

Does the milk powder scare matter? A survey examining Penang's consumer purchase intention with attitude as the mediator

¹Abbasi, G. A., ²Yow, B. C. and ^{1*}Goh, Y. N.

¹Graduate School of Business, Universiti Sains Malaysia, 11800, USM Penang, Malaysia

²Danone Dumex (M) Sdn. Bhd.

Article history

Received: 1 July 2019
Received in revised form:
11 March 2020
Accepted:
6 April 2020

Keywords

*purchase intention,
milk powder,
Theory of Planned
Behaviour (TPB),
product knowledge,
perceived benefit*

Abstract

In the present work, the extended Theory of Planned Behaviour was utilised in order to examine and unearth the consumer milk powder purchase intention after the milk powder scare. For this reason, a self-administered questionnaire was developed using established scales. Moreover, a survey on 200 respondents was conducted in Penang, Malaysia through an online survey questionnaire. Statistical Package for the Social Science (SPSS) was utilised to analyse the data. The findings revealed that product knowledge, product involvement, and perceived benefit were positively and significantly related to purchase intention. Surprisingly, perceived risk and country of origin's image do not have any significant relationship with purchase intention. Attitude, playing the role of the mediating variable in the present work, was discovered to have a mediating effect on the relationships among product knowledge, product involvement, perceived benefit, perceived risk, country of origin's image, and purchase intention regarding milk powder. The present work shines a new light on Malaysian consumers' purchase intention towards milk powder. Furthermore, the results of the present work can be adopted as a source of reference by milk powder companies in order to formulate strategic marketing plans, for instance during the food scare crisis.

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Introduction

Food safety is a globally-problematic phenomenon and a rising issue of significant apprehension in agri-businesses as well as the food industry (Ruby *et al.*, 2019). All countries around the world attach countless importance to food safety (Asif *et al.*, 2018). Meanwhile, recurring food safety incidents have raised a public hue and cry, and hence, the concern for food safety is getting more pertinent (Asif *et al.*, 2018). In Malaysia, the milk scandal occurred in August 2013 as dairy company, Fonterra, from New Zealand sparked a global recall of milk products after they had discovered botulism bacteria in some of their whey protein concentrates (The Star Online, 2013). However, this crisis was concluded as a false alarm when the government officials of New Zealand announced that they had found no sign of harmful botulism bacteria after retesting ingredients used in the recalled milk products (The Star Online, 2013). The demand for milk among the Malaysian population is estimated to have grown by 30% in the half-decade leading up to 2014 (Malaysia Food and Drink Report, 2014). Although it has a speedy growth, the Malaysian local dairy industry is keeping pace with its overall market share at only about 5%. Due to significant competition among the top milk

companies in Malaysia, it has become a cumbersome task for milk powder companies to increase their sales and further broaden their consumer base (Malaysia Food and Drink Report, 2014). Furthermore, milk companies in Malaysia also face an imminent urge to restore the confidence of consumers following milk safety issues. The milk scare issue has created a crisis of confidence among consumers towards milk products and thus affects the consumption (Malaysia Food and Drink Report, 2014).

Moreover, the milk powder scare issue of 2018 has not yet been forgotten. In 2018, local online news covered a headline on contaminated milk powder which was recalled from the Singaporean market. This milk powder was made in Malaysia (New Straits Times, 2018). Even though it was not sold in the Malaysian market, it was actually produced in Malaysia, and thus, indirectly influenced the perspective of Malaysian consumers towards the image of this country. Resultantly, it made consumers more cognizant about milk powder consumption. Therefore, it is crucial to find an approach to mitigate the influence of the tainted milk scandal over the milk powder market to restore consumers' confidence in milk safety and also to promote the development of the dairy market.

Understanding consumer perceptions,

*Corresponding author.
Email: yngoh@usm.my

attitudes, and purchasing behaviour with respect to food is of great importance. As for food choices, in general, reasons for buying and / or consuming foods are manifold and complex (Nystrand and Olsen, 2020). The present work contributes to the existing literature through the investigation of consumer attitudes, intention, and behaviour towards milk powder in the following theoretical and empirical areas. Firstly, an extended version of the TPB is proposed and tested (Yarimoglu *et al.*, 2019) by incorporating product knowledge (Wang and Hazen, 2016), country of origin (Dobrenova *et al.*, 2015; Hsu *et al.*, 2017), perceived risks (Yarimoglu *et al.*, 2019), product involvement, and perceived benefits. This is done in order to investigate the significant antecedents of attitude and intention regarding milk powder products in the proposed model. The present work revealed that the extended TPB was successful in analysing relations among variables in the context of milk powder. Also, perceived risks as well as benefits are deemed important in explaining consumers' eating behaviour. Similarly, product knowledge and country of origin are considered to be more predictive of intention than perceived control in the domains of both health and dietary behaviour (Wang and Hazen, 2016). Consumers can normally differentiate between products from various countries. Moreover, the country image of a product may affect how consumers perceive products sourced from that specific country (Hsu *et al.*, 2017). The negative image of a country can hamper the success of a product and related services in the marketplace. Therefore, consumers are inclined to use the country of origin as an extrinsic cue to make decisions regarding the quality of products (Lee *et al.*, 2013). In addition, Mogendi *et al.* (2016) has highlighted that product knowledge and information about the ingredients of a specific food (such as nutrition and health, attitudes, perceptions and beliefs, product involvement, and sociodemographic variables) play an important role in consumer choices regarding food consumption. The present work also showed that perceived risk strongly influenced attitudes which, in turn, had the greatest effect on intentions in the original TPB model. This gives support for adding perceived risk to the original TPB as one of the antecedents of attitudes.

To the best of the authors' knowledge, the present work is the first to explore and examine the mediating effect of consumer attitude between consumer intention and its antecedents using a representative sample in Penang regarding the scandal related to milk powder. The present work also contributed to the corresponding literature by providing further evidence of the strong relations between the predictors via the utilisation of survey research. Resultantly, the

present work provides novel insights for academicians in their future research regarding consumers' purchase intention, product knowledge, product involvement, perceived benefit, perceived risk in regard to the country of origin's image, and attitude.

The present work has several managerial implications for various milk powder sellers and milk powder producers regarding how the assimilation of several variables used herein affects consumer attitudes, and consequently, the intention to purchase milk powder. Companies need risk reduction strategies to protect users by providing them with healthier products. In order to reduce perceived risks, such as health, hygiene or environmental dangers, milk powder producers should aim to provide high-quality and safe products in cooperation with well-known producers. Moreover, companies should further increase their knowledge regarding products and the perceived benefits of milk powder ingredients by standardising nutritional health labels. Milk powder product labels need to provide information about the ingredients, including additives levels, nutritional values and standards, preparation processes and the country of origin. Moreover, social marketing campaigns should be developed to increase awareness and knowledge about the importance of raising a healthy generation. Within the concept of social marketing, stronger public policies are needed to promote healthy lifestyles. Government policies should include legal regulations regarding the restriction of marketing strategies on milk powder products. These regulations should involve the exposure of nutritional values through food labelling strategies, whether by compulsory or voluntary approaches.

The present work thus intends to shed light on consumer perception regarding milk powder consumption in this country as well as to provide deeper insights into this emerging market. The variables used in the present work are adopted from earlier works of research, employed to predict and explain consumer intentions and also meet the study's objectives which are listed as follows: a) to examine the direct relationships among product knowledge, product involvement, perceived benefit, perceived risk, and country of origin's image, as well as their significant effect on consumer attitude and purchase intention; and b) to investigate whether consumer attitude mediates between product knowledge, product involvement, perceived benefit, perceived risk, country of origin's image and purchase intention. A conceptual model (Figure 1) is conceived and tested through an empirical study involving milk powder consumers.

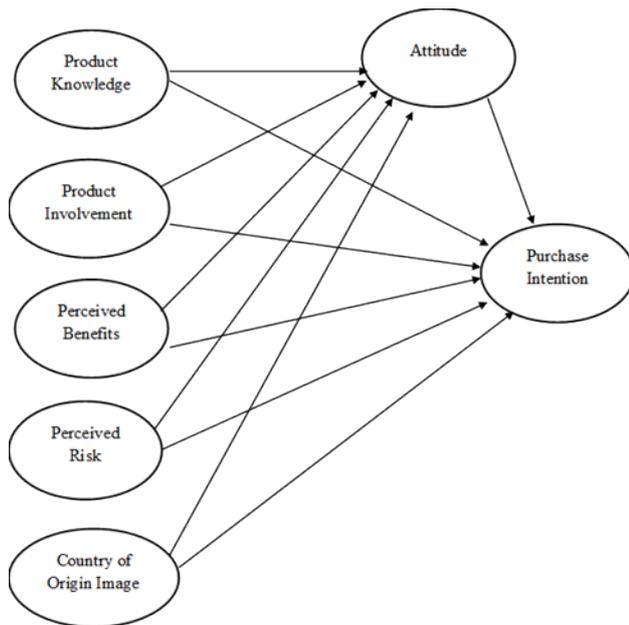


Figure 1. Conceptual framework.

Literature review and hypotheses development Theory of Planned Behaviour (TPB)

The present work employs the Theory of Planned Behaviour (TPB) by Ajzen (2015) as its underlying theory because TPB focuses on the behaviour of interest, providing a comprehensive framework to elucidate and comprehend its determinants (Ajzen, 2015). The TPB postulates that attitudes (positive or negative evaluations of behaviour), subjective norms (the influence of thoughts and attitudes of others towards that behaviour), and perceived behavioural control (PBC; the extent to which an individual feels able to perform a behaviour) lead to the formation of a behavioural intention, which is a precursor of behaviour. In the context of food safety, Huang *et al.* (2014), Li *et al.* (2018) and Zhang *et al.* (2018) applied TPB to conceptualise the way various levels of risk perception in information regarding food safety influence towards food purchasing intentions.

Extended Theory of Planned Behaviour (ETPB)

The TPB has been applied to predict and explain a vast number of behaviours (Qi and Ploeger, 2019; Nystrand and Olsen, 2020), food purchasing intentions (Zhang *et al.*, 2018), and food consumption (Nystrand and Olsen, 2020). Owing to its parsimonious structure, several extended versions of the TPB have been proposed in attempts to increase its predictive ability, understand specific background factors, and adapt it to contextual environments or unconscious habits (Ajzen, 2015; Nystrand and Olsen, 2020). Therefore, it is suggested that adding new constructs related to the context may increase

the theory's predictive power (Ajzen, 2015; Qi and Ploeger, 2019). In literature regarding food, several extra factors have been added to the TPB to better explain relationships among attitudes, intentions, and behaviours. Despite criticisms, the TPB model is commonly used for predicting and analysing eating behaviours (Ruby *et al.* 2019). Several variables have been added to the TPB model regarding knowledge about food product safety to analyse the purchase intention of Malaysian adults (Ruby *et al.*, 2019), country of origin (Hsu *et al.*, 2017), and perceived health risks (Yarimoglu *et al.*, 2019). Therefore, the present work adds several contextual and external variables such as product knowledge, perceived risks, product involvement, country of origin, and perceived benefits.

Purchase intention

Purchase intention is used for predicting the future purchases of customers (Qi and Ploeger, 2019). According to Ruby *et al.* (2019), intention is an indicator of an individual's willingness. Purchase intention is a central and beneficial concept in developing marketing strategies to influence consumers positively (Nystrand and Olsen, 2020). The TPB model is commonly utilised to predict and analyse food-related behaviours (Ruby *et al.*, 2019). Several variables are added in the quest of investigating the purchase intention of individuals about food safety, namely the country of origin (Hsu *et al.*, 2017) and perceived health risks (Yarimoglu *et al.*, 2019). Similarly, Asif *et al.* (2018) has provided valuable insights regarding consumer behaviours related to organic foods by exploring the antecedents of purchase intention for organic foods.

Hypothesis development

Product knowledge

Product knowledge is defined as a consumer's awareness of specific information concerning a given product (Brucks, 1985). According to Wang and Hazen (2016) and Wu *et al.* (2018), consumers who have higher product knowledge are in possession of a better cognitive capacity to assess comparative alternatives with more complex and better-developed schemata. This means that the level of product knowledge is indirectly related to evaluation bias. For example, if consumers have a higher level of product knowledge, there is a lower chance that they become faced with evaluation bias. As a result, this affects their purchase intention positively and provides them with better choices (Zhu and Chang, 2015). Similarly, Wei *et al.* (2016) articulated that product knowledge is vital in forecasting public

responses to product recall crises and that those with increased product knowledge can perceive relatively reduced fears in their everyday lives. Wu *et al.* (2018) also revealed that product knowledge has a significant and positive effect on consumers' purchase intention. Therefore, the following hypothesis is articulated:

Hypothesis 1 (H1): Product knowledge positively influences consumers' purchase intention regarding milk powder.

Product involvement

Product involvement has been defined by De Wulf *et al.* (2001) as a consumer's enduring perception of the importance of the product category which is based on the consumer's inherent needs, interests, and values. Earlier research has revealed that involvement plays an indispensable part in varying consumers' attitudes and product buying behaviours (e.g., willingness to pay and purchase frequency). Warrington and Shim (2000) stated that the level of involvement with a product explains the consumer's differential responses to different products and, thus, is an important segmentation criterion. Previous researchers who conducted a study on food related to protected designation of origin (PDO) suggested that it is essential to recognise how consumers' decision-making processes are influenced by their level of involvement regarding such products (Espel *et al.*, 2008). Therefore, based on the above discussion, the following hypothesis is formed:

Hypothesis 2 (H2): Product involvement positively influences consumers' purchase intention regarding milk powder.

Perceived benefits

As stated by Zhang *et al.* (2018), perceived benefits are regarded as beliefs with positive outcomes which are associated with responses to real or perceived threats. A perceived benefit is commonly applied in normal shopping behaviour and is specific to an individual's perception of a benefit that gives satisfaction by involving a specific shopping action. On the contrary, a recent study in regard to genetically modified foods by Zhang *et al.* (2018) has shown insignificant results between perceived benefits and consumers' purchase intention. However, consumers' perceived benefits do form positive attitudes in them. In another study by Yoon and Chung (2018), perceived benefits in regard to millennial consumers were investigated and it was empirically concluded that hedonic value benefits were

critical factors that affected the purchase intention of young consumers. Therefore, based on the above arguments, the following hypothesis is formed:

Hypothesis 3 (H3): Perceived benefits positively influence consumers' purchase intention regarding milk powder.

Perceived risks

Perceived risks have been discovered to have a significant impact on behavioural intentions (Huang *et al.*, 2014; Yoon and Chung, 2018; Yarimoglu *et al.*, 2019). Perceived risks refer to the negative consequences of one's decisions (Zhang *et al.*, 2018). Moreover, perceived risks are the combined effects of probabilities and uncertainty involved in a purchase decision (Yoon and Chung, 2018). Several researchers have investigated the negative role of perceived risks towards consumers' attitudes and their intentions (Chen and Chang, 2012; Yoon and Chung, 2018; Zhang *et al.*, 2018). Most studies and reviews on the attitude and purchase intention towards food have concluded that consumers perceive more risks than benefits (Yoon and Chun, 2018). During their investigation about consumers' attitudes and visiting intentions to food trucks in the United States, Yoon and Chung (2018) revealed that both environmental and hygienic risks were the most important factors affecting millennials' attitude and their purchase intentions. These negative perceptions can primarily be due to several food products which contain negative nutrients that might be detrimental to health. Therefore, based on the above discussion, the following hypothesis is formed:

Hypothesis 4 (H4): Perceived risks negatively influence consumers' purchase intention regarding milk powder.

Country of origin (COO)

Country of origin's image (COO image) is defined as the information pertaining to where the product is made (Dobrenova *et al.*, 2015). Prior research has already established that COO can have a significant impact on consumers' evaluation of products and their purchase intentions (Al-Aali *et al.*, 2015). There is also a consensus among researchers that the COO of a product positively affects consumers' perception and subsequently shapes their purchase decisions (Lee *et al.*, 2013). Based on the empirical findings of Dobrenova *et al.* (2015), COO has a positive impact on attitude and intention. Therefore, based on the following arguments, the following hypothesis is formed:

Hypothesis 5 (H5): The country of origin's image positively influences consumers' purchase intention regarding milk powder.

Attitude

The attitude towards a given behaviour refers to the degree to which a person has a favourable or uncomplimentary assessment or appraisal of the behaviour in question (Ajzen, 2015). Correspondingly, Kumar and Smith (2018) discovered that attitude positively influences consumers' purchase intentions in regard to local foods. Similar results were achieved by Zhang *et al.* (2018) and Yoon and Chung (2018). Based on the previous works of research and the corresponding arguments, the following hypothesis is developed:

Hypothesis 6 (H6): Attitude positively influences consumers' purchase intentions regarding milk powder.

The mediating effect of attitude

Attitude is confirmed by Wang *et al.* (2013) to be a mediator between product knowledge and consumers' purchase intention. Researchers have concluded that purchase intention is directly influenced by attitude and indirectly influenced by product knowledge through attitude. Simultaneously, prior literature has also investigated the mediating effect of attitude between product involvement and purchase intention. Moreover, Wang *et al.* (2013) has established that attitude has an important mediating role between perceived benefit and purchase intention. In addition, previous scholars have demonstrated that perceived risks are found to exert a significant indirect impact on consumers' purchase intention through attitude, proposing an important mediating effect on purchase intention (Wang *et al.*, 2013). After reviewing the results of previous scholars, the following hypotheses are posited:

Hypothesis 7 (H7): Attitude mediates the relationship between product knowledge and purchase intention.

Hypothesis 8 (H8): Attitude mediates the relationship between product involvement and purchase intention.

Hypothesis 9 (H9): Attitude mediates the relationship between perceived benefits and purchase intention.

Hypothesis 10 (H10): Attitude mediates the relationship between perceived risks and purchase intention.

Hypothesis 11 (H11): Attitude mediates the relationship between the country of origin's image and purchase intention.

Materials and methods

Data collection

A cross-sectional study using an online structured questionnaire (self-administered) was employed which enabled the corresponding respondents (adult consumers of milk powder) to complete the survey on their own to minimise potential bias. Also, the survey's link was given to the respondents through e-mails sent to adult consumers residing in Penang. The present work utilised non-probability sampling, namely convenience sampling, in order to collect data from respondents mainly from Penang, one of the northern states of Malaysia. The method of convenience sampling allows researchers to complete interviews or get responses in a cost-effective way (Sekaran and Bougie, 2016). Furthermore, in this survey, the participants received no incentives for their participation. Since purchase intention was examined in the present work, the respondents did not need to have the actual purchase behaviour in regard to milk powder in order to be eligible to participate.

Data were collected in the two biggest shopping malls in Penang, Malaysia. Those conducting the survey established contact with potential respondents in the halls located at the exits of both shopping malls. The approached people were asked to participate in this research for scientific purposes. The survey was carried out over a period of two weeks, during weekday, mornings, and afternoons as well as weekends. This ensured the possibility of people of different social-demographic profiles being included in the samples. Those respondents who showed their willingness to participate in the survey left their e-mail addresses with the interviewers. On the day of contact, the interviewers sent a request via e-mail to the respondents along with a link to the questionnaire. The participants were instructed to complete the questionnaire within ten days of receipt of the e-mail. Any respondents who had not completed and submitted the questionnaire within the first seven days of receiving the e-mail, received a reminder to do so before the deadline which was three days after that time.

These survey media were selected because of their extensive reach and popularity in Malaysia. The posting message primarily invited respondents to respond to the online questionnaire, which they did willingly. After an effective response, the unusable

responses including incomplete questionnaires were deleted along with their corresponding e-mail accounts. As previously mentioned, participants received no incentives for their participation in the survey. The criteria used were geographic location, gender, age, ethnicity, social class, and level of education. Moreover, Sekaran and Bougie (2016) specified that as a rule of thumb, sample sizes between 30 and 500 are effective to be applied. In the present work, a total number of 200 completed questionnaires were received.

Measure of constructs

The five-point Likert scales were adopted for all items in the questionnaires, where 1 = "strongly disagree" and 5 = "strongly agree". In developing the instrument, measurement items were selected from validated questionnaires employed in previous works. Furthermore, product knowledge (measured using five items), product involvement (five items), perceived benefits (four items), perceived risks (three items), the country of origin's image (five items), attitude (four items), and purchase intention (three items) were respectively obtained from Shirin and Kambiz (2011), Verbeke (2005), Huy Tuu and Ottar Olsen (2012), Nath Sanyal and Datta (2011), and Wang *et al.* (2013).

Statistical analysis

Data were analysed with SPSS (Statistical Package for Social Science) Software, version 22.

Results

Goodness of measurement

In the present work, factor analysis was conducted via the utilisation of principal component analysis with varimax rotation in order to validate the construct validity of the measuring items of the questionnaire. Table 1 demonstrates the results of factor analysis in regard to the independent variables, namely product knowledge, product involvement, perceived benefits, perceived risks, and the country of origin's image. The results reveal that Barlett's Test of Sphericity was significant at $p < 0.05$ and Kaiser-Meyer-Olkin (KMO) was at its acceptance level, 0.86. Also, the Anti-Image Correlation Matrix Inspection shows that the value of each diagonal element fulfilled the rule of thumb i.e. values more than 0.5 (Hair Jr *et al.*, 2014). Moreover, the eigenvalue has a 68.8 cumulative percentage of the variance explained. The factor loadings for all independent variables were above the acceptance level, which is more than 0.5 of the value of the cut-off point (Hair Jr *et al.*, 2014).

In addition, the factor analysis regarding attitude was conducted using principal component analysis. The corresponding results are presented in Table 2. These findings indicate that Barlett's Test of Sphericity was significant at $p < 0.05$, and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.82, more than the acceptance level of 0.5. The eigenvalue was 3.11, more than 1 and 77.75% of the variance explained. The factor loading of attitude is accepted at 0.5 and above. Similarly, the factor analysis of purchase intention was performed using principal component analysis. In this regard, Barlett's Test of Sphericity was significant at $p < 0.05$ and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was above the acceptance level of higher than 0.5, with the value of 0.72. The corresponding results are illustrated in Table 3, indicating that the eigenvalue was more than 1, with the value of 2.39, and 79.63% of the variance explained. Moreover, the factor loading of purchase intention is accepted at 0.5 and above. The reliability analysis was conducted to ensure the stability and consistency of the measurement items, and it was tested using Cronbach's Alpha (Hair Jr *et al.*, 2014). A Cronbach's Alpha of more than 0.7 is considered reliable for the measuring items. Based on the results, all the measurement items in the present work were recorded with a Cronbach's Alpha higher than 0.7. Therefore, all measurement items were reliable.

Regression analysis

A simple regression analysis was applied to assess the relationship between attitude and purchase intention. The regression between attitude and purchase intention was at the significance level of $p < 0.01$ and $F = 163.50$. Moreover, the value of R^2 was 0.452, indicating that 45.2% of the variations of the dependent variable "purchase intention" could be explained by attitude. The adjusted R^2 was 0.450. Meanwhile, the same value for this variable, according to the Durbin-Watson (DW) test, was 2.01. Therefore, attitude had a positive and significant influence on purchase intentions regarding milk powder ($\beta = 0.673$, p -value < 0.01).

Multiple regression analysis was utilised to determine the relationships among multiple independent variables and the dependent variable. The model was tested with independent variables and purchase intention, and the result related to regression is illustrated in Table 4.

Based on Table 4, the model was tested at a significance level of $p < 0.01$ and $F = 42.437$. Also, the value of R^2 was 0.522, indicating that 52.5% of the variations of purchase intention could be

Table 1. Factor Loading, KMO, and Barlett's Test Indicator for all independent variables.

Item	Factor				
	1	2	3	4	5
Product Knowledge					
I know about milk powder.			0.73		
I am willing to understand milk powder actively.			0.72		
I actually stored in my memory about milk powder' information.			0.80		
I can discriminate the different type of milk powders and brand of different milk powders' company.			0.75		
After the purchase and usage of milk powder, I accumulated experience about milk powder.			0.71		
Product Involvement					
Milk powder is what I want for me.	0.77				
Milk powder is very important for me.	0.82				
Milk powder is worthy for me.	0.78				
Milk powder is what I need for me.	0.85				
Milk powder is helpful to me.	0.75				
Perceived Benefit					
Milk powder is likely to have a beneficial impact on my personal health.				0.67	
I experience milk powder as being part of a natural way of living.				0.69	
Milk powder allows me taking my personal health in my own hands.				0.79	
Milk powder is a convenient way to meet my recommended daily intakes.				0.63	
Perceived Risk					
I am afraid that milk powder will not taste as I want.					0.69
I am worried that milk powder does not fulfil the standards of quality.					0.90
I am afraid that milk powder will harm my health.					0.89
Country of Origin Image					
I prefer the milk powder that originates from a country rich in R and D.			0.68		
I prefer the milk powder that originates from a country with high level of technological advancement.			0.77		
I prefer the milk powder that originates from a country which maintains a high level of quality.			0.77		
I prefer the milk powder that originates from a country which maintains an image of more new milk powder development.			0.77		
I prefer the milk powder that originates from a country which is prestigious in terms of milk powder manufacturing.			0.83		
Eigen value	4.15	3.14	3.08	2.55	2.22
% of Variance (68.8)	18.88	14.29	14.02	11.57	10.1
Kaiser-Meyer-Olkin Measure of Sampling Adequacy					0.86
Barlett's Test of Sphericity			Approx. Chi-Square		2457
			df		231
			Sig.		0.000

Table 2. Factor Loading, KMO, and Barlett's Test Indicator for attitude.

Item	Factor
Buying milk powder is a good idea.	0.88
Buying milk powder is a wise choice.	0.83
I like the idea of buying milk powder.	0.92
Buying milk powder would be pleasant.	0.89
Eigen value	3.11
% of Variance	77.75
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.82
Barlett's Test of Sphericity	Approx. Chi-Square 535.06
	df 6
	Sig. 0.000

Table 3. Factor Loading, KMO, and Barlett's Test Indicator for purchase intention.

Item	Factor
I will buy milk powder frequently.	0.92
I will encourage my relatives and friends to buy milk powder.	0.87
I will buy milk powder in the near future.	0.89
Eigen value	2.39
% of Variance	79.63
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.72
Barlett's Test of Sphericity	Approx. Chi-Square 306.02
	df 3
	Sig. 0.000

explained by the independent variables. The value of R^2 was 0.510, while the value resulting from the Durbin-Watson (DW) test was 1.782. It was determined from the model that all independent variables had a positive relationship with purchase intention, except for perceived risks and the country of origin's image. Also, the findings demonstrated beta values of 0.168, 0.384, 0.244, -0.087, and 0.104 for product knowledge, product involvement, perceived benefits, perceived risks, and the country of origin's image, respectively. Among the five independent variables,

only three independent variables, namely product knowledge, product involvement, and perceived benefit were found to be significant at $p < 0.01$. Another two independent variables, perceived risk, and the country of origin's image, yielded p -values > 0.05 , indicating that there was no significant impact on purchase intention. The findings implied that only product knowledge, product involvement, and perceived benefits had a significant and positive influence on consumers' purchase intention in regard to milk powder.

Table 4. Multiple regression analysis.

Dependent variable = Purchase intention	
Standardised coefficients beta	
Product knowledge	0.168**
Product involvement	0.384**
Perceived benefit	0.244**
Perceived risk	-0.087
Country of origin image	0.104
R square	0.522
Adjusted R square	0.510
F value	42.437
Durbin-Watson	1.782

Assessment of the mediation effect using bootstrapping procedures

Preacher and Hayes (2008) proposed a straightforward and powerful test of the indirect effect by using the bootstrap method. Furthermore, they provided an easy-to-use SPSS Macro Process (Hayes, 2016) for the bootstrap test. The bootstrapping procedures in the SPSS test are employed in order to test how a causal effect (IV) on a dependent variable (DV) can be apportioned into its indirect effect through a mediator (M) (Preacher and Hayes, 2008). Hence, to test the mediation effect for H7, H8, H9, H10, and H11, the bootstrapping procedures in the SPSS test were used to test how the causal effect (IV) of product knowledge, product involvement, perceived benefits, perceived risks, and the country of origin's image on purchase intention (DV) can be apportioned into its corresponding indirect effect through attitude (M). According to Preacher and Hayes (2008), the bootstrap upper limit and the bootstrap lower limit (BC 95% CI) values determine the mediation effect. If the upper limit and lower limit values do not straddle zero in the interval, it is concluded that there is a mediation effect in the relationship and *vice versa*. This is because of bootstrapping which involves repeatedly performing sampling processes thousands of times (5,000 bootstrap resamples) from the data set, and predicting the indirect effect in each resampled data set to identify the upper limit and lower limit values of bias-corrected (BC) 95% confidence intervals. The results reveal that all hypotheses, namely H7, H8, H9, H10, and H11, were supported. A bias-corrected 95% confidence interval was used, yielding the bootstrap lower limit (BootLLCI) and bootstrap upper limit (BootULCI) for H12a: {0.2330, 0.4882}, H12b: {0.1937,

0.4609}, H12c: {0.2141, 0.4283}, H12d: {-0.2619, -0.0158} and H12e: {0.0804, 0.3594}, respectively. Since none of the values straddled zero in the interval, the results of the mediation analysis confirmed that attitude mediates the effect of product knowledge, product involvement, perceived benefits, perceived risks, and the country of origin's image on purchase intention.

Discussion

The objective of the present work was to assess several findings regarding the factors that influence consumers' purchase intention for milk powder. Product knowledge was found to exert a positive and significant influence on purchase intention in regard to milk powder. This result is consistent with the findings of Lin and Chen (2006) and Shirin and Kambiz (2011). Based on the data, it is implied that the greater the product knowledge, the stronger the intention to purchase milk powder. Thus, H1 was supported.

Product involvement positively and significantly influences purchase intention. The results of the present work agree with that of earlier studies conducted by Lin and Chen (2006) and Shirin and Kambiz (2011). This confirmed that consumers from Penang with better product involvement had higher purchase intention towards milk powder. Hence, H2 was supported.

Perceived benefit was discovered to have a positive and significant influence on purchase intention. The results corroborate with the idea of preceding studies by Zhang *et al.* (2018). Therefore, it can be concluded that consumers from Penang with a stronger purchase intention for milk powder were

driven by a greater level of perceived benefits. Hence, H3 was also supported.

Perceived risks had a negative but not significant influence on purchase intention. This reveals that the risk perception of consumers in Penang was not related to their purchase intention towards milk powder. However, these results contradict those of Yoon and Chung (2018), Chen and Chang (2012), and Huang *et al.* (2014). Thus, H4 was not supported.

The country of origin's image had no significant influence on purchase intention. However, these results differ from that of a number of prior studies by Lin and Chen (2006), Shirin and Kambiz (2011), Awada and Yiannaka (2012), Lee *et al.* (2013), Al-Aali *et al.* (2015), and Dobrenova *et al.* (2015). This discrepancy could be attributed to a blurring boundary effect on consumer perception of a product's country of origin (Al-Ali *et al.*, 2015). This finding indicates that the country of origin's image was not a factor to be considered in regard to consumers' milk powder purchase in Penang. Therefore, H5 was not supported.

Attitude was found to influence purchase intention positively and significantly. The present findings appear to be consistent with the research carried out by Kumar and Smith (2018). Therefore, H6 was supported.

Consumers' attitude had a mediating role among product knowledge, product involvement, perceived benefits, perceived risks, the country of origin's image, and consumers' purchase intention towards milk powder. Therefore, H7, H8, H9, H10, and H11 were supported. This finding indicates that consumers from Penang who had better knowledge and higher involvement regarding products as well as perceived more benefits and less risks, with a better image of the country of origin regarding milk powder, would have a more favourable attitude in purchasing this product. This subsequently led to a higher purchase intention towards buying milk powder.

The present work provided an important opportunity to advance the understanding of marketing for academicians and business practitioners in order to better comprehend the impact of product knowledge, product involvement, perceived benefits, perceived risks, and the country of origin's image upon the attitude and purchase intention regarding milk powder among consumers in Penang. It is crucial to further comprehend the mediating role of attitude to formulate a viable marketing plan which can then create a positive attitude among consumers towards milk powder and to generate more profit by enhancing consumers' purchase intention for milk powder.

While providing important insight into factors that influence consumers' attitude and purchase intention regarding milk powder, the present work had several limitations. Firstly, the present work was limited to consumers from Penang only. Hence, the findings might not be generalised across all of Malaysia. Secondly, the present work was only performed on a cross-sectional basis. Therefore, the results might not provide a valid comprehension of factors regarding purchase intention.

For future research, it is recommended to conduct research on a wider group of respondents and to include other states in Malaysia. Future researchers are also recommended to use a qualitative approach by investigating other constructs, such as trust (Boniface *et al.*, 2018), which influences attitude and purchase intention. Furthermore, as the present work was conducted on a cross-sectional approach, further research is suggested to be carried out on a longitudinal basis so that the results could become more comprehensive.

Conclusion

Based on the results, product knowledge, product involvement and perceived benefits had a positive and significant relationship with purchase intention. Also, perceived risks had a negative but not significant relationship with purchase intention. The country of origin's image had no significant effect on purchase intention. Lastly, attitude, which was the mediating variable in the present work, was found to have a mediating effect on the relationship between product knowledge, product involvement, perceived benefits, perceived risks, the country of origin's image, and purchase intention regarding milk powder.

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