

The moderating effect of halal certification on the purchase intention of halal bakery products in Petaling district, Selangor, Malaysia

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Abstract

The halal issue regarding these bakery products has raised concern among consumers especially related to the origin of the ingredients used in the bakery production. Hence, when doubt about the ingredients arises, the buying decision of the consumers are affected. Therefore, this study aimed to examine the moderating effect of Halal certification on the relationship between the attributes of the Theory of Planned Behaviour (TPB), including attitudes, subjective norms, and perceived behavioural control and the purchase intention of consumers towards Halal bakery products in five areas of the Petaling District, Selangor from June to August 2018. This study is a quantitative, non-experimental (correlational) survey employing the purposive sampling method. A whopping 500 questionnaires were collected back after a self-completion process by respondents and there was a total of 476 samples with valid responses after excluding twenty-four questionnaires with incomplete information. Data processing was then conducted by administering the IBM SPSS and PLS-SEM. The findings revealed that all TPB attributes, except attitudes, produced a significant effect ($p < 0.05$) on the purchase intention of consumers and actual purchase of Halal bakery products. Halal certification was also found to produce a negative effect on the relationship between the TPB attributes and purchase intention, and the results suggested that Halal certification could moderate the effects of TPB attributes and purchase intention on the actual behaviour of purchasing Halal bakery products by consumers ($p < 0.01$). Therefore, it is posited that the higher the awareness of Halal bakery products, the greater the relationship between consumers' purchase intention and the actual behaviour of purchase. The results of this study also demonstrated the importance of the Halal certification implementation in increasing the levels of purchase intention and the actual behaviour of buying Halal bakery products amongst consumers.

1. Introduction

Consumers generally consume bakery goods regardless of their age groups, religions and economic classes. From the past to the present, bakeries have undergone various aspects of adjustments and improvements, including the physical structures, production processes, produced goods, and facilities. These alterations could be the results of the bakeries' natural reactions towards the demands and transitions of the industry. During the production of bakery products that are rich in fats, starch, and calories but lacking in fibre and protein, wheat is crucial as it contributes twenty-five per cent to the total amount of ingredients required for the production. According to the decennial study conducted by Wan Ismail and colleagues (2020) in

Malaysia, a significant increase was observed in the consumption of bakery products, especially amongst Muslim citizens compared to their counterparts of different religions and hence, Halal certification for the available bakery products must be guaranteed. As delineated by Sahilah and co-workers (2016), Halal (permissible) is a term employed in describing the substances that are deemed to be safe and pure which Muslims may utilise according to Islamic law. The Muslim community is encouraged to choose and consume the products that are guaranteed Halal after going through the certification process.

Halal certification that complies with Islamic principles should be applied to all enterprises across different industries, including food and beverage (Rafiki,

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2019). This is because products certified as Halal indicate high levels of health when the business premises achieve satisfactory levels of hygiene and sanitation (Khan and Haleem, 2016; Alzeer *et al.*, 2018). Besides, the production processes and the ingredients of the foods are subject to the necessary examination procedures in ensuring the products do not contain any elements prohibited by Islamic teachings (Alzeer *et al.*, 2018; Vizano *et al.*, 2021). In Malaysia, Halal certification is administered by the Department of Islamic Development Malaysia (JAKIM), and Halal certificates and logos provided by the authorised body are more reliable in assuring consumers that the products fulfil stipulated Islamic standards (Jannat and Islam, 2020). For example, Ashari (2019) discovered that Halal certification produced a significant, positive effect on the purchasing decisions of consumers when using products that were Halal certified. There was also a growing interest amongst non-Muslim users due to the global symbol for quality assurance and lifestyle choice as indicated by the Halal logo (Muhammad *et al.*, 2009; Yusuf *et al.*, 2016). In addition, Wan Ismail *et al.* (2020) found that Muslims would prefer to understand that the additives and ingredients contained in processed, as well as unprocessed foods, were safe from all Haram (forbidden) substances according to Islamic law before purchasing any baked goods. Therefore, by acquiring Halal certification, bakery and confectionery manufacturers could control their sources of raw materials and production processes in ensuring the products meet customers' expectations and deliver high confidence levels (Siti Zamanira *et al.*, 2015) while sustaining their business performance (Yusuf *et al.*, 2016).

A theoretical basis for the structural research model of this study is the principle of expected behaviour by referring to the Theory of Planned Behaviour (TPB; Ali *et al.*, 2018), Theory of Reasoned Action (TRA; Hussain *et al.*, 2018), and relevant Halal studies. The theoretical attributes of TPB, including attitudes, subjective norms, and perceived behavioural control had been commonly utilised in previous studies investigating Halal foods, (Bakar *et al.*, 2018), Halal purchasing (Weng *et al.*, 2020) and Halal certification (Perdana *et al.*, 2019) in which the majority of these studies had discovered important ties between subjective norms, perceived behavioural control, attitudes and intention in consuming Halal products. However, in the current study, subjective norms, perceived behavioural control, and knowledge of Halal certification are hypothesised to have significant influences on consumers' purchase intention instead of attitudes.

The task of ensuring that the bakery products offered in the market are Halal certified and permissible for

consumption amongst Muslim consumers is not without challenges, especially since there are few existing issues regarding the origin of ingredients (Ruslan *et al.*, 2018) and raw materials used in the production (Takeshita, 2019). For example, the medium employed for the enzymatic reactions and fermentation processes might contain non-Halal substances during the processes of food production (Aravindran, 2014; Vizano *et al.*, 2021). Furthermore, various food additives (preservatives, dyes, flavouring, emulsifiers, and other materials) whose Halal status could not be determined accurately by Muslim consumers could be included in the bakery products (Vizano *et al.*, 2021). This was due to the irresponsibility of food producers or manufacturers in displaying counterfeit Halal logos (BERNAMA, 2020; Dermawan, 2021), continuing the usage of physically contaminated Halal ingredients (Lim, 2021), and mixing non-Halal ingredients (BERNAMA, 2020), including substitutions with lower quality and cheaper cost in the ostensible Halal products, which could affect the status of food products declared as Halal (Di Pinto *et al.*, 2019). Hence, this study aimed to evaluate the moderating effect of Halal certification on the relationship between the TPB attributes, namely attitudes, subjective norms, perceived behavioural control and the actual behaviour of consumers (as illustrated in Figure 1).

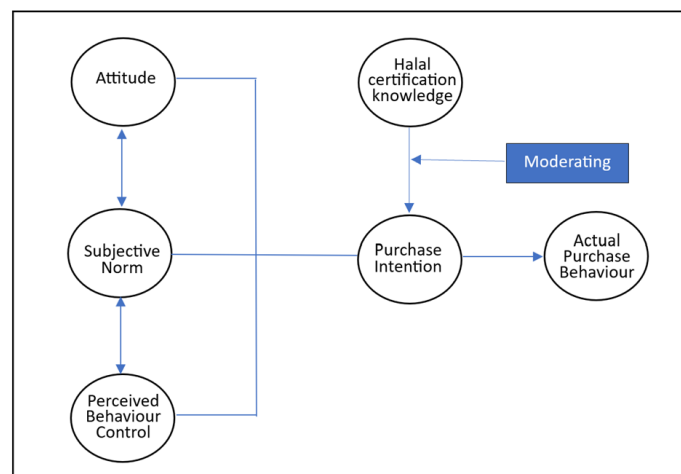


Figure 1. The structural model of the variables

2. Materials and methods

2.1 Research design

The current study is a quantitative, non-experimental (correlational) survey. Data collection was carried out in five areas of the Petaling District in Selangor, Malaysia, namely Bandar Petaling, Bukit Raja, Damansara, Sungai Buloh, and Petaling Jaya. As this study focuses on the consumers who have purchased bakery products in the respective areas of the Petaling District, the purposive sampling method was employed during the stage of data collection. Besides, the five locations were selected due to the feasibility of recruiting sufficient potential respondents for this study. Potential respondents would

be asked about their willingness in answering a questionnaire and consent was obtained before distributing the questionnaires to ensure the authenticity and quality of the data collected.

2.2 Instrument development

The questionnaire employed comprised several lists of items in measuring the TPB attributes (attitudes, subjective norms, and perceived behavioural control), Halal certification, and purchase intention towards Halal bakery products amongst consumers with each item assessed on a four-point Likert scale, ranging from (1) Strongly Disagree, (2) Disagree, (3) Agree, and to (4) Strongly Agree. The scale was selected due to its ubiquity in a wide variety of questionnaires, particularly in survey research instead of a five-point Likert scale by excluding the option of neutral response from the questionnaire as a four-point Likert scale would capture the responses from respondents with higher accuracy. Therefore, it would be compulsory for respondents to either agree or disagree with the statements in the questionnaire.

Before the administration of data analysis, the validity and reliability of the data were determined by employing the Rasch analysis as delineated in the study of Nurzulain *et al.* (2019).

2.3 Data analysis

Prior to data analysis, the data cleaning process was performed to ensure all the data collected were valid for analyses before being subjected to IBM SPSS Statistics Version 24 software for the generation of descriptive statistics and partial least squares structural equation modelling (PLS-SEM) in determining the relationship between the variables and the presence of moderating effect to the relationship.

2.3.1 PLS-SEM Application

Before determining the structural model of this study, PLS-SEM was evaluated and reviewed to ensure the assumption criteria, namely convergent validity and discriminant validity were fulfilled (Chin, 1998; Hair Jr. *et al.*, 2014). Both criteria were examined in establishing the relationship between the indicators of the latent construct and ensuring low levels of inter-correlations between the model constructs. Although PLS-SEM is a non-parametric test, the results could still be exaggerated when the data were not normally distributed.

The main objective of conducting the PLS-SEM is to evaluate the structural model of variables in examining the hypotheses developed for this study by assessing the coefficients of determination (R^2), predictive relevance

(Q^2), and effect size (f^2) of the model. Hair Jr. and colleagues (2014) reported that this method of evaluation represented the amount of variance in the endogenous latent constructs which were to be explained by the exogenous latent constructs.

2.3.2 Determination of the mediating effect

Previous studies suggested utilising the bootstrapping procedure of the path in testing the mediating effect of a variable and the significance of the effect observed from the variable (Preacher and Hayes, 2008; Henseler *et al.*, 2009; Zhao *et al.*, 2010) as the bootstrapping procedure was a technique of non-parametric resampling and a computationally intensive method (Özdil, 2019). This technique was administered in the current study to confirm the presence of the mediating effect in the structural model by explaining the ways and the factors of forming the relationship between the variables (TPB attributes and consumers' purchase intention). Thus, the t-test bootstrapping procedure was performed in determining the mediating effect of Halal certification as this method would provide a higher level of reliability as manifested in previous research (Iacobucci *et al.*, 2007; Hair Jr. *et al.*, 2014) in comparison with the approach employed by Baron and Kenny (1986).

2.3.3 Determination of the moderating effect

Including moderating variables (or moderators) in a structural model of a study was crucial as it would reveal a significant relationship between the variables with higher accuracy. The bootstrapping procedure was also applied in determining the presence of the moderating effect of Halal certification on the relationship between TPB attributes and consumers' purchase intention (Hair Jr. *et al.*, 2014). Besides, Henseler and Chin (2010) also recommended in their study that a one-to-one test be performed when investigating multiple moderating effects from more than one moderator.

3. Results

Discovering insightful information and drawing meaningful results in supporting vital decision-making processes are feasible by performing data inspection, cleaning, and transformation before conducting the data modelling. From the 500 questionnaires distributed for self-completion by respondents, only 476 sets (95.2%) were accepted and analysed by administering IBM SPSS Statistics Version 24 software and PLS-SEM in generating the coefficients of determination (R^2), predictive relevance of the model (Q^2), path coefficients, and mediating and moderating effects. The remaining data (twenty-four questionnaires) were excluded due to

incomplete information about the residential areas. The majority of the respondents were females (n = 284, 59.7%) aged between 21 and 25 years old (n = 102, 21.4%) and achieved the level of tertiary education (n = 156, 32.8%) with slightly more than fifty per cent of the respondents were Muslims (n = 243, 51.1%). Table 1 summarizes the demographic profiles of the respondents.

Table 1. Demographic profile of the respondents.

Characteristic	N = 476	Percentage %
Gender		
Male	192	40.3
Female	284	59.7
Religion		
Muslim	243	51.1
Non-Muslim	233	48.9
Age		
16 – 20 years	50	10.5
21 – 25 years	102	21.4
26 – 30 years	93	19.5
31 – 35 years	88	18.5
36 – 40 years	53	11.1
41 – 45 years	55	11.6
46 – 50 years	23	4.8
51 – 55 years	9	1.9
56 – 60 years	3	0.6
Education		
LCE/SRP/PMR	17	3.6
MCE/SPM	80	16.8
STPM	68	14.3
Certificates	36	7.6
Diploma	72	15.1
Bachelor's Degree	156	32.8
Masters	42	8.8
Doctor of Philosophy	2	0.4
Others	3	0.6

The findings discovered that the R^2 value of actual behaviour was 0.667, suggesting that attitudes, subjective norms, perceived behavioural control, and consumers' purchase intention could explain 66.7% variance of the actual purchase behaviour moderately as per the levels of effects stipulated by Hair Jr. *et al.* (2013) wherein the values of R^2 at 0.75, 0.50, and 0.26 were considered as large, moderate, and weak respectively. Hence, the R^2 value of actual behaviour revealed in this study was at a moderate level of effect as shown in Table 2. Besides, by conducting the PLS-SEM, the results demonstrated that each endogenous latent variable in the structural model, namely purchase

intention and actual behaviour possessed an adequate level of predictive relevance in their respective exogenous latent constructs because the values of Q^2 found in the current study were at the medium level of effects (0.289 and 0.247 respectively) as determined by Hair Jr. and co-workers (2014).

The PLS-SEM has the advantage of simultaneously mapping and analysing all the paths of variables described in the structural model of previous studies and the current study. The bootstrapping technique (by conducting the t-test) was performed to discover the significant values of the path coefficients from the distribution of the data. The results indicated that only one path coefficient was not significant at a 95% level of the confidence interval as the p-value of the path from attitudes to actual behaviour ($ATT \rightarrow AB$; $\beta = 0.042$, $t = 0.751$) was larger than 0.05 ($p = 0.452$) while the observed t-value ($t = 0.751$) was smaller than the 95% critical observed value of t-statistics ($t < 1.96$). Moreover, the findings of the 95% bootstrap confidence interval for each path coefficient were also consistent with the results of the observed t-values wherein the path coefficient of $ATT \rightarrow AB$ was also revealed to be not significant. The findings are shown in Table 3.

The mediating effect refers to the correlation between independent variables and dependent variables through one or more variables. For the first-order structural model as indicated in Table 4, purchase intention provided a partial mediating effect on the paths from subjective norms to actual behaviour ($SN \rightarrow AB$) and perceived behavioural control to actual behaviour ($PBC \rightarrow AB$) as both paths were found to be significant. However, the results indicated that purchase intention provided a full mediating effect on the path from attitudes to actual behaviour ($ATT \rightarrow AB$) through indirect effect although the direct path of this relationship was discovered to be not significant.

A moderating variable in a structural model influences the strength and direction of a relationship. Table 5 demonstrates the moderating effect of Halal certification on the paths from attitudes to purchasing intention ($ATT \rightarrow PI$), subjective norms to purchase intention ($SN \rightarrow PI$), and perceived behavioural control to purchase intention ($PBC \rightarrow PI$). The results showed that the moderating effect of Halal certification on the paths from $ATT \rightarrow PI$ ($\beta^{\wedge} = -0.049$, $t = 2.565$, $p < 0.05$), $SN \rightarrow PI$ ($\beta^{\wedge} = -0.042$, $t = 2.393$, $p < 0.05$), and $PBC \rightarrow PI$ ($\beta^{\wedge} = -0.044$, $t = 2.843$, $p < 0.001$) were found to be

Table 2. R^2 and Q^2 Assessments of the First-Order measurement model.

Endogenous LV	R^2	Remark for R^2	Q^2	Remark for Q^2
Purchase Intention	0.778	Large	0.289	Medium
Actual behaviour	0.667	Moderate	0.247	Medium

LV: Latent Variable.

Table 3. Path Coefficients of the Structural Model for the First-Order measurement model.

Path	PC	Observed t-value ^a	Significance (2-tailed)	95% Bootstrap Confidence Interval	
				Bootstrap-t	Bootstrap BCa
ATT → PI	0.2	4.634**	< 0.01	(0.115, 0.287)	(0.155, 0.286)
SN → PI	0.218	5.311**	< 0.01	(0.137, 0.297)	(0.138, 0.297)
PBC → PI	0.355	9.782**	< 0.01	(0.281, 0.423)	(0.282, 0.425)
HC → PI	0.221	5.237**	< 0.01	(0.139, 0.304)	(0.137, 0.302)
ATT → AB	0.042	0.751 (NS)	0.452	(-0.070, 0.146)	(-0.070, 0.146)
SN → AB	0.17	3.228**	< 0.01	(0.067, 0.271)	(0.070, 0.273)
PBC → AB	0.388	7.661**	< 0.01	(0.293, 0.491)	(0.282, 0.425)
PI → AB	0.294	4.768**	< 0.01	(0.171, 0.411)	(0.173, 0.412)

PC: Path Coefficient, BCa: Bias Corrected and Accelerated Bootstrap, ATT: Attitudes, SN: Subjective Norms, PBC: Perceived Behavioural Control, HC: Halal Certification, PI: Purchase Intention, AB: Actual Behaviour, NS: Not Significant. The path coefficients are significant at 95% confidence level (*) if t-statistic > 1.96 (or p < 0.05) and the path coefficients are significant at 99% confidence level (**) if t-statistic > 2.58 (p < 0.001).

Table 4. Evaluation of the mediating effect for indirect effects on the first-order structural model

Path Analysis				
Path	IEC ^a	Path	PC ^a	Mediation Type
ATT → PI → AB	0.059**	ATT → AB	0.042 (NS)	Fully Mediated
SN → PI → AB	0.064**	SN → AB	0.170**	Partially Mediated
PBC → PI → AB	0.104**	PBC → AB	0.388**	Partially Mediated

ATT: Attitudes, SN: Subjective Norms, PBC: Perceived Behavioural Control, PI: Purchase Intention, AB: Actual Behaviour, NS: Not Significant, IEC: Indirect Effect Coefficient, PC: Path Coefficient. The path coefficients are significant at 95% confidence level (*) if t-statistic > 1.96 (or p < 0.05) and the path coefficients are significant at 99% confidence level (**) if t-statistic > 2.58 (p < 0.001).

Table 5. Evaluation of the moderating analysis

Path	PC	t- statistic	R ² values in the Main Effect Model	R ² values with Interaction Effect	Effect Size (f ²)
ATT*HC → PI	- 0.049	2.565*	0.778	0.781	0.014
SN*HC → PI	- 0.042	2.393*	0.778	0.781	0.014
PBC*HC → PI	- 0.044	2.843**	0.778	0.782	0.018

ATT: Attitudes, SN: Subjective Norms, PBC: Perceived Behavioural Control, PI: Purchase Intention, AB: Actual Behaviour, NS: Not Significant, IEC: Indirect Effect Coefficient, PC: Path Coefficient. The path coefficients are significant at 95% confidence level (*) if t-statistic > 1.96 (or p < 0.05) and the path coefficients are significant at 99% confidence level (**) if t-statistic > 2.58 (p < 0.001).

significantly small and negative on purchase intention. The findings suggested that Halal certification possessed a lower level of capability in moderating the aforementioned paths given that the effect size of each path was discovered to be considerably small (range of f² from 0.014 to 0.018), leading to a minimal, negative moderating effect as shown in Table 4. Hence, it is propounded that the relationships of ATT → PI, SN → PI, and PBC → PI could produce higher levels of strength when the moderating effect of Halal certification is negligible.

4. Discussion

The results of this study demonstrated several crucial findings in determining the effect of TPB attributes, namely attitudes, subjective norms, and perceived behavioural control on consumers' purchase intention of Halal bakery products in the Petaling District, Selangor.

Firstly, it was discovered that there was a significant relationship between perceived behavioural control and subjective norms and the actual behaviour of purchasing Halal bakery products amongst the consumers respectively. However, attitudes were found to have no significant effect on consumers' purchase intention in purchasing Halal bakery products. Similar findings were also reported by Marmaya *et al.* (2019) amongst Generation Y consumers regarding their intention in buying Halal foods owing to the lifestyle patterns practised by Muslim consumers wherein Halal food products were regarded as basic needs, particularly in Muslim countries, including Malaysia as obligated by Islamic teachings (Marmaya *et al.*, 2019; Pradana *et al.*, 2020).

Besides, Malaysia with 61% Muslims of the total population possesses a promising potential in developing the Halal food industry by expanding its current

economic and market values (Hirschmann, 2019). This potential has also been delineated by Thomson Reuters (2017) in the Global Islamic Economy Report (2016/2017) which indicated that Malaysia scored the highest in Global Islamic Indicator compared with other fourteen countries (UAE, Bahrain, KSA, Oman, Pakistan, Kuwait, Qatar, Jordan, Indonesia, Singapore, Brunei, Sudan, Iran, and Bangladesh) while achieved the second place in Halal food production (UAE as the first). Although Adiba (2019) found that religiosity fully acted as a mediating role in the relationship between relative and contextual variables and the purchase behaviour of Muslim consumers, peers and family members also played a significant role in shaping their purchase intention (Marmaya *et al.*, 2019).

Secondly, family communication is also a vital factor for Muslims who focus on distinctive eating and drinking patterns as the process of the food selection process includes automatic, habitual, and subconscious reflection of the religious teachings aside from the conscious aspect (Dickinson, 1985; Higgs, 2017). Therefore, consistency of beliefs, values, and attitudes in practising religious beliefs will be emphasised among the family members (Rongso *et al.*, 2020). Moreover, members of various social circles, including, peers, friends, and colleagues would also generate social pressure in conducting specific types of behaviours, particularly the purchase intention in buying Halal foods (Suleman *et al.*, 2021). Hence, the findings revealed in the current study indicated that consumers residing in the Petaling District were also influenced by the opinions of their peers, friends, and family members in purchasing Halal bakery products. Subsequently, it would be important for family members in educating and creating adequate awareness amongst the younger generations before purchasing and consuming Halal products as religion could be regarded as one of the most important factors in shaping one's intention to purchase products coherent with the religious beliefs (Zuhudi and Dolah, 2020).

Thirdly, as discovered by Pradana and colleagues (2020), younger generations demonstrated different shopping habits compared to their parents which produced different manners of decision-making processes when purchasing products (Marmaya *et al.*, 2019). Furthermore, a study conducted in Malang, Indonesia found that the Halal logo and religious belief partially mediated the relationship between brand awareness and purchase decisions (Sunaryo and Sudiro, 2018), whereas another study conducted amongst Muslims in Spain revealed that religion moderated the presumed influence, namely mediated communication and purchase intention but not on the relationship

between attitudes towards Halal certification and purchase intention (Pradana *et al.*, 2020). Thus, the result posited that environmental factors were playing significant roles in influencing the purchasing behaviour of consumers, especially towards Halal-certified food products. The influence environment was found by Awan and co-workers (2015) that Halal marketing, personal and societal perception, and Halal certification were crucial factors for customers when making their decisions in purchasing Halal food products. Besides, purchase intention may also be subject to the influence of different factors, such as price, quality, and value (Masood, 2016). For instance, previous studies reported that Muslim consumers had higher levels of willingness in paying higher prices for Halal-certified products when the quality of the products was assured and the risk of consuming non-Halal foods was minimised (Iranmanesh *et al.*, 2020).

Although consumers in this study had shown their preference in purchasing bakery products that were Halal certified over those which were not, the results indicated that consumers manifested minimal levels of willingness in purchasing Halal bakery products. This might be due to Halal businesses have been operating in a difficult market and a wider variety of products should be offered in catering to the different needs of consumers regardless of their religious beliefs (Elasrag, 2016), particularly consumers who are seeking healthier and safer bakery products. Besides, Mohd and co-workers (2019) found that the authenticity of the Halal logo and certification as perceived by consumers could generate higher levels of loyalty amongst repeat customers. As such, the findings of the current study suggested that bakery shop owners should implement the Halal certification for their products, especially in providing fresh and healthy products aside from offering value-added and excellent services to the customers, such as informative explanations on the nutritional values, guaranteed safety and cleanliness, and assured quality of the products compared to those without the Halal certification. Subsequently, Halal certification could be a key factor in altering the norms and perceptions of customers by enhancing the popularity of Halal food products as the production processes can be controlled by bakery shops in preventing any form of contamination.

In short, the findings of the study also posed several research questions to be addressed in future studies. Future researchers could focus on specific cultural contexts, for example, non-Muslims' acceptance of Halal bakery products in determining the importance of Halal certification in influencing the purchase intention of consumers. In addition, PLS-SEM is considered a suitable approach in this study. Therefore, the

application of the similar structural model as portrayed in this study by broadening the research regions to different states of Malaysia is also potentially feasible as this would represent the entire population and lead to a deeper understanding of the non-Muslims' acceptance levels of Halal bakery products. Overall, the results of this study show that TPB is a valid model to be used in predicting the intention in purchasing bakery products that are halal in Malaysia. From the results, it is expected that consumers worldwide will be more cautious in purchasing food. Since customers nowadays are more mature, more emphasis should be placed by halal food producers on the quality and safety of their products, which requires an emphasis on the production of halal bakery products. Besides, Malaysia is a predominantly Muslim population, hence the halal issue represents the strongest concern not only for the consumers but also for the food producers as well as retailers. The increase in knowledge about halal food and products among consumers will enable them to choose Syariah-compliant products.

Conflict of interest

The authors declare no conflict of interest.

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