COVID-19 pandemic: what drives consumers' willingness to purchase organic food?

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Abstract

The consumption of organic food is increasing globally due to heightening awareness of its benefits in terms of nutrients such as antioxidants and minerals as compared to conventional food. Organic food is also safer to consume as it is farmed without using human-made or artificial chemical fertilizers, pesticides, growth hormones or regulators and feed additives. Nevertheless, very few studies have been conducted to understand the demand side in purchasing organic foods, especially during the COVID-19 outbreak. Hence, this study aimed to investigate the underlying factors that drive consumers' willingness to purchase organic foods during the inevitable challenge of the COVID-19 pandemic, based on the two underpinning theories; Theory of Reasoned Action (TRA) and the Protection Motivation Theory (PMT). A questionnaire-based survey was distributed using WhatsApp messaging to 100 respondents as this method was deemed safer compared to the face-to-face method during the pandemic. PLS-SEM was employed to test the structural relationship of the constructs proposed in the model. The results indicated that response efficacy, attitudes, and subjective norm had a significant influence on consumers' willingness to purchase organic food. The remaining constructs based on the PMT model had no impact on willingness. Further investigation revealed that response efficacy was the most important factor driving consumers to purchase organic food during the COVID-19 pandemic.

1. Introduction

The coronavirus pandemic (COVID-19) that begin at the end of 2019 caused unprecedented disruption across the world. As of 28 January 2021, Malaysia was ranked 29th in the number of COVID-19 cases globally, with 48,625 cases reported (The Star, 2021). The pandemic had a significant impact on many industries and undeniably influenced consumers' demand for various goods and services in the market. A market research company revealed that the organic food market is expected to be worth USD272.18 billion by 2027 (Meticulous Market Research, 2020). The pandemic has inextricably led to a surge in demand for healthier and sustainable food, with the health benefits of organic food superseding the costs of consuming these foods. Consumers tend to be attracted to the good nutritional values of this food to boost their immune system and for their bodies to have a better chance of fighting against the virus. This will result in organic food receiving major sales boost as they tend to be perceived as a healthier and safer food choice, compared to conventional food.

With the progress of the COVID-19 pandemic, the public's hygiene behaviours and consumption patterns have also shifted (Qi *et al.*, 2020). A recent study by Datassential (2020) discovered that 69% of the respondents from the US preferred to cook their meals at home and the majority of the consumers indicated that they were less likely to dine in during the pandemic. In addition, several past studies have examined consumers' intentions and behaviours during the COVID-19 pandemic, especially in the context of organic food (Cachero-Martínez, 2020), organic fish (Prince and Wahid, 2020), frozen food (Chianardi and Permatasari, 2020), panic buying (Islam *et al.*, 2021; Naeem, 2021), and grocery shopping preferences (Grashuis *et al.*, 2020). A recent study by Jayawardena and Misra (2020) revealed that the elderly and those with comorbidities tend to maintain their health by having healthy eating

habits during the pandemic. Since consumers believed that organic food is healthier, with higher nutritional content, safer and more sustainable, when compared to conventional food (Hoppe *et al.*, 2013), they choose these foods even before the pandemic. Nevertheless, similar studies from the perspectives of Malaysian consumers are still under-explored. Much past research applied the Theory of Reasoned Action (TRA) to understand market perceptions and customers' buying behaviour (Ajzen, 1975). TRA consists of two factors, attitude and subjective norm, and these two factors influence behavioural intention. Attitude refers to an individual's feeling, either positive or negative, about carrying out a particular behaviour (Nguyen *et al.*, 2018). Attitude has a significant positive effect on both intention and behaviour (Juschten *et al.*, 2019; Paul *et al.*, 2016; Suki, 2016). Subjective norms can be defined as an individual's beliefs that he should or should not engage in a particular behaviour (Nguyen *et al.*, 2018). Maichum *et al.* (2016) and Paul *et al.* (2016) revealed that consumers tend to consider or comply with people with whom they are close to making a purchase decision. The more favourable the attitude and subjective standards are, the more the individual would perform the behaviour. However, as certain behavioural intentions to purchase organic food patterns arise, external factors influencing purchasing behaviour need to be considered (Kabir and Islam, 2021).

Therefore, in addition to the two constructs from TRA (i.e., attitudes and subjective norm), this study included the constructs from Protection Motivation Theory (PMT) and propose a research framework to investigate consumers' willingness to purchase organic food during the COVID-19 pandemic in Malaysia. PMT is developed by Roger in 1975 that describes how individuals are motivated to react in a self-protective way towards a perceived health threat. In PMT, threat appraisal consists of perceived threat (i.e., perceived severity, perceived vulnerability, and fear) and perceived rewards (i.e., intrinsic and extrinsic rewards), and coping appraisal comprises of perceived efficacy (response efficacy and self-efficacy) and perceived cost (i.e., response cost). In general, threat appraisal assesses the severity and seriousness of a situation, while the coping appraisal process examines fear appeal components that are related to an individual's evaluation of the suggested coping response to the appraised threat. The significant relationship between PMT constructs, for instance, the perceived threat (Rainear and Christensen, 2017; Ibrahim and Al-Ajlouni, 2018), perceived rewards (Bashirian *et al.*, 2019; Kothe *et al.*, 2019), perceived efficacy (Sharma and Dayal, 2016; Verkoeyen and Nepal, 2019), and perceived cost (Keshavarz and Karami, 2016; Hsieh *et al.*, 2017) with intention have been investigated in the

past. Generally, PMT assumes that people will be motivated to protect themselves by adopting a protective behaviour against health hazards. Since no conclusive cure for COVID-19 has been established, the best method to control the disease is to adopt preventive behaviours (Ezati Rad *et al.*, 2021). As COVID-19 impacted people's livelihoods, their health and the food system, the inclusion of the constructs from PMT to the TRA can help the researchers to identify factors involved in protective behaviours by consuming healthier food (i.e., organic food) to plan health promotion programmes. Therefore, this study aimed to predict the protective behaviours of COVID-19 in the context of purchasing organic food, based on the PMT and TRA, during the pandemic outbreak.

2. Methodology

2.1 Research framework and hypotheses

Figure 1 propose a research framework based on past theoretical and empirical literature. Perceived severity, perceived vulnerability, fear, intrinsic rewards, extrinsic rewards, response efficacy, self-efficacy, response cost (i.e., variables of PMT), subjective norm, attitude towards organic food (i.e., variables of TRA) were the independent variables; and willingness to purchase organic food was the dependent variable indicated in the framework. The hypotheses of the study were proposed as below:

H1: Perceived severity directly influences the consumers' willingness to purchase organic food.

H2: Perceived vulnerability directly influences the consumers' willingness to purchase organic food.

H3: Fear directly influences the consumers' willingness to purchase organic food.

H4: Intrinsic rewards directly influence the consumers' willingness to purchase organic food.

H5: Extrinsic rewards directly influence the consumers' willingness to purchase organic food.

H6: Response efficacy directly influences the consumers' willingness to purchase organic food.

H7: Self-efficacy directly influences the consumers' willingness to purchase organic food.

H8: Response cost directly influences the consumers' willingness to purchase organic food.

H9: Subjective norm directly influences the consumers' willingness to purchase organic food.

H10: Attitudes directly influence the consumers' willingness to purchase organic food.
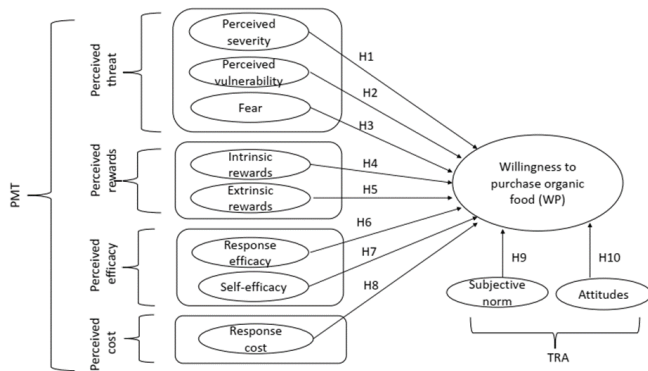
Figure 1. Research framework

2.2 Methods

This paper examined consumers' willingness to purchase organic food during the COVID-19 pandemic in Malaysia. The unit of analysis was Malaysian consumers aged 18 and above, who lived in Klang Valley, Malaysia. Many of these middle-income earners are believed to reside in the Klang Valley (The Edge Malaysia, 2020). A pre-test that consisted of 30 respondents was conducted before the larger sample size of data collection. A total of 100 questionnaires were distributed via an online survey using Whatsapp messaging platform due to the movement control order in March 2020 that restricted movement in the country in response to the COVID-19 pandemic. This method was deemed to be safer compared to the face-to-face method due to the movement control order (MCO) implemented. Online consent as participant in the survey was obtained from the respondents before they started answering the questions. In addition, the selected respondents were aware of the organic food in order to be eligible to participate in the survey; and the duration of data collection was about 1.5 months.

In terms of the measurement scales, all the constructs were adopted and adapted from existing validated scales. Perceived severity and perceived vulnerability with four items respectively were adapted from Rainear and Christensen (2017); fear was measured using a three-item scale adapted from Scarpa and Thiene (2011); intrinsic rewards (4 items) and extrinsic rewards (8 items) were adapted from Ibrahim and Al-Ajlouni (2018) and Wu *et al.* (2012). A 3-item scale of response efficacy was adapted from Ibrahim and Al-Ajlouni (2018); a 3-item scale of self-efficacy scale was adapted from Wang *et al.* (2019) and a 6-item scale of response cost was adapted from Ibrahim and Al-Ajlouni (2018) and Scarpa and Thiene (2011). Finally, the measurement scales of TRA variables of attitudes (3 items) and subjective norm (4 items), and the dependent variable, consumers' willingness to purchase organic food (5 items), were adapted from Paul *et al.* (2016). All these scales were measured using a 7-point Likert agreement scale. PLS-

SEM was used to test the structural relationship of the constructs. Both measurement and structural models were assessed based on the two-step approach suggested by Anderson and Gerbing (1988).

3. Results

3.1 Descriptive analysis

A total of 58% of the respondents were male, while 42% of them were female, with the majority of them (74%) under 26the -35 age group. Besides, 63% obtained a bachelor's degree qualification and 39% earned a monthly income above RM5,000. In terms of occupational level, the majority were executives (37%), followed by professionals (24%) and the self-employed. A total of 71% were Chinese and 69% were single. With regard to their experience in organic food purchases, 71% of the respondents have purchased and consumed organic food in the past.

3.2 Assessments of measurement and structural models

Common method bias was tested using full collinearity statistics because data were collected simultaneously from the same respondents (Wolter and Cronin, 2017). The model was considered free of common method bias as the variance inflation factor (VIF) obtained was less than the rule of thumb of 3.3 (Kock, 2015). The assessments of reliability and validity for the measurement model were also conducted. The results of Cronbach's alpha showed that all the constructs have reliable scales as they ranging from 0.681 to 0.966. Table 1 shows that all composite reliability (CR) and Average Variance Extracted (AVE) values were higher than the threshold of 0.70 and 0.50 respectively, considered satisfactory as suggested by Hair *et al.* (2017). Fornell-Larcker Criterion was used to measure discriminant validity and the discriminant result was achieved when the square root of AVE of each construct was larger than the correlation with the other constructs. In other words, all constructs researched were truly distinct from each other and the same thing was not measured, thus, the multicollinearity issue was not present. The results of discriminant validity were presented in Table 2.

Following the above analysis, the structural model assessment was examined next. Lateral collinearity and inner VIF were assessed, and the result showed that there was no collinearity issue as the inner VIF values for independent variables were less than the threshold of 5.0 (Hair *et al.*, 2016). In addition, the significance and relevance of the structural model relationships were evaluated. The results of path coefficients with direct effects and hypothesis decisions were presented in Table 3. Based on the outcome, H6, H9, and H10 were

Table 1. Factor loadings, CR, and AVE for all the constructs

First Order Constructs (after deletion of items)	Items	Cronbach's Alpha	Loadings	CR	AVE
Perceived Severity (PS)	PS1	0.911	0.918	0.934	0.779
	PS2		0.901		
	PS3		0.875		
	PS4		0.834		
Perceived Vulnerability (PV)	PV1	0.936	0.773	0.953	0.838
	PV2		0.957		
	PV3		0.967		
	PV4		0.950		
Fear (F)	F1	0.869	0.888	0.92	0.793
	F2		0.940		
	F3		0.840		
Intrinsic Rewards (IR)	IR1	0.861	0.615	0.91	0.72
	IR2		0.867		
	IR3		0.927		
	IR4		0.944		
Extrinsic Rewards (ER)	ER1	0.892	0.565	0.914	0.58
	ER2		0.622		
	ER3		0.582		
	ER4		0.719		
	ER5		0.881		
	ER6		0.878		
	ER7		0.872		
	ER8		0.877		
Response Efficacy (RE)	RE1	0.942	0.93	0.963	0.896
	RE2		0.945		
	RE3		0.964		
Self-efficacy (SE)	SE1	0.89	0.941	0.931	0.818
	SE2		0.938		
	SE3		0.831		
Response Cost (RC)	RC1	0.681	0.898	0.796	0.576
	RC2		Deleted		
	RC3		0.793		
	RC4		0.540		
	RC5		Deleted		
	RC6		Deleted		
Subjective Norm (SN)	SN1	0.933	0.954	0.953	0.835
	SN2		0.936		
	SN3		0.929		
	SN4		0.832		
Attitude towards Organic Food (AT)	AT1	0.966	0.972	0.978	0.935
	AT2		0.971		
	AT3		0.959		
Willingness to purchase organic food (WP)	WP1	0.961	0.918	0.97	0.867
	WP2		0.945		
	WP3		0.930		
	WP4		0.946		
	WP5		0.914		

Note: Item RC2, RC5, and RC6 were deleted due to low loadings

Table 2. Fornell-Larcker's Criterion result

Constructs	AT	ER	F	IR	PS	PV	WP	RC	RE	SE	SN
Attitude towards Organic	0.952										
Extrinsic Rewards (ER)	0.119	0.967									
Fear (F)	0.410	0.224	0.889								
Intrinsic Rewards (IR)	0.072	0.768	0.152	0.906							
Perceived Severity (PS)	0.382	-0.012	0.217	-0.074	0.895						
Perceived Vulnerability (PV)	0.397	0.137	0.290	0.045	0.638	0.904					
Willingness to purchase (WP)	0.699	0.155	0.458	0.139	0.327	0.319	0.904				
Response Cost (RC)	0.145	0.296	0.161	0.224	0.138	0.210	0.170	0.715			
Response Efficacy (RE)	0.536	0.150	0.381	0.134	0.259	0.217	0.573	0.134	0.927		
Self-efficacy (SE)	0.439	0.280	0.427	0.307	0.289	0.324	0.466	0.239	0.433	0.908	
Subjective Norm (SN)	0.477	0.234	0.470	0.226	0.157	0.157	0.524	0.164	0.403	0.383	0.920

Table 3. Results of path coefficients with direct effects and hypothesis decision

Hypothesis	Relationship	Path coefficient	Sample Mean (M)	Standard error	t-value	p-value	Results
H1	PS→WP	0.044	0.063	0.083	0.531	0.595	Not supported
H2	PV→WP	0.068	0.051	0.089	0.767	0.443	Not supported
H3	F→WP	0.084	0.101	0.101	0.833	0.405	Not supported
H4	IR→WP	0.062	0.045	0.121	0.514	0.608	Not supported
H5	ER →WP	0.004	0.015	0.137	0.029	0.977	Not supported
H6	RE→WP	0.336	0.308	0.098	3.437	0.001	Supported
H7	SE→WP	0.067	0.059	0.087	0.770	0.442	Not supported
H8	RC→WP	-0.141	-0.137	0.087	1.625	0.105	Not supported
H9	SN→WP	0.175	0.189	0.087	2.004	0.046	Supported
H10	AT →WP	0.313	0.304	0.104	3.015	0.003	Supported

Note: $p < 0.05$, $t > 1.96$

PS: Perceived severity, PV: Perceived vulnerability, F: Fear, IR: Intrinsic rewards, ER: Extrinsic rewards, RE: Response efficacy, SE: Self-efficacy, RC: Response cost, SN: Subjective norm, AT: Attitude, PI: Willingness to purchase organic food

supported. As hypothesized, response efficacy (β = 0.336, $p < 0.05$), subjective norm (β = 0.175, $p < 0.05$), and attitude toward organic food (β = 0.313, $p < 0.05$) were found to positively affect consumers' willingness to purchase organic food. Further investigation revealed that response efficacy was the most important factor driving consumers' willingness to purchase organic food during the COVID-19 pandemic. In contrast, perceived severity, perceived vulnerability, fear, rewards, self-efficacy, and response costs did not have a significant relationship with willingness to purchase organic food. Therefore, H1, H2, H3, H4, H5, H7, and H8 were not supported.

4. Discussion

This study examined Malaysian consumers' willingness to purchase organic food during the COVID-19 pandemic using two behavioural theoretical models: the Theory of Reasoned Action (TRA) and the Protection Motivation Theory (PMT). The results revealed that perceived severity and perceived vulnerability were not significant at the 0.05 level. The non-significant results might be due to the nature of the sample (Ibrahim and Al -Ajlouni, 2018). A total of 86% of the respondents are categorized between 18 to 35 years old, and they would be less likely to be concerned about their health through the means of food dieting, as these age groups tend to have fewer health problems and live in a be in better health condition (Bonnie *et al.*, 2015) as compared to the older groups. They also tend to have a more positive outlook in regard to the current pandemic instead of a more negative or pessimistic outlook from much older groups. This optimism will reduce their perceived vulnerability to the threat posed by not consumption of organic food. Thus, H1 and H2 were not supported.

H3 was also not supported. The fear factor was frequently used to alarm or frighten people to alter their behaviours (Gerjo *et al.*, 2017), yet this study revealed that fear was not effective in boosting consumers' willingness to purchase organic food during the pandemic. This may be because consumers were more afraid of COVID-19 itself rather than the pesticide level in conventional food. This was contradicted by the previous study that revealed pesticide residues in food was one of the top 5 food scares (Dey *et al.*, 2018). The harmful effects of conventional food practices and the seriousness of the pesticides level were not high enough to motivate consumers to adopt organic food consumption.

As for H4 and H5, both hypotheses were not supported. The results showed that consumers perceived the purchase of conventional food to be more rewarding as compared to organic food. The result was not as significant as revealed by Sabzmakan et al. (2018), relatively because of the availability of local organic food. When local demand was relatively higher than supply, consumers will seek imported organic food which was pricier Nevertheless, the high price of imported organic food might discourage future consumption of organic food as consumers would assume all organic food is costly.

As for H7, the result was not supported. This was contradicted by the previous studies that revealed that response efficacy and self-efficacy have a positive and significant influence on purchase intention towards organic food (Sharma and Dayal, 2016; Verkoeyen and Nepal, 2019). Nonetheless, only response efficacy was found to have a significant effect on willingness to purchase. When consumers have a high level of response efficacy and think that organic food was effective and helped in tackling the threats posed by conventional food, they will have a higher willingness to change their consumption to purchase organic food (Austgulen et al., 2017). Thus, H6 was supported. However, self-efficacy was found to have no significant effect on willingness to purchase. The possible explanation for the non-significant result is that consumers lack knowledge and awareness of the benefits of organic food in combating the threats posed by conventional food and these will be the barrier to organic food purchase (Nguyen et al., 2019). When consumers have limited information on the benefits of organic food, they will be less likely to be willing to be engaged in organic food purchase activities, as they are not convinced that organic food is effective in combating these threats.

Similarly, H8 was not supported in this study. Generally, consumers tend to perceive organic food as expensive and would be less willing to purchase it (Aschemann-Witzel and Zielke, 2015; Hasimu et al., 2016; Nguyen et al., 2019). However, the result revealed that response cost was not significantly affected willingness to purchase, possibly because Malaysian consumers did not take response cost into consideration when deciding whether to purchase organic food. Consumers who did not take into account the cost of organic food did not necessarily mean that they did not perceive organic food to be expensive. Instead, the cost of purchasing organic food might not be the major barrier for consumers to purchase organic food (Massey et al., 2018).

With regards to the TRA variables, both subjective norm and attitude have been widely tested in the organic food context and found to have a significant positive effect on purchase intention towards organic food (Liang, 2016; Maichum et al., 2016; Lian, 2017). The results of this study found that subjective norms and attitudes have a significant relationship with willingness to purchase. Consumers were more likely to purchase organic food when their close and trusted contacts expect them to do so. This will have a favourable outcome on willingness to purchase organic food. Therefore, H9 and H10 were supported.

Therefore, it was evident that response efficacy, subjective norm, and attitude were key factors that influenced consumers' willingness to purchase organic food. The results showed that consumers tend to think organic food was useful and effective in combating threats posed by conventional food when they have a higher level of response efficacy and this led them to be more willing to purchase organic food. The results also reported that consumers tend to purchase organic food when their family and close ones are convinced and expected them to purchase the organic food. Lastly, not only the effectiveness of organic food and expectations from loved ones, but Malaysian consumers are also more willing to purchase when they have a favourable attitude towards organic food.

5. Conclusion

It is undeniable that the COVID-19 pandemic has affected different people in many different ways. However, the pandemic is a wake-up call for the practice of healthy eating. Organic produce inevitably becomes more popular during the pandemic as people believe that organic food will boost immunity and keep them healthy. Following the COVID-19 outbreak, people tend to have a higher awareness of their health and the environment. These provide an incentive for the purchase of organic products. This study examined influencing factors that drive consumers' willingness to purchase organic foods during the challenging time of the COVID-19 pandemic in Malaysia during the Movement Control Order (MCO). For the practical implication, the results of this study can help the government and practitioners to develop policies that support the organic food market in Malaysia. If the government can help to close the gap for organic produce, this will benefit both the farmers and consumers, especially in the demand and supply of organic food. On the other hand, from the aspects of the theoretical implication, the inclusion of the variables from PMT helps to gain a better understanding of consumer purchase intention towards the organic food, besides analysing the variables from the TPB which have been used over the years. Finally, future studies could

consider employing the longitudinal method to collect data instead of the cross-sectional method as this will allow a more comprehensive study in determining variable patterns over time. Besides, the sample size could also be expanded and increased in the future especially when the MCO is lifted. Despite these limitations, the study provides comprehensive evidence that the variables from TRA and PMT are useful in predicting the key drivers that affect consumers' willingness to purchase organic food.

Conflict of interest

The authors declare no conflict of interest.

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