

THE INTENTION TO USE *HALAL*-CERTIFIED BAKERY INGREDIENTS AMONG ONLINE MUSLIMS ENTREPRENEURS

ROSI HASNA SARI, ANIS NAJIHA AHMAD*, BETANIA KARTIKA

International Institute for Halal Research and Training (INHART), International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Malaysia.

*Corresponding author: anisnajiha@iiu.edu.my

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ABSTRACT: The development of *halal* food industries has created more business opportunities for Muslim entrepreneurs. These Muslim entrepreneurs must ensure that only *halal* ingredients are used in their food products. Although there is a growing literature on *halal* management and consumerism, empirical studies on certified bakery ingredients and online entrepreneurs are limited. To fill this gap, factors influencing the intention to use *halal*-certified bakery ingredients among online entrepreneurs are being investigated. The data was obtained from 165 online Muslim entrepreneurs in Malaysia using convenience sampling. The adopted questionnaire was used as a research instrument, grounded by the extended Theory of Planned Behavior (TPB). The TPB model was extended in this study by including additional components to measure self-identity, moral obligation, and barriers. The results obtained based on the path analysis showed that the attitude and subjective norm of the entrepreneurs are both statistically significant in influencing the intention to use *halal*-certified bakery ingredients. In contrast, entrepreneurs' perceived behaviour control, self-identity, and moral obligations had no significant influence on the intention to use *halal*-certified bakery ingredients.

KEYWORDS: TPB; Online Muslim entrepreneurs; Bakery; Halal certified; Bakery ingredients

1. INTRODUCTION

Islamic teachings strongly emphasise the importance of embodying '*halal*' in every aspect of Muslim life. This includes fulfilling the dietary requirements, which is especially important as food consumed eventually becomes our blood and meat, (Tieman and Hassan, 2015). *Qur'an* and *Hadith* are the basis for determining *halal* and *haram* concerning food. This is stated in several *Qur'anic* verses in Surah *Al-Maidah* verses (1, 4, 5, and 88). There is also one *Qur'anic* verse that orders Muslims only to eat *halal* or permissible food, which is in *Al-Baqarah*, 2:168:

"O Mankind! Eat anything lawful, wholesome that exists on earth, and do not follow in Satan's footsteps; he is an open enemy of yours"

A *hadith* narrated by *At-Tirmidhi* (1205) supports eating only *halal* food. The Prophet (PBUH) said:

“Halal (the lawful and permissible) is clear, and haram (the unlawful and impermissible) is clear. Between halal and haram lie some doubtful things. Many people do not know whether it is permissible or not. Whoever leaves out these doubtful things to protect his religion and honour, then he is safe.”

Consuming *halal* and *toyyib* food is a responsibility shared by all Muslims, and there appears to be a growing awareness of the importance of ensuring the *halal* status of food consumed in Muslim society. Muslims worldwide are increasingly concerned with the uncertain status of food products, especially those imported from non-Muslim countries. Food and consumer products may contain illicit substances because overseas manufacturers and importers/exporters may not understand the concept of *halal* and *haram*. This situation exposes consumers to foods containing *syubhah* (doubtful) or *haram* substances. Malaysia's *halal* authority and government have stressed the need for manufacturers and business owners to adopt *halal* certification, (Mohd, 2019).

Compared to other food sub-industries, the bakery industry has been slow to adopt *halal* certification. According to Wan Ismail et al. (2020), there are a very low number of bakery and pastry premises approved by Jabatan Kemajuan Islam Malaysia (JAKIM). For example, the JAKIM *Halal* Directory database has indicated that only three Pulau Pinang and two premises in Perak have acquired the *halal* certification. This may be due to several reasons, including the difficulty in getting *halal*-certified ingredients, as many ingredients come from different sources, including animal-based sources. There are only 12 significant suppliers of bakery and pastry products who are responsible for the distribution and wholesale of pastry and bakery ingredients owned by non-Muslim owners (Industry Malaysian-German Chamber of Commerce and Industry (MGCC), 2016; Wan Ismail et al., 2020).

To add another layer to this complex issue, there is also another concern about ingredients used in bakery products, especially those produced by small home bakeries. It is common for these small businesses, including small cafes, to purchase small quantities of repacked items from the independent bakery supply store. It is unclear whether the repacked items sold by these independent bakery suppliers are *halal* as there is minimal information printed on the packs. Often, the information provided is only the name of the ingredients and their shelf life without *halal* endorsement. Therefore, although the sellers are Muslim, the status of these bakery and pastry products cannot be ascertained, especially as the ingredients cannot be confirmed, (Wan Ismail et al., 2020). It is necessary to use only *halal*-certified ingredients for bakery products.

Despite the critical issues of bakery ingredients in a *halal* context, except for a few, there are not many studies focusing on *halal* bakery products. In addition, past research also tends to focus on consumers' perspectives. Aditami (2016) explained how TPB could predict purchasing *halal* bakery products among Indonesians. Another study on *halal* bakery products was also conducted in Indonesia. The study assessed whether the *halal* label on the packaging of bread products is one of the main factors considered in their purchase decision, (Rizka et al., 2018). On the other hand, Wan Ismail et al. (2020) conducted a study whereby a total of 12 pastry chefs were interviewed about their perception of the *halal* issue in baking ingredients. However, no quantitative study has been conducted explicitly on small home bakeries businesses or entrepreneurs in Malaysia. To fill the gap, factors that influence the intention to use *halal*-certified bakery ingredients

among online entrepreneurs in Malaysia are being investigated in this study. The factors studied are grounded by the extended Theory of Planned Behavior (TPB).

This article is divided into five major sections. The introduction and literature review are covered in sections 1 and 2. The methods employed in this study is discussed in detail in Section 3. The analyses performed on the data collected for this study are presented and interpreted in Section 4. This section also covers the study's main findings and their theoretical and practical implications. Finally, Section 5 brings the study close by outlining its shortcomings and making recommendations for future research.

2. LITERATURE REVIEW

Many theories are commonly used to assess behavioural intention. The theory of planned behaviour is one of the common theories used in studies related to behavioural intention. Ajzen (1991) explained that intention is assumed to capture the motivational factors that influence behaviour; it indicates how hard people are willing to try and how much effort they are planning to perform the behaviour. Fundamentally, the stronger the intention to engage in behaviour, the greater the performance is. Multiple factors or determinants, such as attitude, subjective norm, perceived behaviour control, moral obligation, and self-identity, may influence online Muslim entrepreneurs' intention to use *halal*-certified ingredients. These determinants are discussed in the following subsection.

2.1 Attitude

Ajzen (1991) described that attitude as 'the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question'. Vanany et al. (2019), on the other hand, defined attitudes as 'a mental and conditions relating to readiness to respond, organised through experience, and has an influence that leads and or is dynamic towards behaviour'. A person may possess a positive or negative attitude toward an issue that, in turn, may affect his or her intention. There is a large body of evidence from previous research on the role of attitude in influencing behavioural intention in a *halal* context, (Ali et al., 2017; Hall & Sevim, 2016; Jihan Che Mohd Hashim, 2019; Nursalwani et al., 2017; Vanany et al., 2011; Zakaria et al., 2015). For example, Hall and Sevim (2016) found a significant association between Turkish immigrants' *halal* food consumption intention and attitudes. Asiah (2018) also claimed a strong path coefficient that exhibited a strong relationship between attitude and intention to adopt *halal* cosmetics among online entrepreneurs. Based on the previous empirical research that explains the role of attitudes in influencing intention, the following hypothesis is proposed:

H1: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly influenced by their attitude about *halal*-certified bakery ingredients.

2.2 Subjective Norm

Ajzen (1991) defined the term 'subjective norm' as 'social pressure to commit or not perform certain behaviours. Subjective norms as social factors indicate perceived social pressure to do or not do an action or behaviour. Examples of subjective norms include opinions, views, and influences of the reference group (i.e., family, friends, colleagues, and the media) that may affect a person's intentions. According to Schrieber et al. (2007) and Lim et al. (2009), subjective norms play the most influential factor in a multiracial and multicultural society. In a past study, Nurulhuda et al. (2009) and Noor et al. (2012) found

that family and friends are the sources of *halal* food product information. This may indicate the importance or influence of the surrounding community in the entrepreneur's decision to use *halal*-certified bakery or food ingredients. In this context, this role of the subjective norm is also supported by Mukhtar and Butt (2012) who found that subjective norm is the most significant predictor or antecedent of the intention to choose *halal* products. Based on these findings, the hypothesis as follows is proposed:

H2: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by the subjective norms.

2.3 Perceived Behaviour Control

Perceived behaviour control is determined by an individual's belief in the strength of both situational and internal factors in facilitating behavioural performance, (Ajzen, 1991). Besides, perceived behavioural control is 'a condition in which people believe an action is easy or difficult to do'. Behavioural control can influence either intention or the behaviour itself. The intention of behaviour can only be translated into behaviour if the behaviour is under control, that is if people can choose whether or not to engage in the behaviour. Many studies have found a link between perceived behaviour control and intention in *halal*-related contexts, (Aditami, 2016; Binti Maizan, 2001; Hashim et al., 2019; Nazirah Omar et al., 2014; Nursalwani et al., 2017). Perceived control plays a role in determining the tendency for Muslim entrepreneurs in the *halal* industry, including in the bakery industry context. In brief, the more control the entrepreneur feels about using *halal*-certified bakery ingredients, the more likely he or she will use the ingredients. Perceived behaviour control among online Muslim entrepreneurs also indicates their confidence in selling bakery products using *halal*-certified bakery ingredients. Based on the description above, the researcher proposes the hypothesis as follows:

H3: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by perceived behavioural control.

2.4 Barriers

Attitudes, social norms, and perceived behavioural control are three main or basic components of TPB, as postulated by Ajzen (1991) which are perceived to influence the intention of Muslim entrepreneurs to use *halal*-certified bakery ingredients. TPB model is expanded in this study to allow assessment of relationships between perceived behaviour control and barriers that online Muslim entrepreneurs may encounter in using *halal*-certified bakery ingredients. Furthermore, Torres-Ruiz et al. (2018) argue that perceived behavioural control varies depending on location. However, the difference is due to consumer preference or aspects that encourage them to buy and obstacles that inhibit their purchasing behaviour. In short, the existence of a motivation to use *halal*-certified bakery ingredients is not enough to develop a perceived control of behaviour or effective consumption, given that there are also factors such as cost, location, and knowledge perceived by online Muslim entrepreneurs as barriers in using *halal*-certified bakery ingredients in their products. Hence, the following hypothesis is proposed:

H4: Perceived behaviour control is significantly influenced by barriers to use *halal*-certified ingredients.

2.5 Moral Obligation

Moral obligations are described as ‘a personal feeling of responsibility for doing, or refusing to do certain behaviours’, (Ajzen, 1991). Besides, Vilas and Sabucedo (2012) described moral obligation as ‘a personal decision to participate in a specific collective action based on the belief that this is what should be done’. López et al. (2014) suggest that including a component of moral obligation can lead to more understanding of the intent and behaviour in the environmental context. Many variables have been proposed as additions to the TPB basic three components, and considerable evidence exists to support the value of moral obligation in research related to consumer ethics such as green, sustainable, and fair-trade grocery purchases, (Beldad and Hegner, 2018).

Moral obligation is considered a general sense of moral duty that online Muslim entrepreneurs feel in using *halal*-certified bakery ingredients for their products. A moral obligation may be related to society's pressure these online Muslim entrepreneurs face. It is assumed that online Muslim entrepreneurs who sell baked goods using *halal*-certified bakery ingredients will feel fulfilled because they provide baked goods using *halal*-certified ingredients to Muslims, thus ensuring the status of their product. Selling baked goods that are proven to be *halal* is indeed part of the responsibility of online Muslim entrepreneurs. It is a Muslim belief that food consumed will be ‘blood and flesh’, and those who sell the food will be held accountable in the hereafter. Therefore, it is expected that morally obligated entrepreneurs who strongly feel responsible for Muslim dietary requirements would translate their moral obligation into action by using *halal*-certified ingredients in their products. Hence, the following hypothesis is proposed:

H5: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by their moral obligation.

2.6 Self-Identity

Besides moral obligation, self-identity is also often tested in research related to consumer ethics, for example, in the context of green and sustainable fair-trade grocery purchases, (Beldad and Hegner, 2018). Self-identity is a prominent determinant that is associated with a particular behaviour. It reflects the ‘label people use to describe themselves as fulfilling the criteria for any societal role’, (i.e. someone who is concerned about halal ingredients issues), (Biddle et al., 1987; Armitage and Christopher, 1998). Armitage and Christopher (1998) argued that it is natural to assume that self-identity is a crucial determinant of intent in a particular behaviour. For example, food consumption can establish and enhance a sense of identity, expressing the differences between social groups, (Bourdieu, 1984; Fischler, 1988). This is reflected in the famous saying, ‘you are what you eat’. In this study context, online Muslim entrepreneurs may use their Muslim identity to produce and sell a *halal* bakery, made from *halal*-certified ingredients, to be consumed by other Muslim consumers. Thus, self-identity, defined in this context as the extent to which an individual sees himself or herself as Muslim, can play a role. Armitage and Christopher (1998) also argue that self-identity determines certain types of behavioural intentions. As such, it has been noted that individuals who identify with certain roles or social categories will be inclined to perform behaviours that conform to those roles or categories, (Fishbein and Ajzen, 2010). In this context, self-identity as Muslim entrepreneurs is expected to predict intention. Hence, the following hypothesis is proposed:

H6: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by their self-identity as Muslim entrepreneurs.

2.7 Conceptual Framework of the Study

The conceptual framework for this study was formed based on the TPB to determine the intention of online Muslim entrepreneurs to use *halal*-certified ingredients. The proposed model attempted to explain the connection between five independent variables: attitude, subjective norms, perceived behavioural control, moral obligation, and self-identity toward the dependent variable, the intention to use *halal*-certified bakery ingredients. The intention is predicted by measuring attitudes (A), subjective norms (SN), perceived behaviour control (PBC), moral obligations (MO), and self-identity (SI). In addition, the association between barriers (B) and perceived behavioural control (PBC) was also assessed. Figure 1 illustrates proposed factors that may affect the intentions of online Muslim entrepreneurs, and this model is applied in this study.

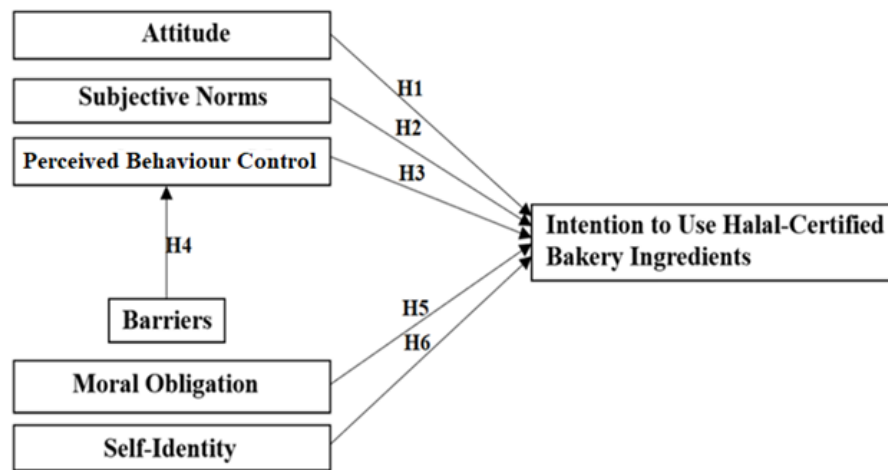


Fig. 1: Conceptual framework of the intention of online Muslim entrepreneurs in using *halal* certified ingredients.

3. METHODS

A quantitative approach was used, employing an online questionnaire to collect the data. The questionnaire items were adapted from various literature. Scale for intention, attitude, subjective norm, perceived behaviour control were adapted from various sources that also use the TPB model, (Khalek and Ismail, 2014; Carfora, 2019; Beldad and Hegner, 2018; Hall and Sevim, 2016; Muhammad, 2018; Vanany et al., 2019; Mai and Ottar, 2019). At the same time, the construct of self-identity is adapted from questionnaires developed by Armitage and Conner (1999), Carfora et al.(2019) as well as Mehkar Sherwani and Afzaal Ali (2018). The questionnaire items from Mai and Ottar Olsen (2016), Mehkar Sherwani and Afzaal Ali (2018) were adapted for moral obligation. The last construct items were adapted from a questionnaire developed by Raygor (2016) and Torres-Ruiz, Vega-Zamora and Parras-Rosa (2018). Prior to main data collection, expert review (n = 5) and a pre-test (n = 5) were conducted. Based on the feedback and recommendations, modifications were then made to the original statements used in the questionnaire.

There is no complete sampling frame (the list of population elements) of online Muslim entrepreneurs as the current law does not require home-based food operators to register

their businesses or apply for a licence to operate, (Zazali, 2020). This makes random sampling difficult. In addition, as online entrepreneurs can also work from just about anywhere, this survey employed a convenient sampling approach. The questionnaire link was distributed electronically through the private messages feature on both social media (Facebook, Instagram) and messaging applications (WhatsApp). Google Form was used as the platform that hosted the questionnaires. Although 450 respondents (located in different areas) were approached, some were reluctant to join. Finally, only 165 data sets were obtained for analysis.

Demographic respondents were analysed using Statistical Package for the Social Sciences (SPSS). Confirmatory factor analysis (CFA) was run in Smart-PLS 3.2.8 to evaluate the construct validity and reliability. Convergent validity was assessed via factor loadings and average variance extracted (AVE). Convergent validity was confirmed when the items load much higher on their hypothesised construct than other constructs, (Hair *et al.*, 2013). Then the structural relationships were then assessed.

4. RESULTS AND DISCUSSION

4.1 Demographic Characteristics of the Respondents

Table 1 shows the demographic characteristics of the respondents. The findings showed that female respondents ($n = 160$, 97%) make up the majority of respondents. This may also indicate that women dominate this niche online bakery industry. The age level of respondents ranged from 20 to 53 years old. The respondents' educational background showed that about 78 respondents, equivalent to 47.3% of total respondents, have at least a first degree. The finding showed that most respondents in this study's sample are educated, internet-savvy, and up to date about digital technology, which helps them generate income online. The respondents in this research were categorised into three population categories: urban, suburban, and rural areas. It is expected that people in urban areas will have better internet access because of their prime location compared to their rural residential counterparts. This is confirmed in this study as more than half (92 respondents, 55.8%) of these bakery entrepreneurs were urban. Most respondents made more than one product. Cakes, bread, biscuits, cookies, pies, sandwiches, pudding, kuih muih, desserts, chocolate jars, tarts, pastries, creampuffs, pavlovas, etc. and doughnuts are some of the items they sell.

Table 1: Demographic characteristics of respondents.

Demographic characteristics	Frequency (n)	Percentage (%)
Gender		
Male	5	3.0
Female	160	97.0
Age		
20-24	22	13.3
25-29	38	23.0
30-34	59	35.8
35-39	21	12.7
40-44	20	12.1
45-49	3	1.8
50-54	2	1.2
Education		
Degree	78	47.3
Diploma	40	24.2
Masters/Ph.D.	12	7.3
Proficiency Certificate	1	0.6
Pastry Certificate	3	1.8
SKM	1	0.6
SPM/Secondary School	30	18.2
Residence		
Urban	92	55.8
Sub Urban	27	16.4
Rural	46	27.9
Average monthly sales		
Over RM10. 000	13	7.9
Under RM500	29	17.6
RM2,001 to RM3,500	32	19.4
RM3,501 to RM5, 000	14	8.5
RM5, 000 to RM10. 000	18	10.9
RM501 to RM2, 000	59	35.8
Bakery products sold (can select more than one answer)		
Roti	5	3.1
Pastry	0	0
Cake	53	32.1
Biscuits or cookies	1	0.6
More than 1 type of bakery	106	64.2
Online <i>halal</i> bakery entrepreneur duration		
1-2 years old	55	33.3
3-4 years old	46	27.9
5-6 years old	24	14.5
7 + years	14	8.5
Less than 1 year	26	15.8

4.2 Measurement and Structural Model Assessments

The original 40 items were reduced to 33; seven were removed to improve the model due to low factor loading (0.5). All items have an outer loading above the threshold of 0.7, (Chin, 2003). AVE values for all the constructs exceed the threshold of 0.5, (Fornell and Larcker, 1981). Each construct has a Cronbach's alpha and composite reliability greater than 0.7. These values are shown in Table 2.

Table 2: Convergent validity and reliability for constructs.

Constructs	Items	Outer Loadings	AVE	Cronbach's Alpha	CR
Attitude	Attitude2	0.833	0.782	0.907	0.935
	Attitude3	0.921			
	Attitude4	0.904			
	Attitude5	0.877			
Barriers	Barriers1	0.896	0.723	0.880	0.913
	Barriers2	0.821			
	Barriers4	0.851			
	Barriers5	0.831			
Intention	Intention1	0.895	0.840	0.952	0.963
	Intention2	0.958			
	Intention3	0.876			
	Intention4	0.907			
	Intention5	0.943			
Moral Obligation	Moral Obligation1	0.804	0.736	0.909	0.933
	Moral Obligation2	0.916			
	Moral Obligation3	0.919			
	Moral Obligation4	0.771			
	Moral Obligation5	0.870			
Perceived Behavioral Control	Perceived Behavioral Control1	0.819	0.573	0.754	0.843
	Perceived Behavioral Control2	0.726			
	Perceived Behavioral Control4	0.752			
	Perceived Behavioral Control6	0.727			
Self-Identity	Self Identity1	0.962	0.930	0.975	0.982
	Self Identity2	0.971			
	Self Identity3	0.967			
	Self Identity4	0.959			
Subjective Norms	Subjective Norms1	0.835	0.741	0.911	0.934
	Subjective Norms2	0.945			
	Subjective Norms3	0.865			
	Subjective Norms4	0.920			
	Subjective Norms6	0.722			

Notes: AVE: average variance extracted; CR: composite reliability

As shown in Table 3, all the values passed the HTMT 0.85, indicating that discriminant validity is not an issue, (Kline, 2011).

Table 3: Discriminant validity (Heterotrait-monotrait ratio (HTMT)).

	A	B	I	MO	PBC	SI	SN
Attitude (A)							
Barriers (B)	0.103						
Intention (I)	0.733	0.149					
Moral Obligation (MO)	0.636	0.056	0.647				
Perceived Behavioural Control (PBC)	0.726	0.162	0.707	0.763			
Self-Identity (SI)	0.528	0.088	0.527	0.656	0.642		
Subjective Norms (SN)	0.655	0.095	0.699	0.674	0.661	0.598	

Attitude (A); Barriers (B); Intention (I); Moral Obligation (MO); Perceived Behavioral Control (PBC); Self-Identity (SI); Subjective Norms (SN)

The structural model and hypotheses were then tested. Nonparametric bootstrapping was applied with 165 replications to test the structural model. In bootstrapping (1000), subsamples are created with observations randomly drawn (with replacement) from a data set. The structural model assessments are presented in Figure 2 and Table 4. Another step for the structural model assessment was the evaluation of the model's predictive validity via the blindfolding procedure. According to (Hair et al. 1., 2016), if $Q^2 > 0$, the exogenous variables have predictive relevance for the endogenous variable. In this study, Q^2 of using intention was equivalent to 0.445, which signifies that this model shows sizeable predictive relevance, (Henseler, 2016).

Table 4: Structural model.

Hypothesis	Path	original Sample (β)	t-statistics	p-value	Decision
H1	Attitude → Intention	0.340	3.520	0.000	Supported
H2	Subjective norms → Intention	0.276	3.043	0.002	Supported
H3	Perceived Behaviour Control → Intention	0.161	1.517	0.130	Not Supported
H4	Barriers → Perceived Behaviour Control	0.071	0.690	0.491	Not Supported
H5	Moral Obligation → Intention	0.128	1.311	0.190	Not Supported
H6	Self-identity → Intention	0.020	0.254	0.800	Not Supported

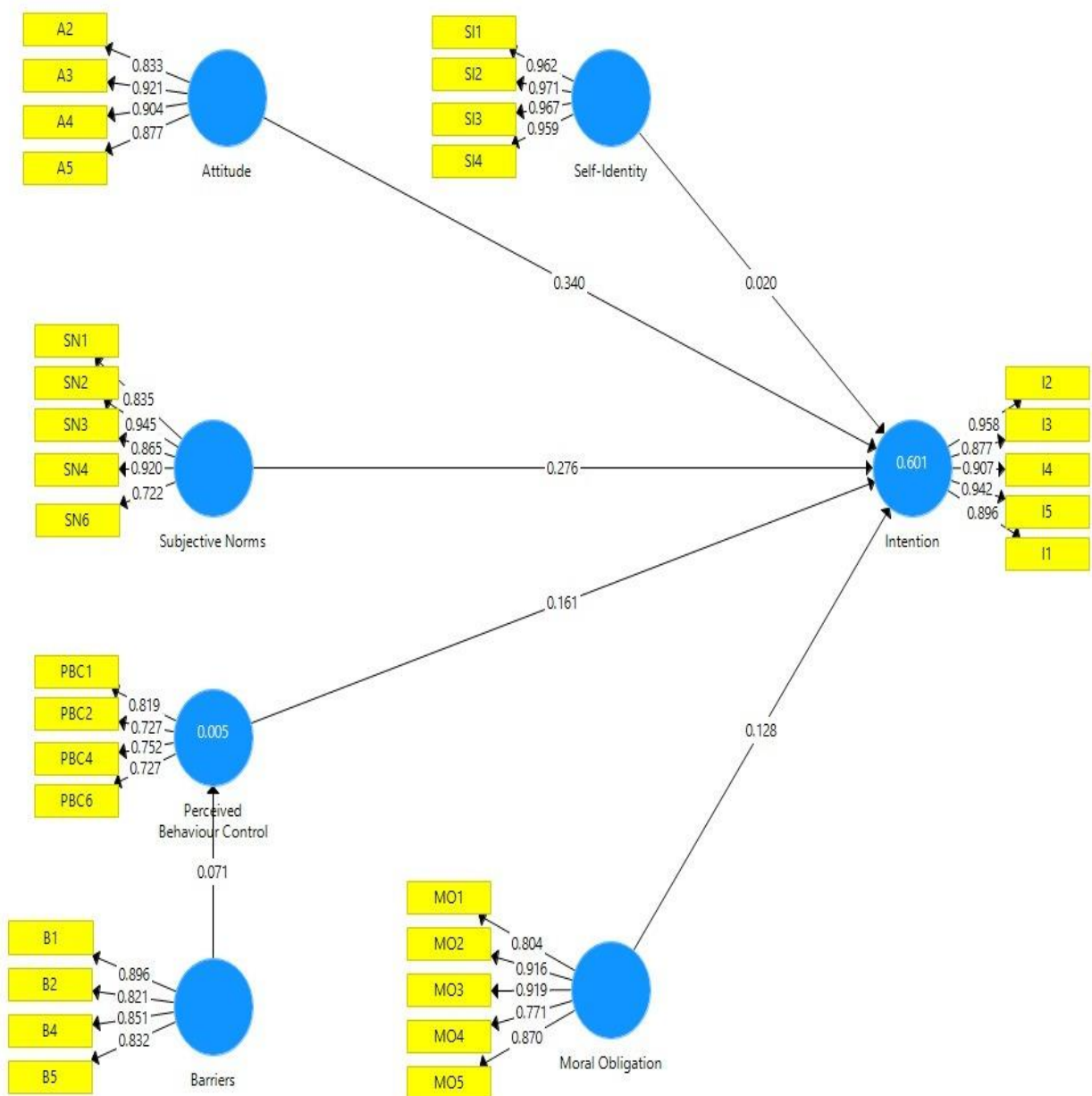


Fig. 2: Structural model.

4.3 Discussion of the Findings

H1: The intention of online Muslims entrepreneurs to use *halal*-certified ingredients is significantly influenced by their attitude about *halal*-certified bakery ingredients.

Results indicate that Hypothesis 1 is supported as the intention of entrepreneurs to use *halal*-certified bakery ingredients was significantly influenced by their attitude ($\beta = 0.339$; t-statistic = 3.520; $p < 0.01$). In other words, online Muslim entrepreneurs with positive attitudes have a greater intention of using *halal*-certified bakery ingredients. Attitude directly determines individual intent toward particular behaviour and indirectly determine the behaviour itself. Therefore, cultivating a positive attitude amongst online Muslim entrepreneurs toward using *halal*-certified bakery ingredients is necessary to drive their tendency to make products using *halal*-certified bakery ingredients. In short, if entrepreneurs believe or perceive that *halal*-certified ingredients are the best option for their products, they will be more likely to use *halal*-certified bakery ingredients in their products. Continuous efforts should be made to educate entrepreneurs to develop a positive attitude towards ingredients and products with *halal* certification. Decades of promoting *halal* certification in Malaysia may have provided sufficient knowledge of the benefits of certification. Nevertheless, continuous awareness and education are necessary.

H2: The intention of online Muslims entrepreneurs to use *halal*-certified ingredients is significantly affected by subjective norms.

Subjective norm was found to have a positive influence on intention to use *halal*-certified bakery ingredients ($\beta = 0.276$; t-statistic = 3.043; $p < 0.05$). This finding is supported by previous research on the relationship between intention and subjective norms in the *halal* context, (Aditami, 2016; Al-Nahdi & Islam, 2011; Nursalwani & Latiff Zulariff, 2017). The findings indicate that subjective norms play an important role in influencing intention, especially in a collectivist country like Malaysia, (Shah and Sayuti, 2011). Important individuals or groups, such as family, friends, or influential persons, might have a major impact on intention related to *halal*, (Puschel et al., 2010). In more individualistic cultures like western cultures, people perceived themselves as autonomous and independent of the group and prioritised personal goals over collective goals. Their attitude is more important than their social norms in behavioural decisions. On the other hand, in collectivistic cultures such as Muslim culture, people tend to perceive themselves as interdependent with their group and strive for in-group rather than personal goals, (Bonne et al., 2007). Individuals in a collectivistic culture would also feel more pressure from those they consider significant and thus would be more willing to comply with their opinions, (Ham et al., 2015). Therefore, marketers and *halal* authorities need to change the social norm to encourage an individual to use, buy, and purchase *halal* products.

H3: The intention of online Muslims entrepreneurs to use *halal*-certified ingredients is significantly influenced by perceived behavioural control.

The results of hypothesis 3 of this study indicated that the relationship between perceived behavioural control and intention to use *halal*-certified bakery ingredients was not found to be significant ($\beta = 0.160$; t-statistic = 1.517; $p > 0.05$). This finding is supported by other previous findings. Bonne et al. (2006) emphasised that perceived behavioural control is not an essential factor affecting choosing *halal* food as Muslims will try to fulfil their obligation to consume or purchase *halal* food under Islamic provisions. It is expected that consumers who are deeply

invested in the *halal* product will perceive potential barriers to obtaining *halal*-certified ingredients as less important because they are willing to devote more time and effort to obtain the ingredient, (Bonne et al., 2007). For example, in the case of sustainable food consumption decisions, respondents who are very interested in these types of products are willing to go to greater lengths to obtain them, (Vermeir and Verbeke, 2006). Similarly, in other exploratory research about Muslims willingness to purchase *halal* meat, it was found that the respondents will put considerable effort to purchase *halal* meat, (Bonne and Verbeke, 2008).

H4: Perceived behaviour control is significantly influenced by barriers of online Muslims entrepreneurs to use *halal*-certified ingredients.

In addition to perceived behavioural control, this study seeks to understand the multiple barriers that may influence the perceived behavioural control of respondents. Barriers in this study reflect individual perception towards the presence of certain barriers that may facilitate or impede particular behaviour or action. Multiple barriers assessed include spending a long time looking for *halal*-certified bakery materials, the difficulty in finding *halal*-certified bakery ingredients in the neighbourhood stores and, the cost. This study however found that barriers tested had no significant relationship on perceived behavior control ($\beta = 0.071$; $t\text{-value} = 0.690$; $p > 0.05$), hence, hypothesis 4 is not supported. The results of this study contradict the previous study on major barriers to gardening, (Lake and Milfont, 2012). This may not only reflect the commitment to searching for *halal* ingredients among respondents, but the non-significance of barriers could be due to the improved availability of *halal*-certified bakery ingredients in Malaysia. It is also possible that the sample surveyed only purchases bakery ingredients that are not critical, like flour and sugar, which could easily be obtained. It is also possible that the barriers included are irrelevant to the context of this study.

H5: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by their moral obligation.

The study findings also did not support hypothesis 5 as the moral obligation relationship with the intention of respondents to use *halal*-certified bakery ingredients was not significant ($\beta = 0.129$; $t\text{-statistic} = 1.311$; $p > 0.05$). This research is supported by previous research conducted by Sudarmiati et al. (2019), which emphasises that moral obligations did not affect intention. This result is different from previous research finding that moral obligation has a positive relationship with the intention to consume *halal* food, (Vanany et al., 2011; Vanany et al., 2019). According to Suparti et al. (2019), although moral considerations may play a vital role in consuming *halal* products, this sense of responsibility is sometimes not translated as one of the motivations for consuming *halal* products. According to Al-Mamun et al. (2018), moral obligations may not play a role in a positive and socially accepted behaviour (e.g., cycling) compared to study related to negative behaviours such as lying, cheating, and stealing, this could be one of the reasons for the insignificant result. This finding is similar to Suparti et al. (2019), which emphasises that moral obligations did not affect the intention to consume *halal* products.

H6: The intention of online Muslim entrepreneurs to use *halal*-certified ingredients is significantly affected by their self-identity as Muslim entrepreneurs.

The last hypothesis is on the association between intention and self-identify as Muslims. The results of the statistical analysis of hypothesis 6, based on the results of the study, show that there is a positive relationship between self-identity as a Muslim and the intention to use

halal-certified ingredients, but the relationship was not significant ($\beta = 0.020$; t -statistic = 0.254; $p > 0.05$). This study supports previous research conducted by Ohmae (2020), who also found that Muslim consumer identity did not significantly impact the intention to consume *halal* food in Japan. This may be due to respondents' extensive religious observance, (Ohmae, 2020). This could also be the case in this study. Nevertheless, this phenomenon may need to be thoroughly investigated to understand the underlying reason.

4.4 Implications for Research and Practice

This study contributes to theoretical advancement by assessing online Muslim entrepreneurs' intentions to use *halal*-certified bakery ingredients, which have received little attention in the academic world. There are minimal studies on *halal* bakeries, (Aditami, 2016; Rizka et al., 2018; Ismail, 2020). Another theoretical implication of this study is its contribution in linking the *halal* context with online entrepreneurs. The measurement items used in this study can be adapted for study in other settings (i.e., entrepreneurs in other Muslim countries).

In addition, this research also applied the extended TPB framework to emerging contexts and entrepreneurs in an online setting. Previous studies in the *halal* context tend to focus primarily on consumer perception. The model added two additional variables, self-identity and moral obligation. Although these variables are not significantly associated with *halal*-certified ingredients, the findings contribute to the overall understanding of which determinants are most significant. Therefore, other research may test other possible determinants or variables to strengthen the TPB model further. The findings of this study will primarily be beneficial to scholars by offering an insight into other possible constructs of antecedents towards the intention of entrepreneurs in the bakery context.

This research has generated new understanding and appears to be helpful to the practitioners and entrepreneurs in the *halal* industry as well as other *halal*-related agencies such as the *Halal* Industry Development Corporation (HIDC), *halal* authorities, *halal* training providers, and private sector *halal*-related businesses. Study on entrepreneurs' perspectives is paramount because it can be a reference to help *halal* regulatory bodies tackle or intervene on weaknesses in current *halal* practice (i.e., the application of questionable ingredients in the industry).

In this study, perceived behavioural control, moral obligation, and self-identity are not significantly associated with online Muslim entrepreneurs' intention to use *halal*-certified bakery ingredients, whereas attitude and subjective norm are significant. Thus, an intervention should be made on the respondents' attitudes and subjective norms to improve intention and purchase behaviour. For example, to improve behaviour, the benefits of *halal*-certified bakery ingredients should be promoted through newspapers, television, radio, websites, and social media, (Kothe et al., 2012). A positive attitude will determine whether entrepreneurs have the intention to use *halal*-certified bakery ingredients. Intention to use *halal*-certified ingredients could be a first and essential step for these entrepreneurs to later apply for a *halal* certificate for their products. This effort is as important as raising consumer awareness to purchase *halal*-certified products.

As the subjective norm is also significant, intervention can be made by providing information about what others are doing, i.e., applying ingredients without a *halal* certificate is uncommon amongst a group of entrepreneurs and disapproving of them. Alternatively, information that that application of ingredients without a *halal* certificate is disapproved by the entrepreneurs' group or consumers, (Kothe, 2012). It may be less helpful to emphasise moral obligation and self-identity as Muslims to promote the purchase of *halal*-certified ingredients.

In addition, the study findings provide insightful information from entrepreneurs' perspectives to support related bodies like *Halal* Development Corporation (HDC) and Jabatan Kemajuan Islam Malaysia (JAKIM) to educate and construct suitable programs such as *halalpreneur*. *Halal* training providers and consultancy can also benefit from these results. The proposed model and conceptualisation can act as a platform for the relevant policymakers to manage *halal* bakery industry development.

Moreover, while answering the survey form, some of the respondents were indirectly exposed to the basic principles of *halal* and issues related to bakery ingredients. After returning the completed form, some of the respondents continued asking about issues related to *halal* in bakery products. This provides opportunities for the researcher to explain the issue comprehensively. Therefore, this study indirectly made more respondents more aware of the issues and their responsibilities as Muslim entrepreneurs in terms of *Syari'ah* compliance. This study, in general, is projected to support the *halal* bakery industry and tacitly contribute towards the global *halal* hub.

5. CONCLUSION, RECOMMENDATIONS FOR FUTURE STUDY AND LIMITATIONS

This research gives valuable insight into using *halal*-certified bakery ingredients among online Muslim entrepreneurs. The findings from this study are anticipated to provide a better understanding of *halal* academicians, marketing researchers to develop theories and facilitate their future studies. Policymakers and related *halal* bodies could also refer to these findings for policies, guidelines, or strategy development. It is expected that *halal* research on bakery products and the industry will consistently grow, in line with the growth of the bakery product market. A few recommendations for future research are provided.

Other researchers can further assess the hypotheses for different respondents, such as the owners of physical bakeries and bakery manufacturers. Because of the limited scope of this study, which focuses only on online entrepreneurs, in the future, research should be expanded to include retail entrepreneurs as well.

Moral obligation and self-identity do not have a positive and significant relationship with the intention of Muslim entrepreneurs. Therefore, other researchers can also test this hypothesis with non-Muslim entrepreneurs to see whether moral obligation and self-identity as Malaysians could influence their intention to use *halal*-certified ingredients in their products. There are many non-Muslim entrepreneurs involved in the bakery industry. It is therefore critical to explore their perspective. In addition, given the insignificant findings of a few hypotheses, future research may assess different determinants to understand this behavioural intention further.

Cultural and geographic contexts may affect the perception and attitude of the respondents. Therefore, it is prudent to expand these studies to other countries to understand variations in human behaviour. Since the research is limited to Malaysian entrepreneurs, future studies could expand to other countries with the same target respondents. In addition, cross-cultural studies can also be conducted. Cross-cultural studies involve obtaining data from samples from different countries and/or ethnic groups. This allows researchers to expand their knowledge beyond the confines of their current surroundings.

The study's limitations led to a recommendation for further study. Given the non-probability sampling used, generalisation of the findings is not possible. Therefore, it is recommended that future studies be conducted using probability sampling that allows for generalisation. Furthermore, the data were gathered cross-sectionally from November 2019 to

December 2020. Data collected via cross-sectional research design cannot form causal inferences. Causal inference, however, can be assessed through a longitudinal study. A longitudinal study can be used to assess causal inference in the future. Nonetheless, as one of the few studies conducted in a bakery context, this study is indispensable to developing the *halal* bakery industry.

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