	<i>200</i>	<i>100</i>



awareness (0.904) met the minimum statistical reliability requirement. The summary of the reliability results is shown in [Table IV](#).

The analysis from the model summary indicated that the *R*-square value is 0.565. This indicated that 56.5 per cent of the variation in the willingness to purchase can be explained by lifestyle adaptation, social media influence, and food consumption awareness. The model summary is as shown in [Table V](#).

From the ANOVA results in [Table VI](#), the  $\rho$ -value is less than 0.001, which is less than 0.05. This means that there is a statistically significant difference among the groups and that the regression model statistically significantly predicts the outcome variable.

The coefficients in [Table VII](#) provide the essential data to predict the dependent variable, willingness to purchase, from the independent variable, lifestyle adaptation, social media influence and food consumption awareness, as well as whether the independent variable

**Table III.**  
Functional food  
consumption per  
week

Consumption	Frequency	(%)
0-1 time	7	3.5
2-3 times	9	4.5
4-5 times	31	15.5
6-7 times	51	25.5
More than 7 times	102	51.0
<i>Total</i>	<i>200</i>	<i>100</i>

**Table IV.**  
Reliability test

Variable	Cronbach's alpha
Willingness to purchase	0.887
Lifestyle adaptation	0.874
Social media influence	0.893
Food consumption awareness	0.904

**Table V.**  
Model summary

Model	<i>R</i>	<i>R</i> square	Adjusted <i>R</i> square	Std. error of the estimate
1	0.752 <sup>a</sup>	0.565	0.559	0.43824

**Note:** <sup>a</sup>Predictors: (Constant), Food consumption awareness, Lifestyle adaptation, Social media influence

**Table VI.**  
ANOVA<sup>a</sup>

Model	Sum of squares	df	Mean square	<i>F</i>	Significance
1					
Regression	48.952	3	16.317	84.962	0.0001 <sup>b</sup>
Residual	37.643	196	0.192		
Total	86.595	199			

**Notes:** <sup>a</sup>Dependent variable: willingness to purchase; <sup>b</sup>Predictors: (Constant), Food consumption awareness, Lifestyle adaptation, Social media influence

contributes statistically meaningful to the model by observing the  $\rho$ -value. The regression equation that can be obtained from the findings is:

$$\text{Willingness to purchase} = 0.738 + 0.245 (\text{Lifestyle adaptation}) + 0.169 (\text{Social media influence}) + 0.450 (\text{Food consumption awareness}).$$

The regression equation can be interpreted as:

- For every unit increase in lifestyle adaptation, the willingness to purchase will go up by 0.245 units, provided the other variables – social media influence and food consumption awareness – remain unchanged.
- For every unit increase in social media influence, the willingness to purchase will go up by 0.169 units, provided the other variables – lifestyle adaptation and food consumption awareness – remain unchanged.
- For every unit increase in food consumption awareness, the willingness to purchase will go up by 0.450 units, provided the other variables – lifestyle adaptation and social media influence – remain unchanged.

The regression analysis was conducted to determine the significant relationships based on the hypotheses. Based on the regression findings, all three hypotheses for this research are supported. The lifestyle adaptation (*H1*), social media influence (*H2*) and food consumption awareness (*H3*) are positively significant with the willingness to purchase functional food to stay fit. Hence, the findings from this research are similar to that found by other research scholars within a similar field, even though this research was conducted at a different place and time.

### Discussion and recommendations

For the first research objective of the respondents' background, it is found that the tendency to purchase functional foods is higher for those people who are earning a high individual income. The higher the income, the higher the frequency percentage for the people to purchase functional foods. This is probably because those with a higher individual income normally have greater purchasing power. In line with this, the amount spent on functional food per week and functional food consumption per week also shows a similar trend to the individual salary range, in that those who are earning more will spend more and consume more functional foods.

As for the second research objective, it is found that, in Malaysia, the positive lifestyle adaptation definitely influences people's willingness to purchase functional food for their daily meals. This finding is similar to previous research findings (Goetzke and Spiller, 2014; Szakály *et al.*, 2012). Accordingly, people should be more alert to their personal health fitness

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	$\rho$ -value	Findings
	B	Std. Error	Beta			
1 (Constant)	0.738	0.219		3.370	0.001	
Lifestyle adaptation	0.245	0.061	0.252	4.000	0.000	Supported
Social media influence	0.169	0.076	0.177	2.215	0.028	Supported
Food consumption awareness	0.450	0.084	0.414	5.351	0.000	Supported

**Table VII.**  
Coefficients<sup>a</sup>

**Note:** <sup>a</sup>Dependent variable: willingness to purchase

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and start to look for a better lifestyle that requires more physical movement. Similarly, for the third research objective, it is also found that the majority of people are also being encouraged to purchase functional food through the social media influence (Chung *et al.*, 2018; Tuten and Mintu-Wimsatt, 2018). Hence, functional food producers may promote their functional foods through social media to reach more potential consumers, especially through well-known influencers who have many followers. Based on the findings for the fourth research objective, the consumers are also willing to purchase functional foods as their daily meal if they are concerned about their food consumption (Bornkessel *et al.*, 2014; Rosa *et al.*, 2018). Hence, the label on the food packaging should be clear to attract potential consumers who are concerned about the type of processed food they purchase. The combination of lifestyle adaptation, social media influence, and food consumption awareness will definitely boost the functional food industry.

### Managerial and policy implementations

Although Malaysians tend to be lavish in terms of food consumption, only a minority know about functional foods. Without basic knowledge, there is a high possibility that the population percentage of overweight and obesity will continue to increase and impact their health and fitness. Being physically fit is not just about having an attractive or presentable appearance, but also about the long-term health benefits. Hence, an alert about functional foods should be provided through official education in schools, universities, and to the public in general. Encouragement by the functional food producers through promotion will definitely disseminate the knowledge about functional foods consumption as a daily meal. Parallel to this, a proper policy is also needed to ensure that consumers are not misled by improper labelling by the food producers (Rezai *et al.*, 2012). This is because, for the time being, there is no specific policy on how to label functional food packaging in the Malaysian market.

Marketing the functional food products by emphasising the positive lifestyle adaptation might assist the producers to gain more potential consumers. In line with this, the influence of social media may also further enhance the willingness of more people to purchase functional food, as, nowadays, the majority of people tends to spend more time using social media as a daily activity. An initiative to create awareness of food consumption, especially functional food, may also assist in tapping into the wider market potential. With a busy lifestyle, there is the high possibility that those who do not have sufficient time to prepare a home cooked meal might purchase functional food as an alternative for daily meals.

### Further research

This research has been conducted based on respondents from the capital city of Kuala Lumpur. Further studies could be extended to other places in both suburban and rural areas. The comparison can be made based on the locations of the data collection. The purchasing pattern may also differ based on age, income, and lifestyle concern. In addition, qualitative exploratory research could be conducted from the producers' perspective. This is because, although the demand is created by the consumers, the food innovation is still introduced by the producers. Consumers will normally try new products on the market based on producers' recommendations. Education plays a huge role to shape the behaviour of societies within a community. Although basic health education has been introduced as a compulsory subject in Malaysian high schools, the impact of teaching the subject to the students is still vague. Due to this, research concerning the impact of exposing health education on food consumption preferences (Ammar *et al.*, 2016) can also be conducted.

Further enhancement of the existing health education syllabus can be made based on the research findings.

### Conclusion

In Malaysia, functional foods are still in the early phase of the product development cycle. The momentum of this product development is still very slow even though the issue of overweight and obesity among the population has been drastically increasing. This is probably because there are too many food options on the market, and many people may automatically choose normal processed food instead of functional foods due to scepticism concerning the taste. The awareness of society about functional foods is still low and might lead to the health condition of society becoming even worse than today. Functional food producers should make an effort to gain this untapped market by focussing on the lifestyle adaptation, social media influence and food consumption awareness.

Although the market for functional foods remains at a very small scale, the market for this industry seems very promising. It is found that the lifestyle adaptation, social media influence and food consumption awareness are able to influence people's willingness to purchase functional food as daily meals. The chance to extend the market territory for functional foods is evident and will undoubtedly occur if there is awareness about the three key factors. Greater awareness on the part of functional food producers is required, especially through promotions. Hence, among the ways to tackle the untapped market is by promoting functional foods through lifestyle adaptation, social media influence, and food consumption awareness. The wave from functional food marketing is expected to combat the overweight and obesity issue that is becoming increasingly more critical (Lai *et al.*, 2015).

### References

- Ammar, N., El-Bassiouny, N. and Hawash, R. (2016), "Materialism and healthy food consumption: can health education play a role?", *Social Business*, Vol. 6 No. 4, pp. 377-401.
- Andexer, C. (2016), "Fattest kids in Asia: Malaysia's childhood obesity a fast-growing concern", *MIMS*, available at: <https://today.mims.com/fattest-kids-in-asia-malaysia-s-childhood-obesity-a-fast-growing-concern>
- Arshad, F. (2003), "Functional foods from the dietetic perspective in Malaysia", *Nutrition and Dietetics*, Vol. 60 No. 2, pp. 119-121.
- Asif, M., Xuhui, W., Nasiri, A. and Ayyub, S. (2018), "Determinant factors influencing organic food purchase intention and the moderating role of awareness: a comparative analysis", *Food Quality and Preference*, Vol. 63, pp. 144-150.
- Astro Awani (2018), "Seorang daripada dua rakyat Malaysia berlebihan Berat badan, obesity", available at: [www.astroawani.com/berita-malaysia/seorang-daripada-dua-rakyat-malaysia-berlebihan-berat-badan-obesiti-dr-dzulkefly-184612](http://www.astroawani.com/berita-malaysia/seorang-daripada-dua-rakyat-malaysia-berlebihan-berat-badan-obesiti-dr-dzulkefly-184612)
- Barauskaite, D., Gineikiene, J., Fennis, B.M., Auruskeviciene, V., Yamaguchi, M. and Kondo, N. (2018), "Eating healthy to impress: how conspicuous consumption, perceived self-control motivation, and descriptive normative influence determine functional food choices", *Appetite*, Vol. 131, pp. 59-67.
- Baugreet, S., Hamill, R.M., Kerry, J.P. and McCarthy, S.N. (2017), "Mitigating nutrition and health deficiencies in older adults: a role for food innovation?", *Journal of Food Science*, Vol. 82 No. 4, pp. 848-855.
- Bornkessel, S., Bröring, S., Omta, S.O. and van Trijp, H. (2014), "What determines ingredient awareness of consumers? A study on ten functional food ingredients", *Food Quality and Preference*, Vol. 32, pp. 330-339.

- Bryła, P. (2016), "Organic food consumption in Poland: motives and barriers", *Appetite*, Vol. 105, pp. 737-746.
- Chan, Y.Y., Teh, C.H., Lim, K.K., Lim, K.H., Yeo, P.S., Kee, C.C., Omar, M.A. and Ahmad, N.A. (2015), "Lifestyle, chronic diseases and self-rated health among Malaysian adults: results from the 2011 national health and morbidity survey (NHMS)", *BMC Public Health*, Vol. 15 No. 1, p. 754.
- Chandranayagam, D. (2017), "Our legacy to our children", *The Sun Daily*, available at: [www.thesundaily.my/news/2017/07/18/our-legacy-our-children](http://www.thesundaily.my/news/2017/07/18/our-legacy-our-children)
- Cheah, Y.K., Lim, H.K. and Kee, C.C. (2018), "Demographic and lifestyle determinants of time spent in physical activity among Malaysian adolescents", *International Journal of Pediatrics and Adolescent Medicine*, Vol. 5 No. 2, pp. 49-54.
- Chung, A., Seixas, A., Vieira, D., Tan, N., Iqbal, R., Chery, K. and Ogedegbe, G. (2018), "The role of peer influence on food choice behaviors in social media platform environments: a scoping review", *Journal of Nutrition Education and Behavior*, Vol. 50 No. 7, p. S106.
- Cobb, L.K., Appel, L.J., Franco, M., Jones-Smith, J.C., Nur, A. and Anderson, C.A. (2015), "The relationship of the local food environment with obesity: a systematic review of methods, study quality, and results", *Obesity*, Vol. 23 No. 7, pp. 1331-1344.
- Corbo, M.R., Bevilacqua, A., Petrucci, L., Casanova, F.P. and Sinigaglia, M. (2014), "Functional beverages: the emerging side of functional foods: commercial trends, research, and health implications", *Comprehensive Reviews in Food Science and Food Safety*, Vol. 13 No. 6, pp. 1192-1206.
- Department of Statistics Malaysia (2018), "Selected demographic indicators Malaysia", available at: <https://dosm.gov.my>
- Egger, G. and Dixon, J. (2014), "Beyond obesity and lifestyle: a review of 21st century chronic disease determinants", *BioMed Research International*, Vol. 2014, pp. 1-12.
- Felix, R., Rauschnabel, P.A. and Hinsch, C. (2017), "Elements of strategic social media marketing: a holistic framework", *Journal of Business Research*, Vol. 70, pp. 118-126.
- Goetzke, B.I. and Spiller, A. (2014), "Health-improving lifestyles of organic and functional food consumers", *British Food Journal*, Vol. 116 No. 3, pp. 510-526.
- Green, S.B. (1991), "How many subjects does it take to do a regression analysis?", *Multivariate Behavioral Research*, Vol. 26 No. 3, pp. 499-501.
- Hoppe, A., De Barcellos, M.D., Perin, M.G., Jacobsen, L.F. and Lähteenmäki, L. (2018), "Factors influencing consumers' willingness to participate in new food product development activities", *British Food Journal*, Vol. 120 No. 6, pp. 1195-1206.
- Ibrahim, U.K., Salleh, R.M. and Maqsood-Ul-Haque, S.N.S. (2015), "Bread towards functional food: an overview", *International Journal of Food Engineering*, Vol. 1 No. 1, pp. 39-43.
- Ishida, A., Law, S.H. and Aita, Y. (2003), "Changes in food consumption expenditure in Malaysia", *Agribusiness*, Vol. 19 No. 1, pp. 61-76.
- Ismail, N. (2018), "RM1,500 soon to be the new minimum wage throughout Malaysia", *Human Resources*, available at: [www.humanresourcesonline.net/rm1500-soon-to-be-the-new-minimum-wage-throughout-malaysia/](http://www.humanresourcesonline.net/rm1500-soon-to-be-the-new-minimum-wage-throughout-malaysia/)
- Khamis, S., Ang, L. and Welling, R. (2017), "Self-branding, 'micro-celebrity' and the rise of social media influencers", *Celebrity Studies*, Vol. 8 No. 2, pp. 191-208.
- Kilgour, M., Sasser, S.L. and Larke, R. (2015), "The social media transformation process: curating content into strategy", *Corporate Communications: An International Journal*, Vol. 20 No. 3, pp. 326-343.
- Kim, M.J., Song, S., Park, S.H. and Song, Y. (2015), "The association of snack consumption, lifestyle factors, and pediatric obesity with dietary behavior patterns in male adolescents", *Journal of Nutrition and Health*, Vol. 48 No. 3, pp. 228-235.

- Kraus, A. (2015), "Factors influencing the decisions to buy and consume functional food", *British Food Journal*, Vol. 117 No. 6, pp. 1622-1636.
- Lai, C.S., Wu, J.C. and Pan, M.H. (2015), "Molecular mechanism on functional food bioactives for anti-obesity", *Current Opinion in Food Science*, Vol. 2, pp. 9-13.
- Lewis, H.B., Ahern, A.L., Solis-Trapala, I., Walker, C.G., Reimann, F., Gribble, F.M. and Jebb, S.A. (2015), "Effect of reducing portion size at a compulsory meal on later energy intake, gut hormones, and appetite in overweight adults", *Obesity*, Vol. 23 No. 7, pp. 1362-1370.
- Mansor, A.A., Abdullah, H. and Azman, A. (2017), "Sedentary lifestyle and body weight status among youth at public secondary schools in Selangor", *International Journal of Academic Research in Business and Social Sciences*, Vol. 7 No. 8, pp. 652-658.
- Martirosyan, D.M. and Singh, J. (2015), "A new definition of functional food by FFC: what makes a new definition unique?", *Functional Foods in Health and Disease*, Vol. 5 No. 6, pp. 209-223.
- Mellentini, J. and Heasman, M. (2014), *The Functional Foods Revolution: Healthy People, Healthy Profits*, Routledge, London.
- Miranda, J.M., Anton, X., Redondo-Valbuena, C., Roca-Saavedra, P., Rodriguez, J.A., Lamas, A., Franco, C.M. and Cepeda, A. (2015), "Egg and egg-derived foods: effects on human health and use as functional foods", *Nutrients*, Vol. 7 No. 1, pp. 706-729.
- Moons, I., Barbarossa, C. and De Pelsmacker, P. (2018), "The determinants of the adoption intention of eco-friendly functional food in different market segments", *Ecological Economics*, Vol. 151, pp. 151-161.
- Mundel, J., Huddleston, P., Behe, B., Sage, L. and Latona, C. (2018), "An eye tracking study of minimally branded products: hedonism and branding as predictors of purchase intentions", *Journal of Product and Brand Management*, Vol. 27 No. 2, pp. 146-157.
- Muttarak, R. (2018), "Normalization of plus size and the danger of unseen overweight and obesity in England", *Obesity*, Vol. 26 No. 7, pp. 1125-1129.
- Naidu, B.M., Mahmud, S.Z., Ambak, R., Sallehuddin, S.M., Mutalip, H.A. and Sahril, N. (2013), "Overweight among primary school-age children in Malaysia", *Asia Pacific Journal of Clinical Nutrition*, Vol. 22 No. 3, pp. 408-415.
- Nunnally, J.C. (1978), *Psychometric Theory*, 2nd edition, McGraw Hill, New York.
- Oliveira, D., Machín, L., Deliza, R., Rosenthal, A., Walter, E.H., Giménez, A. and Ares, G. (2016), "Consumers' attention to functional food labels: insights from eye-tracking and change detection in a case study with probiotic milk", *Lwt - Food Science and Technology*, Vol. 68, pp. 160-167.
- Paci, F., Danza, A., Del Nobile, M.A. and Conte, A. (2018), "Consumer acceptance and willingness to pay for a fresh fish-burger: a choice experiment", *Journal of Cleaner Production*, Vol. 172, pp. 3128-3137.
- Panagiotopoulos, P., Shan, L.C., Barnett, J., Regan, Á. and McConnon, Á. (2015), "A framework of social media engagement: case studies with food and consumer organisations in the UK and Ireland", *International Journal of Information Management*, Vol. 35 No. 4, pp. 394-402.
- Qi, Q., Chu, A.Y., Kang, J.H., Huang, J., Rose, L.M., Jensen, M.K., Liang, L., Curhan, G.C., Pasquale, L.R., Wiggs, J.L., De Vivo, I., Chan, A.T., Choi, H.K., Tamimi, R.M., Ridker, P.M., Hunter, D.J., Willett, W.C., Rimm, E.B., Chasman, D.I., Hu, F.B. and Qi, L. (2014), "Fried food consumption, genetic risk, and body mass index: gene-diet interaction analysis in three US cohort studies", *BMJ*, Vol. 348, pp. 1-12.
- Ranjan, S., Dasgupta, N., Chakraborty, A.R., Samuel, S.M., Ramalingam, C., Shanker, R. and Kumar, A. (2014), "Nanoscience and nanotechnologies in food industries: opportunities and research trends", *Journal of Nanoparticle Research*, Vol. 16 No. 6, pp. 1-23.
- Rezai, G., Teng, P.K., Mohamed, Z. and Shamsudin, M.N. (2012), "Functional food knowledge and perceptions among young consumers in Malaysia", *International Journal of Economics and Management Engineering*, Vol. 6 No. 3, pp. 307-312.
- Rosa, F., Nassivera, F. and Iseppi, L. (2018), "Sunflower oil innovation, claim assessment and consumer' motivations to accept this food", *Proceedings in Food System Dynamics*, pp. 289-300.

- Sahudin, S., Hussain, M., Ghaffar, N.F.A. and Suhaimi, A.M. (2017), "A diabetes and obesity crisis: preliminary study of lifestyle, diet, knowledge and attitude of Malaysian pharmacy undergraduates towards type-2 diabetes", *Journal of Pharmacy and Nutrition Sciences*, Vol. 7 No. 4, pp. 172-182.
- Salleh, H.S., Noor, A.M., Mat, N.H.N., Yusof, Y. and Mohamed, W.N. (2015), "Consumer-behavioural intention towards the consumption of functional food in Malaysia: their profiles and behaviours", *The International Business and Economics Research Journal (Online)*, Vol. 14 No. 4, pp. 725-733.
- Sand, A.S., Emaus, N. and Lian, O. (2015), "Overweight and obesity in young adult women: a matter of health or appearance? The Tromsø study: fit futures", *International Journal of Qualitative Studies on Health and Well-Being*, Vol. 10 No. 1, pp. 1-12.
- Schnettler, B., Sepúlveda, N., Bravo, S., Grunert, K.G. and Hueche, C. (2018), "Consumer acceptance of a functional processed meat product made with different meat sources", *British Food Journal*, Vol. 120 No. 2, pp. 424-440.
- Schoepp, T.M. (2017), "Obesity in Malaysia: unhealthy eating is as harmful as smoking", Penang Institute, available at: <https://penanginstitute.org/publications/issues/1029-obesity-in-malaysia-unhealthy-eating-is-as-harmful-as-smoking/>
- Sharif, M.K. and Zahid, A. (2018), "Role of food product development in increased food consumption and value addition", *Food Processing for Increased Quality and Consumption, Handbook of Food Bioengineering*, Academic Press, Elsevier, pp. 455-479.
- Siegrist, M., Shi, J., Giusto, A. and Hartmann, C. (2015), "Worlds apart. Consumer acceptance of functional foods and beverages in Germany and China", *Appetite*, Vol. 92, pp. 87-93.
- Stephen, A.T. (2016), "The role of digital and social media marketing in consumer behavior", *Current Opinion in Psychology*, Vol. 10, pp. 17-21.
- Sybesma, W., Kort, R. and Lee, Y.K. (2015), "Locally sourced probiotics, the next opportunity for developing countries?", *Trends in Biotechnology*, Vol. 33 No. 4, pp. 197-200.
- Szakály, Z., Szente, V., Kövér, G., Polereczki, Z. and Szigeti, O. (2012), "The influence of lifestyle on health behavior and preference for functional foods", *Appetite*, Vol. 58 No. 1, pp. 406-413.
- Teo, C.H., Ng, C.J. and White, A. (2017), "Factors influencing young men's decision to undergo health screening in Malaysia: a qualitative study", *BMJ Open*, Vol. 7 No. 3, pp. 1-9.
- Tuten, T. and Mintu-Wimsatt, A. (2018), "Advancing our understanding of the theory and practice of social media marketing: introduction to the special issue", *Journal of Marketing Theory and Practice*, Vol. 26 Nos 1/2, pp. 1-3.
- Vaterlaus, J.M., Patten, E.V., Roche, C. and Young, J.A. (2015), "Getting healthy: the perceived influence of social media on young adult health behaviors", *Computers in Human Behavior*, Vol. 45, pp. 151-157.
- Vikneswaran, A., Sabramani, L., Idris, I.B., Sutan, R., Isa, Z.M., Buang, S.N. and Ghazi, H.F. (2015), "Managing obesity in Malaysian schools: are we doing the right strategies?", *Malaysian Journal of Public Health Medicine*, Vol. 15 No. 2, pp. 75-83.
- Workman, J.E. (1991), "Body measurement specifications for fit models as a factor in clothing size variation", *Clothing and Textiles Research Journal*, Vol. 10 No. 1, pp. 31-36.
- World Health Organization (2018), "Obesity and overweight", available at: [www.who.int/news-room/fact-sheets/detail/obesity-and-overweight](http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight)
- Yang, W.Y., Burrows, T., MacDonald-Wicks, L., Williams, L.T., Collins, C.E. and Chee, W.S.S. (2015), "Studying the family diet: an investigation into association between diet, lifestyle and weight status in Malaysian families", *Malaysian Journal of Nutrition*, Vol. 21 No. 2, pp. 139-154.
- Yunus, A. and Landau, E. (2019), "Youth now defined as those between 15 and 30", *New Straits Times*, available at: [www.nst.com.my/news/nation/2019/07/501288/youth-now-defined-those-between-15-and-30](http://www.nst.com.my/news/nation/2019/07/501288/youth-now-defined-those-between-15-and-30)
- Zeratsky, K. (2018), "Nutrition and healthy eating", *Healthy Lifestyle*, available at: [www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/expert-answers/functional-foods/faq-20057816](http://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/expert-answers/functional-foods/faq-20057816)

*Lifestyle adaptation*

LA1	My valued ones want me to buy more functional food for them
LA2	Functional food is a better alternative than conventional food
LA3	My household members consume functional food on a daily basis
LA4	I am concerned about functional food nutrition
LA5	I care about cholesterol in my food

*Social media influence*

SM1	I purchased functional food because of social media
SM2	Functional food is perceived as environmentally friendly on social media
SM3	Based on social media, functional food is perceived as affordable
SM4	Social media claims that functional food does not contain artificial flavouring
SM5	Social media claims that functional food is good for health

*Food consumption awareness*

FA1	I am concerned about the nutrition that I take daily
FA2	I am concerned about the presence of food additives
FA3	I am concerned about how the food is processed
FA4	I keep a strict diet to maintain my health
FA5	I trust the information on the functional food labels

*Willingness to purchase*

WP1	I am willing to purchase functional food although the options are limited
WP2	I am willing to purchase functional food due to the additional nutrients
WP3	I am willing to purchase functional food although it is a bit pricy
WP4	I am willing to spend time sourcing for functional food
WP5	I prefer functional food to the conventional alternatives

**Table AI.**  
Survey questionnaire

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