Positive Diet Supporting Sustainable Development Aims: Functional Food Intake among Malaysians

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Abstract: All countries in the world are constantly striving to improve the life quality of their people. Quality of life is measured by taking into account economic, social, educational, health, communication and recreational, environmental and public safety factors. In line with this, the Sustainable Development (SDGs) is also aimed at addressing the growing problem of non-communicable diseases (NCDs). Malaysia has seen the potential of functional food as one of the solutions. Therefore, this study focuses on the practice of a positive diet of functional foods among Malaysian society. The focus of the study is among urban communities on the pattern of functional food intake in their daily diet. The sample selection is based on random stratified probability sampling techniques in two major cities in the state of Selangor, namely Subang and Shah Alam. The results showed that there were differences in the level of respondents' perception of functional food intake in a positive diet according to ethnicity and gender. Price factors and access to functional foods also contribute to their behavioral patterns. Overall, this study has provided an overview of the level of perception and literacy of the population around large urban areas in Malaysia.

Keywords:, recreational, communicable disease, positive diet, ethincity

1. Introduction

The aims of Sustainable Development Growth (SDGs) is closely related to the attainment of life quality of the society in a country(Tripathi et. al, 2019; Takeuchi *et. al.*, 2017;Peach &Petach, 2015). In Malaysia, economic development can be measured by the level of life quality in a community, taking into consideration aspects such as economy, society, education, health, communication and recreation, environment and public safety (DOSM, 2017; Chia et. al., 2014). The third SDGs aim is to deal with death issues from non-communicable diseases (NCD)on the rise such as cardiovascular diseases, high blood pressure, type II diabetes, seafood allergy and others (Chrysochou, 2010) as we head towards 2030. At the same time, medical costs or preventive treatment can become more expensive, so early preventive measures should be focused on.

2. Literature Review

Many of these diseases are also known as "civilization-related diseases",and they could be prevented by practicing a healthy way of life. Apart from doing physical activities such as taking part in sports, eating nutritious food can also help in ensuring that one is healthy (Buhrau., 2020). Besides being physically active in all aspects of life, many consumers globally and in Malaysia have begun to understand the effects of food on their health. As such, they have started to focus on nutritious food choices. This is also known as functional food for the purpose of maintaining a healthy lifestyle (Mustafa & Chua, 2020;Tripathiet. Al., 2019;Chrysochou, 2010).

Some of the factors which contribute towards the rise of NCD are environmental factors

such as living in urban areas, demographic factors such as having a longer life expectancy and social factors which affect the lifestyle such as a lack of time and having modern (Katharine & Martin, 2017). A report from WHO (2017) also supported this as it was stated that 80 percent of all NCD deaths were due to an unhealthy diet, being physically inactive and harmful use of tobacco and alcohol.

In many developing countries, people working in urban areas would usually be involved with computers and motorised vehicles. This has caused them to become physically inactive. Time constraint also plays a part in decreasing opportunities for one to exercise. Additionally, fast food has become popular these days as they are cheap and easy to get hold of. On the other hand, healthy food which contains lots of nutrients is quite expensive compared to fast food which contains a lot of calories. Despite that, fast food is becoming the choice of many customers as it is tasty and easily obtainable (Van, 2013).

Findings from previous research also informed us that NCD patients in many countries were mainly urban residents (Prasunin&Dhiravisit, 2014; Singh, Visen, Sharma et al., 2015; R. Rischke, S. Kimenju, S. Klasen, et al, 2015; Verbeke, Scholderer, &Lähteenmäki, 2009). In Malaysia, the same scenario could be observed with the percentage of Malaysians living in urban areas at 72.8 percent while the rest lived in the rural areas (WHO, 2017).

According to Siti Hasnahand YantiAmeira (2010), the knowledge variable played an important role in educating consumers. This was because some consumers utilized the information about functional foods which emphasized diet with health and as such, changed their dietary habits. Maria S. Maria H. & Nina T. (2009) also found that customers were expected to choose functional food compared to conventional food if they had enough knowledge about the two types of food, In the same study, it was also proven that gender, socio-economic status, age and income were related to consumer knowledge about functional foods.

3. Statement of the Problem

In Malaysia, an increase in community awareness about food intake with nutritious food and balanced nutrition has helped in the growth of the food processing industry (MARDI, 2016). In line with changes in the community's food demands, the Malaysian Ministry of Health has outlined some requirements to ensure that health functional foods are given a priority to promote a healthy lifestyle (National Coordinating Committee on Food and Nutrition Ministry of Health, Malaysia, 2016). The purpose for the requirement is to help decrease the number of NCD patients in this country.

Malaysia is blessed with many types of agricultural products such as herbs, seaweed, fruits, vegetables and aquaculture which are all part of functional foods known as National Key Result Areas (NKRA). Agriculture can contribute an increase of RM21.44 billion towards the gross national income in 2020 (Strategic and International Planning Division, Ministry of Agriculture and Agro-based Industry, 2011). Based on evidence of potential functional foods in Malaysia, this study thus aimed to focus on the practice of positive diet involving functional foods among Malaysians. Another study objective was to explore the perceptions of urban residents on the intake of functional foods in their daily diet. A descriptive analysis on the respondents' demographic features would also be focused on in order to understand clearly the pattern of intake for the functional foods. Additionally, the research also analysed inferentially and compared between males and females, ethnic groups and selected towns in

Selangor regarding the intake of functional foods in Malaysia.

4.Study Methodology

This survey-based study utilised the descriptive statistics analysis method and inferential statistics (non-parametric test) on the perception level among the urban and suburban respondents in Malaysia regarding the functional food intake. A set of questionnaires were prepared for the purpose and constructed based on previous research in order to fulfil the study aims.

According to Sekaran (2006), the questionnaire is the most suitable method for studying issues related to measurement of a particular aspect, such as knowledge, attitude, understanding, involvement and others and it is more practical and effective in controlling a large number of study samples.

The population for this study involved community members in 2 towns in Selangor which were Subang (1,683,589 residents) dan Shah Alam (1,386,569 residents) (DOSM, 2017). Therefore, the total number of residents were3,070,158. The selection for both areaswereconsidered based on the dense population of urban and rural areas and easy access to functional food. This was supported by the data of number of residents and high number of food premises in the two areas. Such a situation was considered significant and realistic in acquiring information from respondents regarding an issue specifically involving perception towards the intake of functional foods in the respondents' daily diets.

The sample selection involved the stratified random sampling technique. This technique is utilised on the main features which was the percentage of population according to the residential areas. This feature was chosen as the selection for the study sample population was based on ratio whereby the researcher had earlier made an estimate of the proportion of quota according to the selected study sample (Marsh et. al., 2014). The respondents chosen as the sample were in two Selangor towns, Subang (55%) and Shah Alam (45%). From the populationnumber, referring to the Sample Size Table by Krejcie & Morgan (1970), a total of 384 respondents would be chosen whereby 211 respondents would come from Subangand 173 respondents from Shah Alam. The same number would also be used if we refer to Cohen's Sample Size Table with a reliability level of 95% (Chua, 2011). However, if we consider the data collection acceptance error, a total of 400 questionnaires would be distributed to 400 respondents in the two areas.

The instruments utilised for data collection in this study were the set of questionnaires. These comprise a survey study which are a systematic method and a well-known type of sociological study for the general public to acquire standard information about their opinion of attitude, characteristics and behaviour regarding a study population (Robertson, 1988). All the questions were formed using the Likert measurement scale in measuring the respondents' perception of the intake of functional food; each statement had five items which were strongly disagree, disagree, not sure, agree and strongly agree. The questionnaires for the perception level comprised 8 coded questions based on 8 selected criteria involving frequency, diet, nutrition, general health, non-communicable diseases, accessibility, usage and knowledge as shown in Table 4.

Generally, the Alpha Cronbach test is used to measure the reliability in a study. The Alpha Cronbach reliability value is between 0.0 to 1.0. The results for the pilot study on 30

respondents showed a CA value of [α (N=30) = 0.867]. Therefore, the questionnaires in this section were significant to be used in measuring the variables studied. Additionally, the pilot study conducted showed that the respondents did not face problems to understand the questions as required. As such, this form of perception was significant to be tested in conjunction with other sections. Furthermore, the data acquired was analysed using the SPSS software (Statistical Package for the Social Science) version 20 via mean, standard deviation, Chi Square and others.

5. Data Analysis and Discussion

a. Respondents' Background

The following is a table which describes the respondents' background :Based on Table 2, the study respondents comprised residents who had been staying in Selangor (specifically in Subang (55.0%) and Shah Alam (45.0%). 384 respondents were chosen to answer the questionnaires. The discussion of the respondents' background would be divided into 2 sections : profile and demographic and academic background

Table 2. Study Respondents' Background

Demographic factors		Frequency (n)	Percentage (%)
Town	Subang	211	55.0
	Shah Alam	173	45.0
Ethnic	Malay	206	53.7
	Chinese	93	24.2
	Indian	70	19.1
	Others	15	4.0
Gender	Male	180	46.8
	Female	204	53.2
Age	17-25	193	50.2
	26-40	123	32.0
	41-50	35	9.1
	51 and above	33	8.7
Religion	Islam	212	55.3
	Buddhist	70	18.3
	Hindu	53	13.8
	Christian	49	12.6
Highest education level	Primary	19	4.9
	Secondary	81	21.2
	Upper Secondary	128	33.3
	Tertiary	156	40.6

The profile section involving ethnicity was represented by 4 different races ; Malays with 206 residents (53.7%); Chinese with 93 residents (24.2%); Indians with 70 residents (19.1%) and other ethnic groups with 15 residents (4.0%). Additionally, female residents outnumbered the males with 204residents (53.2%) compared to males with 180 residents (46.8%). In terms of age, this was broken down into 4 age group with the age group of 17-25 being the most active to involve themselves in this study with 193 residents (50.2%), and this was followed

by the age group of 26-40 with 123 residents (32%), while the rest from the age group of 41-50 and 51 and above recorded a number of 35 residents (9.1%)and33 residents (8.7%), respectively.

The second section was related to the religious and academic background of the respondents. Regarding the religious background, this study involved 4 religious groups based on the dominant religious factor. The data showed that there were 212 Muslim residents in the study (55.3%), while there were 70 Buddhist residents (18.3%), 53 Hindu residents (13.8%), and 49 Christian residents (12.6%). As for the academic background, this involved many items and could be divided into primary education, secondary, upper secondary and tertiary. The primary level education included items such as 'did not attend school' or 'completed primary school' which recorded the lowest number of 19 residents (4.9%) only. This was followed by the secondary level as represented by PMR to SPMwith 81 residents (21.2%). On the other hand, those who had taken STPM, Diploma and the equivalent were 128 residents (33.3%). The highest academic qualification was Degree to Phdlevel with 156residents (40.6%).

b. Descriptive Statistics Analysis

The perception level regarding the intake of functional food involved 8 questions which were measured using a 5-point Likert scale. The following are the overall results about the respondents' perception level concerning the intake of functional food.

Table 3. Respondents' perception of functional food

Level	(n=384)	Percentage(%)
Low (8 to 18)	8	2.10
Moderate(19 to 29)	144	37.5
High (30 to 40)	232	60.40
Total	384	100.0
		Minimum:8
		Maximum:40

Generally, the results showed that a high perception level was recorded at 60.40% (n=232) and this was followed by moderate level perception at 1/3 of the overall results at 37.50% (n=144).On the other hand, low level perception was recorded at 2.10% (n=8). As such, it could be concluded that the respondents' perception level concerning the intake of functional food was at a high-level exceeding 50 percent, while the percentages for moderate and low level were less than half of the overall data scores
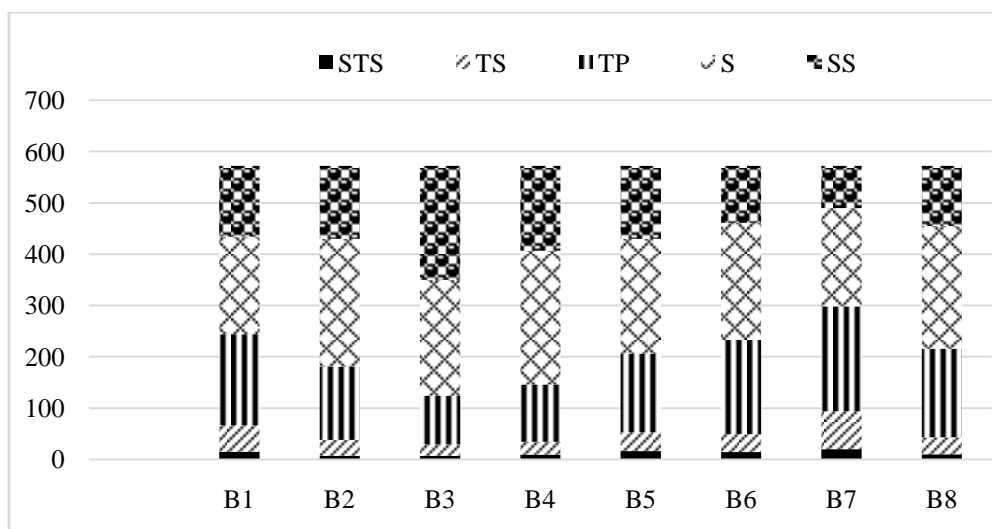
Figure 1. Frequency value of perception level concerning intake of functional food

Based on Figure 1 above and Table 4 below, the frequency for respondents' perception level regrading functional food intake was at a high level ('agree' and 'strongly agree' scales) for overall statement items.

Table 4. Frequency of Respondents' Perception Level

Statement		STS f(%)	TS f(%)	TP f(%)	S f(%)	SS f(%)	Level
B1	Taking functional food is an important routine in my life	15	52	177	190	138	High
		2.6	9.1	30.9	33.2	24.1	
B2	Functional food is part of a healthy diet	7	31	143	249	142	High
		1.2	5.4	25.0	43.5	24.8	
B3	Eating habits and good nutrition play an important part in maintaining health.	7	22	95	226	222	High
		1.2	3.8	16.6	39.5	38.8	
B4	Functional food are foods which are enriched, enhanced or full of nutrients which are beneficial for one's health.	9	25	112	261	165	High
		1.6	4.4	19.6	45.6	28.8	
B5	Functional food is easily obtainable anywhere	16	37	153	224	142	High
		2.8	6.5	26.7	39.2	24.8	
B6	I know how to use functional foods to meet the demands of health requirements.	14	35	184	228	111	High
		2.4	6.1	32.2	39.9	19.4	
B7	I do my best to get functional food compared to other health food in whatever situation.	20	74	204	192	82	High
		3.5	12.9	35.7	33.6	14.3	
B8	Functional food help to decrease bad LDL cholesterol and control the blood pressure	10	33	173	239	117	High
		1.7	5.8	30.2	41.8	20.5	

c. Statistical Analysis I (Mann Whitney-U)

Table 5. Mann Whitney-U Test Based on Gender

Mann-Whitney Test	UN	Mean	Mann Whitney-U Value	Z	Sig (p)
Male	180	126.59	12751.5	-7.254	.000
Female	204	238.93			

*p<0.05; N=384

The Mann Whitney-U test is a non-parametric test which functions to analyse the difference between two independent samples whose dependent variables are ordinal scale data (Chua, 2011).This section would discuss the usage of the Mann Whitney-U test in measuring whether there was a difference between the 180 male respondents and the 204 female respondents. The results for the respondents' perception level concerning the intake of functional food was significant (Z -7.254, p = .000).On the other hand, the average mean for female respondents was higher at 238.93 compared to male respondents at 126.59. As such, this showed that the female respondents' perception of functional food was much better compared to male respondents as the range between the average mean values was 112.34

d. Statistical Analysis II (Kruskal Wallis-H)

Table 6. Kruskal Wallis-H Test Based on the Ethnic Composition Involvement

Kruskal Wallis-H (Ethnic) Test	N	Mean	Chi-S (X^2)	Sig (p)
Malays	206	225.81	63.857	0.000
Chinese Indian	93	334.65		
Others	70	341.46		
	15	357.29		

*p<0.05; N=384

TheKruskal Wallis-H test is utilised to analyse the difference between more than two independent samples on dependent variables (ordinal scale) as in the function of the Mann Whitney-U test. The Mann Whitney-U test was also utilised in this section as a follow-up test to identify the categorical pairs which would make an overall significant difference (Chua, 2011). The statistical test was conducted on the independent samples according to the ethnic composition involved in this study: Malays (n=206), Chinese (n=93), Indians (n=70) and others (n=15). This was done to identify the contributors to the overall significant difference.

Generally, the findings for the perception level among the respondents showed that there was significant difference between the ethnic groups: [x^2 (n=384) =63.857, p= .000]. However, the comparison analysed using the follow-up Mann Whitney-U test recorded only 3 significant differences between the ethnic groups which were Malay-Chinese, Malay-Indian and Malay -others at (Z -5.568, -5.276, -2.791 p= .000). On the other hand, there was no significant difference shown between the Chinese Indian, Chinese-others and Indian-others ethnic groups with the significant value (Z -.368 p= .640), (Z -1.277 p= .201) and (Z -.677 p= .437). This proved that the Malay community for both towns showed a perception level which was low in its positive value compared to other ethnic groups which showed no significant difference between the other groups.

Table 6. Kruskal Wallis-H Test based on Towns Involved

Kruskal Wallis-H Test (Town)	N	Mean	Chi-S (X^2)	Sig (p)
Subang	211	261.64	0.907	0.341
Shah Alam	173	284.33		

The next discussion would focus on the statistical analysis using the Kruskal Wallis-H test on the variables based on the town composition. The statistical test was conducted on the independent variable involving two towns which were Subang (n=211) and Shah Alam

(n=173). The findings of the Kruskal Wallis-H test on the variables for the urban (Subang and Shah Alam) residents' perception level of the functional food intake showed a significant difference at [x^2 (2, N=384) = 26.229, p =.000]. Based on the average mean, this indicated a clear difference between the two samples of 69.37 average mean when both showed the mean values of 261.64 (Subang) and 284.33 (Shah Alam), respectively. This analysis thus showed that the perception level of the community in Subang was much lower that the perception level of the community in Shah Alam.

6. Discussion

Based on the overall study findings, it was found that the respondents' perception of functional food intake in their diet was a high positive level. However, statistically the findings showed that the perception rates between the Malay ethnic respondents especially in Subang recorded a much lower inference value compared to the perception rates of female respondents and respondents from other ethnic groups. This was due to the awareness level of the benefits of functional food intake based on one's perception level. As described in the literature review, as stated in a study by Maria S. Maria H &Nina T. (2009), the consumer would be likely to practise eating functional food if he or she had enough knowledge about it. Rezaiet. al, (2012) stated that their study respondents were aware of the importance of functional foods, but the price can be rather expensive, and the product may have low customer reach. The high price factor would also be a factor which caused the respondents to become disinterested in the benefits of functional foods.

These findings were supported by EviThelia Sari (2014) who found that the main factor for a person to practise eating functional food should come from his own effort of looking for, observing and comparing the functional food products which they already know about. This study showed that the access for functional food in Shah Alam was much easier compared to the situation in Subang. Additionally, the attitude or awareness factor in taking care of one's health was one of the important factors as stated in the study by Rezaiet. al, (2012). The study by Annunziata &Vecchio (2011) also confirmed that besides the socio-demographic factor, attitude and beliefs were also important factors in leading one to make the decision to start eating functional foods.

Suggestions to Improve the Frequency of Intake for Functional Foods

The findings from this study indicated that a few steps can be taken to ensure that the public especially theresidents in Shah Alam and Subanghave enough knowledge about the benefits of functional food to maintain their health. The role of parents and community members is very important to encourage and inculcate one to decide on seating functional foods. Additionally, the consumers themselves must become aware and interested to find information concerning this type of food. A positive perception about the benefits of functional foods on individual health should also be inculcated in one's frame of mind to ensure that one's good health is guaranteed. The awareness of having good health would cultivate a positive perception in the intake of functional food. The dissemination of information concerning this type of food can be conducted via mass media and social media as these channels are more accessible to the general public.

The relevant parties especially those who act as producers of functional foods should play a role to fulfil and understand the needs and demands of consumers of this type of food. The production of functional food according to consumer taste, demand and requirements would attract other consumers to try and start to eat functional foods. The research and development

of each functional food should be conducted thoroughly beforehand to ensure the production of quality and reliable product. The producer of this type of food should also focus on the halal status and purity of the food in order to win the trust of Muslim customers. Furthermore, the certification from the Malaysian Ministry of Health is very much important in ensuring that a product is safe to be consumed by the consumers. The producers of functional foods should show relevant logos such as the halal logo, the Good Manufacturing Practice (GMP) logo, the *Hazard Analysis and Critical Control Points* (HACCP) logo and others. These types of certificationare vital to ensure the product quality as well as to gain trust from the customers.

7. Conclusion

The awareness in consuming functional foods in a positive daily diet for Malaysians is essential to ensure better health. The modern lifestyle these days usually makes it difficult for a person to allocate some time to acquire food with enough nutrients in his/her daily intake. As such, the intake of functional foods could be helpful to ensure that consumers get the nutrients required by the body for better health. The researcher also suggests a few ways which would help to increase the public's knowledge about functional foods, especially for those who live in the towns. The consumption of this type of food in daily life is usually driven by one's existing knowledge about the benefits that he or she can acquire from the intake of functional food.

Overall, this study had given a relevant description of the Shah Alam and Subang residents' perception and literacy level. Additionally, this research could help to explain the differences in functional food intake according to the ethnic groups in Malaysia. Other factors which could influence the consumption of functional food were also described in the discussion section. It was hoped that this study could assist in creating awareness among the urban residents of Malaysian towns regarding the importance of functional food intake in their daily lives. Selangor.It was also hoped that this study could be utilised by other researchers in their future studies.

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