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Development, Validity and Reliability of a Questionnaire on Psychological Factors of Organic Food Consumption among Malaysian Adults

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Abstract: People believe organic food is safer and healthier since it limits the use of synthetic chemicals as agricultural inputs, which has increased global demand for it. However, it has been reported that Malaysians' actual consumption of organic food is low, despite their great intention to do so. Much previous research has proposed trust in organic food labeling and certification as a potential cause of the intention-behavior gap. However, empirical data to support this view is still lacking. This study aims to develop and validate a questionnaire to assess Malaysians' intention and actual consumption of organic food, along with its factors, using the Theory of Planned Behavior (TPB) with trust as an additional construct. Before the study, the questionnaire was pre-tested for face validity by five expert panels. This cross-sectional study gathered 119 usable self-administered questionnaires completed by Malaysian adults aged 18 to 64. The construct validity was evaluated using exploratory factor analysis (EFA) with principal component analysis (PCA), and varimax rotation. There was a three-factor solution for the attitude construct namely health, food safety, and environmental concern, while only one-factor solution for subjective norm, perceived behavioral control, trust, intention, and actual consumption of organic food. Each construct had a minimum Cronbach's alpha of .70. The questionnaire is a valid and reliable instrument that can be used in larger study settings to further understand the psychological factors of organic food consumption among Malaysian adults to promote more sustainable food consumption in this nation.

Keywords: *Consumer, Food Safety, Organic Food, Sustainability, Theory of Planned Behavior, Trust in Organic Food Labeling, Certification and Control*

1. Introduction and Background

Rising global food demand has led to the industrialization of agricultural-based food. As a result, conventional farming uses a lot of chemical synthetic agricultural inputs, such as pesticides, fertilizers, growth regulators, and feed additives to accelerate agriculture productivity (Botinggo et al., 2021; Udin et al., 2019). This causes rising concerns about food safety and health among consumers. It also draws consumers' attention to environmental issues including climate change, air pollution, and the loss of natural resources due to modern agricultural activities. As a result, consumers worldwide are turning to organic food, which they consider to be a safer, healthier, and more sustainable dietary option (Thøgersen et al., 2017). The shift is likely a result of their intrinsic desire to protect both their health as well as the environment (Tandon et al., 2020). Furthermore, the demand is anticipated to increase worldwide as a response to the outbreak of COVID-19, where people are becoming more health conscious (Qi & Ploeger, 2021). This possibly explains the increase of nearly 18 billion dollars in global organic food sales from the year 2000 to 2020 (Statista, 2021). Similar trends have been observed in Malaysia, where the demand for organic food has increased because of growing concerns about food safety, quality, and improved living standards (Aziz et al., 2020; Tiraieyari et al., 2014).

Although there are no available official statistics, the number of stores that sell organic food in Malaysia has noticeably increased by observation. Even so, the majority of products in Malaysia are still imported from other countries like the U.S., Australia, New Zealand, Japan, China, and Europe (Aziz et al., 2020; Somasundram et al., 2016). This demonstrates why Malaysia is viewed as having one of the Asia-Pacific countries with the greatest potential for the expansion of organic food (Jeyakumar Nathan et al., 2021). Consequently, it would lead to not just the long-standing problem of expensive organic food sold in Malaysia, but also a lack of trust in the labeling, certification, and control of organic food. Numerous organic food certifiers from various nations cause consumers to become confused and worried about fake organic food products (Carfora et al., 2019; Tandon et al., 2020). Additionally, there still are limited empirical studies on the effect of consumer trust on shaping organic food consumption among Malaysian despite having been

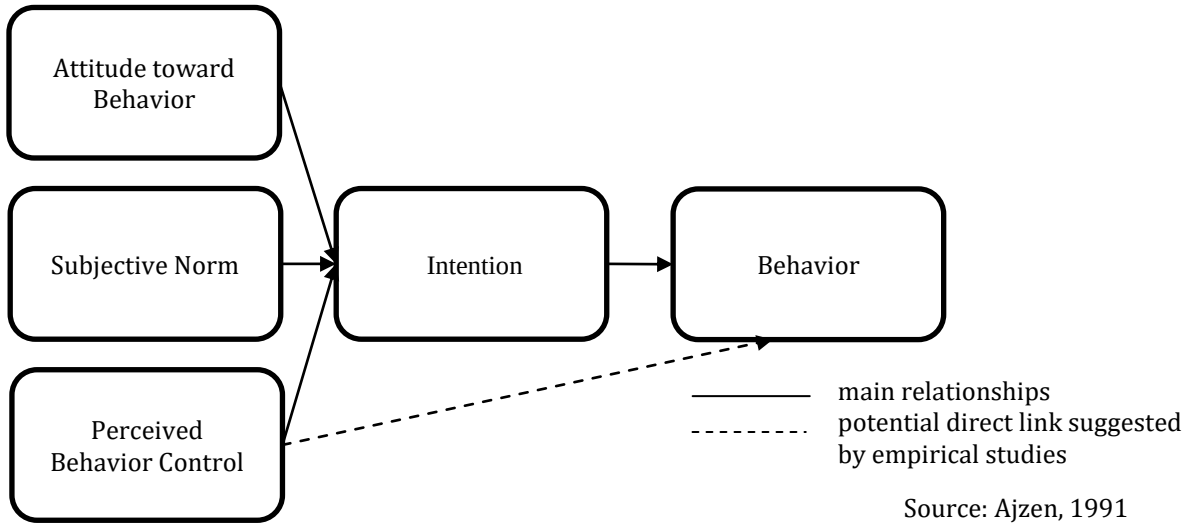
highlighted in previous local studies (Jaafar et al., 2020).

Moreover, although several studies indicated that the demand for organic food is outstripping supply, evidence of the actual consumption of organic food in the context of Malaysians is unclear. This warrants the need to investigate and expound upon this gap following the fact that the intention may not necessarily translate into actual behavior for many reasons in the context of organic food consumption (Fleşeriu et al., 2020; Nguyen et al., 2019). Therefore, this study aims to develop and validate the instrument that measures the psychological factors (attitude, subjective norm, and perceived behavioral control), trust in organic food labeling, certification, and control as well as both intention and actual consumption of organic food. The developed and validated instrument, guided by the Theory of Planned Behavior (TPB) could be used in improving the understanding of factors influencing the intention and actual consumption of organic food for enhancing sustainable consumption among Malaysian adults.

2. Literature Review

Extensive literature has witnessed multiple attempts to develop an understanding of various motives behind organic food consumption. Several researchers have utilized theories based on the study of human psychology, such as the self-determination theory (SDT) (Tandon et al., 2020), the social comparison theory (SCT) (Hansen et al., 2018), and the Theory of Planned Behavior (TPB) (Carfora et al., 2019; Dangi et al., 2020; Maichum et al., 2017) to elucidate the dynamics and complexities involved in motivating consumers to consume or purchase organic food. Among these theories, TPB which was proposed by Ajzen (1991) has been widely used in research on studying consumer's consumption of organic food since it takes into account both the motivations behind people's intentions and their actual behavior (Kushwah et al., 2019) (see Figure 1). The TPB states that three factors, namely; attitude toward the behavior, subjective norm, and perceived behavioral control, all together lead to the formation of a behavioral intention (Ajzen, 1991). Meanwhile, behavior is assumed as an immediate antecedent of the actual behavior (Ajzen, 1991). However, intentions to purchase may not translate into actual consumption for many reasons (Fleşeriu et al., 2020).

Figure 1



Source: Ajzen, 1991

Further explanation of the previous studies pertaining to psychological factors of organic food consumption that are based on the TPB as well as the consumption of organic food among Malaysian adults is as follows.

Attitude toward organic food consumption: Attitude toward the behavior refers to the degree to which a person has a positive or negative view or evaluation of the activity in question is known as their attitude toward the behavior (Ajzen, 1991). The formation of an attitude toward a behavior is dependent on the expectancy-value formulation, which gauges a person's subjective likelihood that engaging in a behavior of interest would lead to a specific outcome or provide a specific experience (Ajzen, 2020). In the context of

organic food, the positive attitude is commonly reflected by the consumers' concern for health, food safety, perception of quality, and environmental impact upon consumption of organic food (Chekima et al., 2019; Pham et al., 2019; Voon et al., 2011). In addition, a review of numerous studies on the consumption of organic foods revealed that the TPB framework's association between attitude and behavioral intention is possibly the most predicted and is stronger than the other predictors (i.e., perceived behavioral control and subjective norm (Scalco et al., 2017). As a result of its strong relationship to intention, the attitude seems to play a significant impact in determining consumer behavior toward organic food.

Subjective norm: Subjective norm is a social influence that refers to the perceived social pressure to perform or not to perform the behavior (Ajzen, 1991). It is contributed by both injunctive normative beliefs, which represent the expectation or subjective probability that a particular referent individual or group approves or disapproves of performing the behavior under consideration as well as descriptive normative beliefs, which hold opinions about whether significant others themselves engage in the behavior (Ajzen, 2020). The most significant social influences on the purchase and consumption of organic foods include those from family, friends, coworkers, select reference groups, and other environmental factors, including social media (Nguyen & Truong, 2021; Pomsanam et al., 2014; Scalco et al., 2017). Thus, the subjective norm measures how individuals interpret the opinions of significant people in their social environments about a certain behavior, which encourages or discourages them from engaging in that behavior.

Perceived behavioral control: Perceived behavioral control (PBC) describes the perceived ease or difficulty of performing the behavior and which is assumed to reflect experience as well as anticipated impediments and obstacles (Ajzen, 1991). PBC contributes to the prediction of both intention and behavior with certain conditions, in the case of complete control over behavior (Ajzen, 1991). It is the result of the interaction between control belief, which is a person's subjective likelihood that particular control factors (such as necessary skills and abilities; availability or lack of time, money, and other resources) will be present in the situation of interest, and the perceived power over all accessible control factors (Ajzen, 2020). The strength of the relationship between PBC and intention differs across studies. In several studies, PBC was found to have a significant influence on the intention to consume organic food (e.g. Carfora et al., 2019; Demirtas, 2019; Fleşeriu et al., 2020; Maichum et al., 2016; Tuan & Vinh, 2016) while in others, the effect was not significant (e.g. Al-Swidi et al., 2014; Voon et al., 2011). Besides, PBC was found to have a minor role in intention prediction compared to attitude and subjective norm (Scalco et al., 2017). The varying results can be attributed to a range of differences in the items used to measure this construct as well as the availability of organic food in certain study settings.

Consumers' Intention and Actual Consumption of Organic Food: Intention refers to how willing an individual is to perform a specific behavior and how many times a person tries to perform a specific behavior (Ajzen, 1991). A stronger intention to engage in a particular behavior typically results in that behavior (Ajzen, 1991). Behavioral intentions are frequently accessed via consumers' future commitment to buy organic food and their willingness to pay a higher price (e.g. (Lim et al., 2014; Siwar et al., 2019; Voon et al., 2011; Zhang et al., 2018). However, there may be a discrepancy between what customers intend and what they actually do. This is referred to as the intention-behavior gap and is typical of sustainable or green behavior, including the consumption of organic foods (Carrington et al., 2010; Nguyen et al., 2019; Sultan et al., 2020). Despite the intention-behavior gap, there are limited studies on the actual purchase behavior of organic food consumers, and prior studies have placed a strong emphasis on determining this behavior (Canova et al., 2020; Gundala & Singh, 2021). Moreover, in the context of Malaysian consumers, studies showed that consumption is low despite having high awareness about organic food and intention. Consumers may only purchase organic items once or a couple of times a year and may believe that eating organic food has only very minor health benefits (Dardak et al., 2009). The majority of consumers would buy organic food occasionally and only a small portion would buy regularly (Hasanov & Khalid, 2015; Hossain & Lim, 2016). This is in contrast with consumer surveys from developed nations like the USA and Italy, where 20 to 50% of respondents were found to buy organic food weekly (Gundala & Singh, 2021; Scalvedi & Saba, 2018). Therefore, more empirical research is required to comprehend the intention-behavior gap in studies of the consumption of organic foods within a theoretical framework.

Organic food studies among Malaysian adult consumers: Nevertheless, while the theory originally includes intention as the precursor for actual behavior, most of the previous studies concentrated on understanding consumers' attitudes and intentions to consume or purchase organic food (e.g., (Pham et al., 2019; Saleki et al., 2019; Yadav & Pathak, 2016). These studies lend some insights into the phenomena driving the increasing intention of organic food consumption among consumers, yet there is a knowledge gap pertaining to the motives that propagate its actual consumption, especially among Malaysian consumers (Jaafar et al., 2020). Moreover, there is increasing evidence of studies that include additional constructs or variables in the TPB to further understand motives influencing the intention and actual consumption of organic food. This addition considerably improved the predictive power of the model (Qi & Ploeger, 2021; Yadav & Pathak, 2017). Other studies also proved the moderating effect of trust on the relationship between intention and sustainable behavior (Sultan et al., 2020; Tandon et al., 2020). Following this, the present research included trust in organic food certification, labeling and control as an additional construct along with the TPB constructs. This addition was considered as it plays a very important role in organic food consumption decisions. Specifically, consumers rely on product labeling with organic certification logos to signal consumers at the point of sale that a product is really "organic" (Gumber & Rana, 2021). Consumers may have second thoughts about converting their intentions into actual choices when there is a lack of trust or mistrust in the system that certifies, controls, and labels the products (Nuttavuthisit & Thøgersen, 2017). The addition of this construct is believed to help in explaining the intention–behavior gap in choosing organic food over conventional ones among Malaysian adult consumers.

3. Research Methodology

This research was a cross-sectional study that aimed to develop and examine the validity and reliability of the questionnaire on psychological factors of intention and actual consumption of organic food among Malaysian adults. Data was gathered through a pilot study carried out among 119 respondents in August 2020. The respondents were recruited using a Facebook advertisement created for the study. The respondents of the study were limited to Malaysian citizens who have heard about organic food or are interested in searching for organic food. Additionally, only responses from those aged 18 to 60 years old, as well as those who can decide his/her purchase or consumption of food based on personal needs, preferences, and beliefs were collected and used from this pilot study. The ethical approval and permission involving humans as subjects of the study were granted by the Ethics Committee for Research Involving Human Subjects (JKEUPM) of Universiti Putra Malaysia.

The questionnaire was established in both Malay and English languages and consisted of socio-demographic questions and forty-five (45) statements assessing five constructs of the TPB model with regards to organic food consumption: "attitude" construct (13 items); "subjective norm" construct (4 items); "perceived behavioral control" construct (7 items); "consumption intention" construct (5 items) and "actual consumption" construct (12 items). The items used to measure these constructs were adapted from previous studies. For instance, the "attitude" construct combining health, food safety, and environmental concerns was adapted from Voon et al. (2011). Meanwhile, the "subjective norm" construct was measured using items developed by Pomsanam et al. (2014). Next, items measuring the "perceived behavioral control" construct were adapted from previous studies by Demirtas (2019) and Tuan & Vinh (2016). On the other hand, the "consumption intention" construct which acted as both a dependent variable of attitude, subjective norm and perceived behavioral control and a predictor of organic food actual consumption based on the TPB was measured using items adapted from a previous study by Song & Liew (2019). A 5-point Likert Scale was used to measure the degree of agreement for these statements with (1 = strongly disagree), (2 = disagree), (3 = not sure), (4 = agree), and (5 = strongly agree).

While most previous studies focus on predicting organic food consumption intention (Jaafar et al., 2020), this study includes the organic food actual consumption measurement through self-reporting of experience on consuming organic food as the past behavior could serve as a proxy measure of future behavior (Fishbein & Ajzen, 2011). This was measured by adapting items developed in previous studies from Kesse-Guyot et al. (2013) and Nuttavuthisit & Thøgersen (2017). Some modifications of the items were made to suit the current study setting which followed the organic food categories sold at Jaya Grocer (the fastest-growing local chain) (USDA, 2016). Respondents were asked to self-report their organic food consumption frequency (“never; no

intake", "rarely; once or twice a year", "sometimes; once or twice a month", "often; once a week", "always; more than once a week") of 12 organic food groups within a year preceded by the question, "How often do you buy the following organic food for your own consumption?".

On top of that, the questionnaire includes an additional construct of trust in the labeling, certification, and control which was measured by items adapted from previous studies by Nuttavuthisit & Thøgersen (2017) and Voon et al. (2011). The scale consisted of 8 items measured using the aforementioned five-point Likert scale. Some of the items measuring the above constructs were modified to suit the current study setting. The questionnaire was pre-tested with 5 adult consumers who are aware of organic food but do not necessarily consume organic food as well as 5 expert panels within the fields of organic food agriculture, community nutrition, and consumer studies to establish its content and face validities. The sample size for pretesting the questionnaire follows the recommended sample size of between 5 and 15 individuals for large-scale surveys by Willis (2005). Once the pre-testing stage was completed, the items were amended accordingly based on the comments from the respondents and the expert panels. Subsequently, this study uses the 119 responses from the pilot study to further validate the questionnaire in the local population which consisted of items measuring the psychological constructs of TPB.

To validate instruments with modified items from prior research before being used in an actual study using the Exploratory Factor Analysis (EFA) technique, Cattell (2012) recommends a minimum of 100 acceptable questionnaires. Following this, a total of 119 responses were obtained through online sampling using the designated Facebook advertisement developed to recruit respondents that would direct the respondents who click on the advertisement to the questionnaire in the form of Google Forms. The online sampling was a targeted sampling which was appropriate given that the consumption of organic foods is not common in Malaysia and is only practiced by a small percentage of the population, (Suhaimee et al., 2016).

The Facebook advertisement was set to specifically target Facebook users who are at least 18 years and have an interest in organic food. In addition, the respondents were further vetted by inclusion and exclusion criteria questions set in the Google form (i.e., Malaysian citizens; living in any state of Malaysia). Respondents who met all of the inclusion requirements were permitted to complete all sections of the questionnaire, while those who did not meet the criteria were routed to the survey's end and finally removed from the data. Prior to participation, the respondent was required to tick the consent box before engaging in the survey after reading the study description. Only after providing their email address can the respondent begin filling out the questionnaire. This prevents duplicated responses from the same respondent.

4. Results and Discussion

Background of the respondents: In this pilot survey, 119 responses in the form of Google Forms from Malaysian adult Facebook users who were intercepted via Facebook advertisement were obtained. Most of the sampled respondents were adults from the central zone of Malaysia (73.9%), followed by those who live in the South (15.1%), North (5.0%), and East (4.2%). Only one respondent from Sabah and Sarawak respectively was obtained. The sociodemographic characteristics and health status of the respondents are shown in Table 1. The majority of respondents were female (79.8%), between the ages of 18 and 29 (40.3%), had a tertiary degree (89.1%), and made at least RM 1,500 per month (61.3%). Respondents who were married (47.9%) and unmarried (52.1%) were more or less equally represented in the sample. Additionally, Bumiputera respondents made up the majority of the sample (52.9%), followed by Chinese (39.5%), Indians (5.9%), and Other ethnic groups (1.7%). The majority of respondents also claimed to be healthy, with a BMI between 18.5 and 24.9 kg/m2 (52.9%) and no chronic diseases present (89.9%).

Table 1: Background of the respondents

Factors	n (%)
Gender	
Males	24 (20.2)
Female	95 (79.8)
Age, years old	
18-29	48 (40.3)
30-39	30 (25.2)
40 and above	41 (34.5)
Ethnicity/ Ethnicity	
Bumiputera	63 (52.9)
Chinese	47 (39.5)
India	7 (5.9)
Others	2 (1.7)
Education	
Secondary	13 (10.9)
Tertiary	106 (89.1)
Income	
< RM 1,500	46 (38.7)
RM 1,500 and above	73 (61.3)
Marital status	
Single	62 (52.1)
Married	57 (47.9)
Presence of chronic disease	
Yes	12 (10.1)
No	107 (89.9)
BMI, kg/m^2	
< 18.5	11 (9.2)
18.5 - 24.9	63 (52.9)
25 - 29.9	25 (21.0)
≥ 30	20 (16.8)

Validity and reliability of the instrument: Table 2 reveals the results of the assessment of the construct validity and reliability of each construct. The Bartletts' Test of Sphericity and Kaiser-Meyer-Olkin (KMO) results for all constructs were significant (p-value < 0.05) and higher than 0.60 correspondingly with the result of the "attitude" construct (0.00 and 0.82); "subjective norm" construct (0.00 and 0.67); "perceived behavioral control" construct (0.00 and 0.85); "consumption intention" construct (0.00 and 0.85; "actual consumption" construct (0.00 and 0.93); and "trust in the labeling, certification, and control" construct (.00 and .90). This means that each construct fulfilled the criteria for factor analysis.

A three-factor solution was obtained with a total of 13 items from the "attitude" construct, and the total variance explained by the three factors was 58.18%. Meanwhile, a one-factor solution was obtained for the rest of the other constructs with the total variance explained ranging from 57.23% to 71.79% (i.e., "subjective norm" construct = 59.53%; "perceived behavioral control" construct = 57.23%; "consumption intention" construct = 62.49%; "actual consumption" construct = 64.83% and trust = 71.79%). Similar to the "attitude" construct, all items measuring the other constructs were retained as there were no items with a factor loading less than .50 (ranging from .60 to .91) and loaded to more than one factor. On top of that, as shown in Table 2 below, all six (6) constructs had Cronbach's alpha values greater than 0.7, indicating a high level of internal consistency in the data (Pallant, 2007). In addition, correlations among the factors ranged from 0.233 to 0.674, indicating that there is multicollinearity between the factors (see Table 3).

Table 2: Reliability of the instrument measuring psychological factors, consumption intention, and actual consumption of organic food

Component/Items	Sphericity	KMO	Total variance explained (%)	Factor Loading	Cronbach Alpha
Attitude (ATT)	0.00	0.82	58.18		0.82
Health concern					0.82
1. I am concerned about the usage of food additives in the food I take.				0.62	
2. It's scary when I think about how much pesticides are used in the food I take.				0.65	
3. I am concerned about the nutrient content in the food that I consume daily.				0.75	
4. I am concerned about my cholesterol intake.				0.76	
5. I do care about my intake of fat.				0.71	
6. I am concerned about how the food I take was processed.				0.70	
Food safety concern					0.70
1. To me, organic food is free from genetically modified organisms (GMOs).				0.75	
2. I think organic food does not contain artificial flavoring or coloring.				0.76	
3. To me, organic food is free from chemical pesticides.				0.75	
Environmental concern					0.70
1. For me, the government's efforts to control environmental pollution are still insufficient.				0.67	
2. I am greatly concerned about the effect of environmental pollution.				0.60	
3. I am aware that the prohibition of chemical pesticides in organic food production is good for the environment.				0.76	
4. I realize the ban on chemical fertilizers in organic food production is a way to produce more environmental-friendly food.				0.72	
Subjective Norm (SN)	0.00	.67	59.53		0.77
1. My family eats organic food.				0.77	
2. People who are important to me such as doctors and people who I know well think I should eat organic food.				0.81	
3. People who are important to me think that eating organic food contributes to good health.				0.75	
4. I intend to eat organic food because society accepts that it is a good choice.				0.76	
Perceived Behavioral Control (PBC)	0.00	.85	57.23		0.87
1. I am sure I can consume more organic food when I want to.				0.65	

2. I believe I can afford to buy organic food.				0.75	
3. I have time to look for organic food when I want to have it.				0.79	
4. Despite being expensive, I prefer to consume organic food.				0.78	
5. For me, consuming organic food would be possible.				0.70	
6. If I wanted to, I could easily consume organic food.				0.81	
7. I believe that I have the resources and the ability to consume organic food				0.81	
Trust in organic food certification, labeling, and control (TR)	0.00	.90	71.79		0.94
1. I trust the Malaysian government's organic food certification system.				0.77	
2. I trust that Malaysia's organic food certification is free from any influence of irresponsible parties.				0.81	
3. I trust the control of organic food sales in Malaysia.				0.85	
4. I trust the authenticity of organic food sold in Malaysia.				0.90	
5. I trust the organic food certification logo on organic food packaging sold in Malaysia.				0.91	
6. I trust the information displayed on organic food packaging sold in Malaysia.				0.87	
7. I trust that the organic food sold by retailers in Malaysia is genuine.				0.85	
8. I trust that organic food retailers in Malaysia are honest about their organic food labeling information				0.81	
Consumption intention (CI)	0.00	.85	62.49		0.84
1. I am willing to consume organic food over non-organic food.				0.73	
2. I am willing to consume organic food because the benefits outweigh the costs.				0.73	
3. I have a positive attitude toward consuming organic food.				0.78	
4. I will likely consume organic food.				0.87	
5. I intend to consume organic food in the near future.				0.84	
Actual consumption (AC)	.000	.93	64.83		0.95
Respondents will be asked to report the frequency of organic food consumption. "How often have you bought the following organic food items for your own consumption?					
1. Organic fruits or vegetables				0.72	
2. Organic dairy & beverages (e.g., juice, milk, soy, oat, tea, coffee, puree,				0.79	

or cordial)	
3. Organic chicken or meat products	0.74
4. Organic rice, grains, or dried goods (e.g., dried almond, cashew nuts, quinoa, or chia seeds)	0.84
5. Organic noodles or pasta	0.79
6. Organic sauces, condiments, or oil (e.g., soy sauce, apple cider coconut oil, or olive oil)	0.84
7. Organic herbs or spices (e.g., chili flakes, black pepper, or cinnamon powder)	0.81
8. Organic cereal	0.83
9. Organic biscuits or snacks	0.85
10. Organic spreads or honey	0.83
11. Organic sugar or salt	0.81
12. Other organic product(s)	0.79

Table 3: Correlations between constructs

	ATT	SN	PBC	TR	IN	AC
Attitude (ATT)	1					
Subjective norm (SN)	0.381**	1				
Perceived behavioral control (PBC)	0.368**	0.494**	1			
Trust in the labeling, certification, and control (TR)	0.233*	0.423**	0.321**	1		
Organic food consumption intention (IN)	0.452**	0.674**	0.607**	0.420**	1	
Organic food actual consumption (AC)	0.308**	0.607**	0.573**	0.398**	0.497**	1

(**p<0.001)

The appropriateness of the data to run factor analysis and the adequacy of the sample size of this study was assured as every construct achieved its cut-off recommended value of Bartletts' Test of Sphericity < 0.05 and the measure of sampling adequacy by Kaiser-Meyer-Olkin (KMO) > 0.6 respectively. The findings of the EFA explored that the latent construct "attitude" was formed by three attitudinal factors namely health concern, food safety concern, and environmental concern. Besides, the three factor-solution of the "attitude" construct explained at least 50% of the total explained variance among the items used to measure the construct. The Cronbach's alpha values of the main attitudinal construct and each of its sub-factors have exceeded the minimum value of .70 ranging between .70 to .82. indicating that the items in all sub-factor measuring the construct have excellent internal reliability (Pallant, 2007). This finding suggests that people's attitudes regarding organic food consumption are reflected by health, food safety, and environmental concerns.

Next, all the items measuring the "subjective norm" construct remained. The reliability of the construct is slightly higher than the original construct by Pomsanam et al. (2014) with a Cronbach alpha of .77. Besides, the highest factor loading was recorded for the statement "People who are important to me such as doctors and people who I know well, think I should eat organic food". This demonstrates that respondents place a great value on the advice and opinions of others, particularly those they regard highly when it comes to organic food consumption. As for the "perceived behavioral control" (PBC) construct, the items used to measure it produced higher reliability compared to studies done by Demirtas (2019) and Tuan & Vinh (2016) with a Cronbach's alpha value of .87. Moreover, the statement "I could easily consume organic food" and "I believe that I have the resources and the ability to consume organic food" recorded the highest factor loading (.81). Following this, it can be said that respondents' perceptions of their ability to control their behavior were related to their perceptions of how easy and affordable it was to obtain organic food. Consumers' inclinations to intended behavior may be strengthened by ease of PBC considerations (Sultan et al., 2020).

For the additional construct of "trust in the labeling, certification, and control", this study measured it as a stand-alone construct. This approach was different from the study by Voon et al. (2011) where the researchers incorporated trust in organic food claims with other health and environmental concerns as well

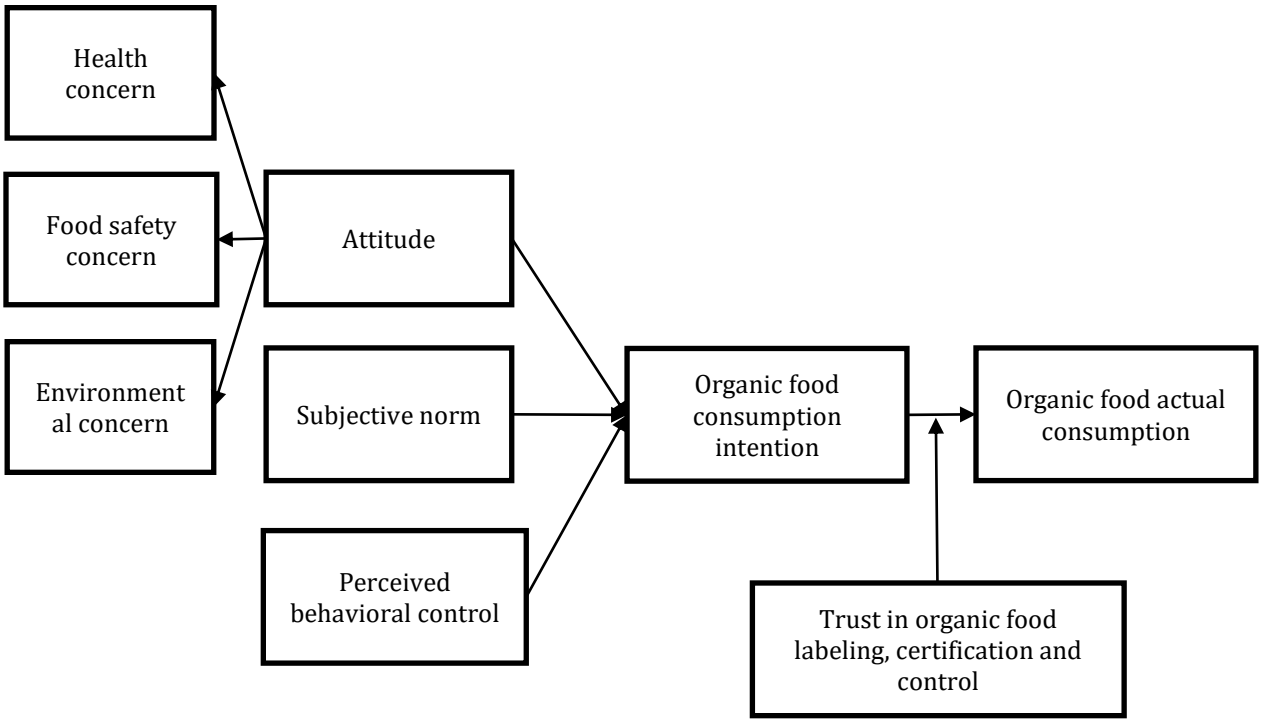
as perceptions of organic food attributes to reflect Malaysian consumers' attitudes toward organic food. This study follows the argument made by Nuttavuthisit & Thøgersen (2017), who stated trust is a unique psychological variable that is different from the propositions of the TPB (i.e. perceived behavioral control). The factor analysis shows that the eight items adapted from studies by Nuttavuthisit & Thøgersen (2017) and Voon et al. (2011) reflected that the items used to measure the trust construct loaded into a one-factor solution with excellent construct reliability with Cronbach's alpha value of .94.

Moving to the dependent variable of TPB, the "consumption intention" construct had a comparable internal consistency (Cronbach's alpha = .84) with Song & Liew's study in 2019 even though this study used online sampling rather than physically meeting the respondents at supermarkets and special retail outlets selling organic food products. This shows that online sampling could be a useful alternative platform for obtaining reliable responses for studies related to consumers' food choices. Besides, as there is a limited local study on the actual consumption of organic food (Jaafar et al., 2020), items used to measure the construct was adapted from international studies by Kesse-Guyot et al. (2013) in France and Nuttavuthisit & Thøgersen (2017) in Thailand. The "actual consumption" construct measured by the 12 items also had excellent construct reliability (Cronbach's Alpha = .90). This suggests that the sampled Malaysian adults were interested in different types of organic food including fresh and processed organic food, rather than being only familiar with organic fruits and vegetables back then (Dardak et al., 2009). Overall, the construct validity and reliability of each construct measured in the questionnaire were achieved.

5. Conclusion

This instrument passed the validity and reliability tests for each construct and is appropriate for use in future research related to psychological factors towards intention and actual consumption of organic food that is grounded by the TPB model. Nevertheless, an extended study involving the use of confirmatory factor analysis is recommended to further validate each of the constructs involved in this study. This study also proposes the extended TPB model of organic food consumption among Malaysian adults as shown in Figure 2. Future studies with a larger sample size will further strengthen the conceptual model hypothesized in this study.

Figure 2: A proposed conceptual framework



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