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Service climate and service behaviour to customer satisfaction: A multilevel study of Muslim-friendly hotel

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Abstract: Literature has emphasised on the importance of internal integration and external environment towards the quality of services. As Muslim-friendly hotels (MFH) are service organisations, this research aims to integrate the organisation, employee and customers who are involved in the service encounters. This research is purposely conducted to test the proposition that an employee's service climate determines the employee's service behaviour and consequently customer satisfaction. This cross-sectional multilevel study involved 25 MFH (n=25) with 5 employees and 5 customers for each organisation, employees (n=125) and employees (n=125). The finding revealed the organisational service climate had a positive and significant impact on individual employee's service behaviour. In short, the employees at MFH acknowledge the conducive working environment which can motivate them in delivering quality service ($\gamma_{10} = 0.77$, SE = 0.09, p-value < 0.001). The result shows that MFH has provided a motivational environment to support service delivery. However, it is insufficient to lead to customer satisfaction in relation to the inconsistency of the other hypotheses.1.

Keywords: Muslim-friendly hotel; multilevel; employee; customer; satisfaction

Received: 30th October 2019

Accepted: 18th January 2020

Published Online: 2nd March 2020

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Citation: Mat Yusof NA, Wan Jusoh WJ, and Hasyun Hashim KS. Service climate and service behaviour to customer satisfaction: A multilevel study of Muslim-friendly hotel. J Halal IndServ 2020; 3(Special Issue): a0000058. <https://doi.org/10.3687/jhis.a0000058>

Introduction

MFH is a Muslim-friendly hotel offering various facilities to support the duty as a Muslim (Alserhan, 2010; Stephenson, 2014). Interestingly, even though MFH is established to merely target Muslims, it also attracts non-Muslim travellers (Rosenberg & Choufany, 2009). As Muslims are the MFH's target market, many academicians and practitioners come out with a variety of master plans in designing the appropriate concept of MFH to satisfy Muslims. Most of them include physical facilities such as bedroom, lobby, bathroom and Muslim employees (Crescent Rating, 2019; Salaam gateway, 2017; Sallehet al., 2014; SIRIM, 2015). Notwithstanding, most of the plans do not include the practicality of MFH's working environment and employees' behaviour towards customer satisfaction.

A synthesis study conducted by Oktadiana *et al.* (2016) reported that most of the MFH-related discussions emphasised on characterising the ideal features of MFH products, while the other topics remained overlooked. The concept of customer satisfaction is among the most powerful concept as it proved to lead to several positive organisational performances such as increase sales, profit and cost savings (Eid & Abdelkader, 2017; Gayatri & Chew, 2013). However, it is also proven that physical appearance is not the only factor that leads to satisfaction (Bettencourt & Brown, 1997a; Wall & Berry, 2007).

Islam has shown a good example in the al-Quran to satisfy guests or customers. Referring to a host-guest relationship; this relationship encourages the host to kindly treat his/her guest. In the surah adh-Dhariyat (verses 24–27), the hospitable treatment is shown by Prophet Ibrahim in welcoming strangers or guests who came to his home by serving a roasted calf, Allah says:

"Has there reached you the story of honoured guests of Abraham? When they entered upon him and said, "(We greet you

with) peace." He answered, "(And upon you) peace, (you are) a people unknown. Then he went to his family and came with a fat (roasted) calf" (al-Quran 51:21–24).

This host-guest relationship expresses that Islam places great importance on the kind treatment and hospitality of guests and neighbours. While the host-guest relationship is familiar in Islam, a similar concept called social interaction is used by Western scholars. In a service organisation, services are relying upon human interactions via the organisation to the employee to the customer and explained through the Social Exchange Theory (Blau, 1964). This theory is amongst the influential theories in the work behaviour organisation. It has emerged in the literature since six decades ago. Although it may be considered as an old theory, the fundamental of this theory represents the working organisation. Theoretically, the organisation is accountable in setting up an ideal working environment that facilitates employees' behaviour and motivation (Schneider *et al.*, 1998) and a service-oriented environment that must be aligned with customers' desires (Wall & Berry, 2007). In return, employees are responsible for delivering excellent services on behalf of the organisation (Bettencourt & Brown, 1997). Therefore, all three entities (companies, employees and customers) contribute to the sustainability of the service sector.

Since we propose to test the model of the internal and external environment in MFH, we adopt the service climate concept to represent the internal working environment in MFH. This concept is widely used to correlate between employees and customers in service settings (Schneider *et al.*, 1980; Solnet, 2006). Specifically, the study aims to test the four-proposition that employees' service climate determines employees' service behaviour and consequently customer satisfaction, particularly in MFH. This study employs multilevel research design which includes organisational level (Level 2) and individual level (Level 1) to imi-

tate the complex organisation of MFH. Therefore, the Hypotheses proposed are:

Hypothesis 1: Service climate at the organisational level is positively related to customer satisfaction at the individual level.

Hypothesis 2: Service climate at the organisational level is positively related to service behaviour at the individual level.

Hypothesis 3: Service behaviour at the individual level is positively related to customer satisfaction at the individual level.

Hypothesis 4: Service behaviour at the individual level mediates the relationship between service climate at the organisational level and customer satisfaction at the individual level.

Literature Review

Service climate and customer satisfaction

All service organisations desire a higher level of customer satisfaction. Many benefits will be gained if they are able to produce satisfied customers such as leading in the intense competition and also sustaining in the industry.

Service climate is defined as “the shared perceptions of employees concerning the practices, procedures, and kinds of behaviours that get rewarded and supported in a particular setting” (Schneider *et al.*, 1998). It also refers to the extent employees perceive that they will be rewarded for delivering quality services by the organisation (Schneider *et al.*, 1998). This variable is observed as shared perceptions, therefore, it is often measured as organisational level or Level 2 (cf. de Jonge *et al.*, 2004; Schneider *et al.*, 2002; Schneider *et al.*, 1998; Tung *et al.*, 2012) this study examined the mediating effect of service-oriented organizational citizenship behavior on the relationship between service climate and customer satisfaction, and the moderating effects of three potential factors for service core attributes (customer contact frequency, service intangibility, and service employee interdependence).

There is a strong theoretical and empirical rationale for linking service climate to generate better customer satisfaction. It was first observed three decades ago where employees who were satisfied with organisational service policies and practices were the same organisation where the customers described positive reactions (Schneider *et al.*, 1980; Schneider & Bowen, 1985). The conducive working environment fosters employees to facilitate the service excellently, thus, leading to satisfied customers. Since then, a plethora of research has been conducted in various service organisations and similar findings have been found (Auh *et al.*, 2011; He *et al.*, 2011; Martinez-Tur *et al.*, 2011; Schneider *et al.*, 2009; Towler *et al.*, 2011; Yagil & Gal, 2002). Similarly, we also expect the positive effect of service climate on customer satisfaction in MFH, therefore, this study offers the following hypothesis: Hypothesis 1: Service climate at the organisational level is positively related to customer satisfaction at the individual level.

Service climate and service behaviour

To what extent the employees perceived the organisational service climate would be shown by their behaviours (Auh *et al.*, 2011). SET postulated that employees who consider their work roles are valued by the organisation tend to respond with a greater performance as an exchange (Shaw *et al.*, 2009). As such, positive service behaviour is the reaction of employees towards a positive service climate established in the service organisation. While negative behaviour is the contradicting reaction from the unfavourable service climate.

The findings were found in various studies. A study

conducted by Borucki and Burke (1999) revealed that the service climate is predictive of sales personnel's service behaviour in large US retail companies. In addition, the replicative findings were also found at two service organisations in China. Zhanget *al.* (2011) assessed in the context of Chinese banks in China, while Jiang *et al.* (2016) tested in various movie theatres in China.

From this discussion, it evidenced that the service climate leads to service behaviour, yielding the following hypothesis:

Hypothesis 2: Service climate at the organisational level is positively related to service behaviour at the individual level.

Service behaviour and customer satisfaction

Employees react on behalf of the organisation. Their behaviour mirrors the organisation's behaviour in satisfying customers, therefore, it affects the quality service delivery and satisfaction of the customers they serve (Bettencourt & Brown, 1997; Schneider & Bowen, 1993). As the one who directly deals with the customers, the employee's service behaviour has a significant impact on service performance which also affects customer satisfaction level. Previous studies found a positive and significant relationship between employee service behaviour and customer satisfaction. For instance, Liao and Chuang (2004) found service behaviour to be positively associated with customer satisfaction in the context of restaurants in the US. An article by Stocket *al.* (2017) also discovered a similar finding, but in various business organisations in Germany. Therefore, this study offers the following hypothesis:

Hypothesis 3: Service behaviour at the individual level is positively related to customer satisfaction at the individual level

Service climate, service behaviour, and customer satisfaction

Previous studies suggest the mediation effect between climate, service behaviour and customer satisfaction. With X represents service climate, M represents service behaviour and Y represents customer satisfaction, the precondition of mediation testing is simplest form represents the addition of addition of third variable (M, mediator) to the relationship between X and Y (cf. James *et al.*, 2006; Mathieu & Taylor, 2007; Preacher & Hayes, 2004).

The previous studies posited the positive and significant relationship between service climate and customer satisfaction (Auh *et al.*, 2011; Martinez-Tur *et al.*, 2011; Schneider & Bowen, 1985; Schneider *et al.*, 2009, 1980, 1998), between service climate and service behaviour (Borucki & Burke, 1999; Zhang *et al.*, 2011a) and between service behaviour and customer satisfaction (Liao & Chuang, 2004; Schneider *et al.*, 2005). These findings fulfil the preconditions listed by the methodologist as above. Particularly, Liao and Chuang (2004) found service behaviour as a mediator in the relationship between service climate and customer satisfaction. So, this study assumes the following hypothesis:

Hypothesis 4: Service behaviour at the individual level mediates the relationship between service climate at the organisational level and customer satisfaction at the individual level.

Materials and Methods

Design and participants

This study employed a cross-sectional design with 125 employees and 125 customers from 25 MFH in Malaysia (with organisational response rate = 8%). Across-sectional study refers to a study by which data are collected at a particular time only

(Creswell, 2011) due to the reason that the researcher may not be able to reach the same customers for the second or third time.

The data collection has been conducted from September 2018 to December 2018. Muslim-friendly hotels that recognised by the Salam Standard certification body were recognized. At that moment, there were 447 MFH recognized by Salam Standard. After that, the researcher approached the managers of the MFH for the permission warrant. For the purpose of this study, the researcher had requested five employees and five customers' information that give voluntary consent to participate.

In terms of the organisations involved, the number 25 was adequate to conduct a multilevel study even though some scholars argued that 25 organisations are inadequate (Maas & Hox, 2005; Snijders, 2005). However, a recent study conducted by Mathieu et al., (2012) argued the organisation level (indicating Level 2) is adequate with as small as 25 organisations. As such, 25 MFH were indicating an adequate sample to test those four propositions. For employees, work roles included those directly dealing with customers. While the customers who involved in this study were chosen from those who have stayed or visited the MFH.

In terms of the employees, most of the participants were female (61.7%), with more than half were Malays (84.2%), Muslims (87.5%) and Malaysians (95.8%). The marital status showed almost a similar percentage between being single (51.7%) and married (45.8%) as well as the educational background between tertiary (52.5% and secondary (46.7%). In addition, most of the participants were permanently employed (85.5%) with an income of less than RM4000 (92.5%).

For customers, both male and female respondents showed almost a similar percentage with males (45.8%) and females (54.5%). Similar to employees' results, most of the respondents were Malays (85.8%), Muslims (86.7%) and Malaysians (91.7%). The marital status was also reported to be almost similar between being single (45%) and married (55%). In terms of occupation, self-employed reported the most with 31.7% followed by government (20%) and private (17.5%). In addition, more than half of the respondents were having a monthly income of RM4000 and above (71.7%).

Measures

In this study, most of the items were adapted from Western literature. As Malaysia is a multicultural society and Malay is the national language, the translation of the instrument was necessary. The instrument was translated into the Malay language using the back-to-back translation (Brislin, 1970).

Service climate

This variable was measured using the 6-item Global Service Climate introduced by Benjamin Schneider and his colleagues (Schneider et al., 1998). The referent for the scale was "climate for service in the organisation". An example item is "I think this hotel has good leadership which supports the service quality effort". Responses on a 5-point scale ranged from 1 (strongly disagree) to 5 (strongly agree) were used, with a mid-point, neither agree nor disagree. These items were asked to the employees of the MFH. The Cronbach's Alpha (α) score was 0.894 indicating that the score was beyond the acceptable alpha scores.

Service behaviour

This was measured using two domains, each with five items. We examined in-role using 5-item role-prescribed customer service (Bettencourt & Brown, 1997b), $\alpha = 0.930$. Meanwhile, OCBs was examined using 5-item from extra-role customer service (Bettencourt & Brown, 1997b), $\alpha = 0.924$. Similar to

the service climate scale, responses were on a 5-point scale, with 1 (strongly disagree) to 5 (strongly agree) were used, with a mid-point, neither agree nor disagree. All of these items were treated as level 1, asking an individual employee's behaviour.

Customer satisfaction

We used customer satisfaction using nine items that were adapted from Oliver, (1980); Susskind et al., (2003), e.g., "I feel satisfied with this employee performance". Responses were on a 5-point scale, 1 (strongly disagree) to 5 (strongly agree), $\alpha = 0.973$.

Aggregation procedures

Prior to data aggregation, few data examinations were needed to justify the needs of data to aggregate to a higher level. This was assessed within-group agreement ($r_{(wg)(j)}$) (James et al., 1984), intraclass correlation (ICC(1)) and F value from analysis of variance (ANOVA) (Mathieu & Taylor, 2007). The results confirmed strong level $r_{(wg)(j)} = 0.893$, (SD = 0.65) (Biemann et al., 2012). In addition, ICC (1) = 0.93 and the F value >1 justify aggregating the service climate measure to the organisational level.

Hypothesis testing

As the study employed the multilevel nature of the data, the data were then analysed using hierarchical linear modelling (HLM); HLM 7.03 software (Raudenbush & Bryk, 2002). This study involved two levels, Level 2 represents organisational data and Level 1 represents individual data.

This study used multilevel data that involve data from organisational and individual levels. The general concept that individuals (in this case; employees) interact with the social contexts (i.e., unit, department, organisation) to "which they belong, meaning that individuals are influenced by the social contexts to which they belong and the properties of those groups are in turn influenced by the individuals who make up that group" (Hox & Maas, 2002, p. 2). Multilevel scholars explicitly recognised this situation that lower-level entities are nested/dependent within higher-level collectives such as teams (Mathieu & Taylor, 2007; Aguiniset al., 2013).

In this study, multilevel data assist the researcher to seek shared perceptions among employees regarding the service climate and to capture the nested complexity of real organisation life (Mathieu & Taylor, 2007). In fact, the definition of service climate which is "shared perceptions of employees concerning the practices, procedures and kinds of behaviours that get rewarded and supported in a particular setting" (Schneider et al., 1998) shows that this variable is measured by employees' perceptions. This relationship is then linked to the individual perception of customers, particularly on their evaluation of customer satisfaction.

Results

Table 1 indicates the intercorrelations of variables at both the organisational and individual levels. The result suggests that they are different constructs.

This study found a significant χ^2 for each lower-level variable, indicating that the percentage of between-team variance is sufficient to justify the examination of between-group predictors of the dependent measure customer satisfaction, 10%, $\chi^2(25) 310.87, p < .001$; and the mediators, service behaviour, 4%, $\chi^2(25) 242.60, p < .001$. These results signify that there is potential for cross-level influences on all three individual-level variances, and

the service behaviour and service quality are potential mediators of cross-level effects.

Hypothesis 1, that service climate is positively related to customer satisfaction, = 0.003, SE = 0.08, p -value= 0.964 (see random intercept fixed slopes; Table 2) showing the Hypothesis 1 was not supported.

Hypothesis 2, that service climate is positively related to service behaviour, = 0.77, SE = 0.09, p -value<0.001 (see random intercept model; Table 3, Model E) confirming Hypothesis 2.

Hypothesis 3, that service behaviour is positively related to customer satisfaction, = -0.03, SE = 0.10, p -value= 0.724 (refer to random intercept model, Table 2, Model B), indicating the Hypothesis 3 was not supported.

Hypothesis 4, that service behaviour mediates the relationship between service climate and customer satisfaction. It is noted that if the direct path is not significant, there is no mediating effect (Hair, Hult, Ringle, & Sarstedt, 2014). Therefore, it failed to support H4.

Discussion

Surprisingly, the results were different from the previous literature except for Hypothesis 2, organisational service climate and individual employee service behaviour. Otherwise, the results indicated a negative relationship.

In Hypothesis 2, it was proven that employees were satisfied with the working environment which MFH facilitates. This result was expected as it aligned with an abundance of research previously (Borucki & Burke, 1999; Jiang *et al.*, 2016; Liao & Chuang, 2004; Mechinda & Patterson, 2011; Zhang *et al.*, 2011b). While most of the previous research have been conducted in various service organisations in different countries, this study also found a replicative finding. Here, the findings show the employees valued MFH as a conducive working environment in which their work roles are valued (positive service climate); it also leads to motivation for the employees to behave appropriately in serving the customers.

However, the findings for the other hypotheses were found to be contradictory with the assumptions based on most of the previous studies. Hypothesis 1 showed employees' shared perceptions of service climate towards customer satisfaction, and Hypothesis 3 showed employees' perception of service behaviour towards customer satisfaction were found to be insignificant. In addition, the mediation proposed in Hypothesis 4 was found to be insignificant. As mentioned in the introduction section, this kind of study has not got enough attention to Malaysia's tourism industry. Therefore, the assumption of propositions was made based on the studies which were mostly conducted in the West. In a study conducted by Razalli *et al.* (2013) in a Malaysian hotel context, management responsibility was also found insignificant towards hotel performance. This study also shows that the internal working environment of MFH (i.e. service climate) does not have such an influential impact on a hotel's service performance.

These contradictory results can be assumed by several possible explanations. This study specifically focuses on the MFH which implements the concept called Muslim-friendly. This implementation may arise the expectations of the customers as compared to the conventional hotel (Battour *et al.*, 2012). Due to the reason that the hotel's sector involves labour-intensive, customer satisfaction may be evaluated and highly dependent on the behaviour of employees (Zailani *et al.*, 2011). In addition, due to the fact that MFH is still at its early stage (Yusof & Muhammad, 2013), MFH is assumed to be at the position of finding the accurate way of entertaining employees and customers. As noticed, most Halal-related articles are emphasizing too much on appropriate facilities, but the customer satisfaction issue is also equally

important is received inadequate attention.

These findings bring the new angle of thinking towards Muslim-friendly services in hotels. This study offers a different angle of view on how the relationship of employee-customer may affect the performance of MFH.

Conclusion

This research introduces a new paradigm to help the MFH industry develop. This research provides strong evidence that the working environment is able to motivate their service behaviours towards delivering services. This kind of environment facilitates employees to becoming more committed to the assigned task. Once employees are happy, they will perform the best in their career and this also may benefit the hotel providers. Good organisational management and harmonic environment may be very important in maintaining a sustainable working condition for employees. Notwithstanding, this behaviour is recorded to be inadequate to satisfy customers' needs and wants for Muslim-friendly services in relation to the inconsistent findings of the other hypotheses.

Overall, this research contributes to the current body of knowledge in the exploration into employees' and customers' perceptions of MFH service encounters in Malaysia. In relation to some findings were inconsistent with those in the literature, therefore, this research suggested several future suggestions. First is by using other methods such as interviews. Secondly, using a larger sample size especially for the upper level. Thirdly, consider using climate strength. Fourthly, differentiate categories in the MFH.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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Halal hospitality for senior citizens in Malaysia: An analytical study from an Islamic perspective

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Abstract: Malaysia, as reported by the Department of Statistics Malaysia, will be an ageing nation by 2035. Yet, the rapidly increasing population of the elderly in tandem with the decreasing fertility and morbidity rate cause imbalance in the society's structure. The elderly are often perceived negatively because of the stereotype, and it affects their physical and mental health. Employing qualitative methodology, this study tries to define the meaning of the elderly from the Islamic perspective and attempts to provide the halal key concepts as guidelines to improve hospitality. This will be undertaken after analysing the caretaking system in Malaysia using deductive and inductive methods. This research hypothesised that the current caretaking system is progressing, but more drastic initiatives are needed to achieve a wholesome objective for the elderly's well-being from the Islamic perspective.

Keywords: Senior citizens; current caretaking; Halal hospitality; population ageing; Islamic perspective

Received: 29th October 2019

Accepted: 24th January 2020

Published Online: 2nd March 2020

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Citation: Fadhli AS, Fatah Yasin RF, and Kamal Koh SH. Halal hospitality for senior citizens in Malaysia: An analytical study from Islamic perspective. J Halal Ind Serv 2020; 3(Special Issue): a000057. <https://doi.org/10.3687/jhis.a000057>

Introduction

The World Health Organization (WHO) signifies the mark of 60 years and above to identify the elderly population (Proposed Working Definition, 2002). While in some developed countries, they consider those at 65 years old and above as older people (Older Persons, 2019). In Malaysia, the term senior citizen is also defined as those aged 60 and above as stated in the National Policy for Older Person prepared by the Ministry of Women, Family and Community Development (Dasar Warga Emas Negara, 2017).

There is no denying the fact for every human who lives long, will reach a certain point of being weak and feeble, with all physical & mental attributes weakening. No matter how hard they try to discover methods to extend their lifetime, it is still inevitable. Allah stresses this fact of life cycle briefly in the al-Quran, saying:

"It is God who created you weak, then gives you strength, then weakness after strength, together with your grey hair: He creates what He will; He is the All Knowing, the All Powerful". (al-Quran 30:54)

Such predetermined cycle contributes to various patterns of social interaction with the senior citizens. As the world advances in technology and modernity, the man seems to disregard their preparation in handling this stage of life. While the Prophet peace be upon him (PBUH) has already emphasized the importance of giving attention to the elderly by saying:

"No young person who honours an elder due to his age, except that Allah appoints for him one who will honour him at that age". (al-Tirmidhi, Sunan, Hadithno: 2022)

Globally, the population of the elderly aged 60 and above is rapidly increasing (Ageing, n.d.). This phenomenon

causes many issues in family institutions, especially regarding their caretaking effort. This also affects the social circumstances as most systems and services provided by the government seem to be less friendly for senior citizens rather than the majority (Pusat Aktiviti Warga Emas, 2018).

Two extensive studies on ageing population in Malaysia were conducted by analysing the demography of ageing. They inferred that multiple challenges need serious attention (Tengku Aizan, 2015; Tey, 2017). Another study also presented the challenges of the ageing population from the construction industry perspective (Abdul Rahim *et al.* 2018). These studies provided detailed information on the elderly caretaking. Nonetheless, no religious perspectives being highlighted considering the rising demand for Halal Industry in developing wholesome Islamic hospitality for senior citizens.

Thus, the paper focuses on defining the Quranic and Prophetic perspectives in proposing guidelines for the Halal hospitality in the effort of developing an improved caretaking system for the senior citizens in Malaysia, from the Islamic perspective.

Materials and Methods

Materials

In the light of the Islamic perspective, as the main concern of this study, the term senior citizen or elderly was highlighted using various expressions in the Arabic language. Thus, it is important to understand the basic definition of elderly as highlighted in the narrations on the issue of elderly folks or senior citizens whether directly or indirectly.

Definition of Senior Citizens from Islamic Perspective

The widely used Arabic term in the contemporary context for elderly or senior citizen, is *al-Musinnūn* (المسنون), apart from other terms such as *al-Shaykhūkhah* (الشيخوخة), *Kibār as-Sin* (كبار السن) and many more (Bensaid, 2014). Unfortunately, some of these terms are not available in any of the two main references in Islam, be it in the al-Quran or in the Hadith as a reference towards the elderly population.

Among the Arabic expressions that bring about the same meaning as elderly or senior citizens are *al-Shaykh*, *al-Kibar*, *al-'Ajuz* and *Arzhalu al-'Umr* (Raudlotul Firdaus et al. 2016). The details are as follow:

1. *al-Shaykh* (الشيخ)

It is derived from the Arabic root word ش - ي - خ that shares the same meaning as *al-Shaykhūkhah* (الشيخوخة). The basic meaning of the word refers to one whose age is old and grey hair starts appearing on his head (Ibn Manzūr, 1993, p. 93).

This term was said by the Prophet PBUH in various narrations, where an example of this is the *Hadith* where the Prophet PBUH said:

قَلْبُ الشَّيْخِ شَابٌّ عَلَى حُبِّ اثْنَتَيْنِ حُبِّ الْعَيْشِ وَالْمَالِ

The heart of an old person feels young for the love of two things: love for long life and wealth (Muslim, Hadith no: 1046).

While in the al-Quran, the term is repeated 3 times in its singular form, *Shaykh* (شَيْخٌ) and only once in its plural form, *Shuyūkh* (شُيُوخٌ). In one of those verses, He said:

She said, 'Alas for me! How am I to bear a child when I am an old woman, and my husband here is an old man? That would be a strange thing!' (al-Quran 11:72)

The word *Shaykh* (شَيْخٌ) in this verse refers to Ibrāhīm as expressed by his own wife, Sarah. Among the interpretation of the verse shows that Ibrāhīm reached the age of 100 or 120 years old at the time, while Sarah was around 99 years old (al-Tabarī, 2000). This shows the fact that they are both elderly and are described as such using the word *Shaykh* (شَيْخٌ).

While in sūrah Yūsuf, the same word is mentioned by his older brothers referring to their father Yāqūb who had reached an old age and lost his strength to deal with the trials he was experiencing at the point being:

They said, 'Mighty governor, he has an elderly father. Take one of us in his place. We can see that you are a very good man.' (al-Quran 12:78)

The same point being highlighted in the al-Quran when the two ladies explained to Mūsa why they did not join the group of people watering their animals while adding the fact that their father was in a state where he was no longer strong enough and was already too old to be doing the job. They described the state of their weak and old father as *Shaykh* (شَيْخٌ):

When he arrived at Madyan's waters, he found a group of men watering (their flocks), and beside them two women keeping their flocks back, so he said, 'What is the matter with you two?' They said, 'We cannot water (our flocks) until the shepherds take their sheep away: our father is a very old man.' (al-Quran 28:23)

This last verse signifies the term *Shaykh* (شَيْخٌ) as the last stage of growth for every human being, where Allah SWT states:

It is He who created you from dust, then from a drop of fluid, then from a tiny, clinging form, then He brought you forth as infants, then He allowed you to reach maturity, then He let you grow old. (al-Quran 40:67)

2. *al-Kibar* (الكبر)

This word originated from the root letter ك - ب - ر which refers to a person or an animal gets old in terms of age (Ibn Manzūr, 1993). Ibn Faris highlighted that its meaning is the opposite of young (Ibn Fāris, 1979). There were quite a significant number of narrations where the Prophet PBUH said this word referred to the elderly, as such:

رَغِمَ أَنْفٌ ثُمَّ رَغِمَ أَنْفٌ ثُمَّ رَغِمَ أَنْفٌ. قِيلَ: مَنْ يَا رَسُولَ اللَّهِ. قَالَ: مَنْ أَدْرَكَ أَبَوَيْهِ عِنْدَ الْكِبَرِ أَحَدَهُمَا أَوْ كِلَيْهِمَا فَلَمْ يَدْخُلِ الْجَنَّةَ

Let him be humbled into dust; let him be humbled into dust. It was said: Allah's Messenger, who is he? He said: He who sees either of his parents during their old age or he sees both of them, but he does not enter Paradise (Muslim, Hadithno: 2551).

While in the al-Quran, there are 6 verses where the term *al-Kibar* (الكبر) is mentioned. All of them refer to the state of being elderly, with old age. As such, in surah al-Baqarah, Allah provided a parable on how futile for a disbeliever to present his deeds which have no value on the day of judgment, like how useless it is a weak elderly to rebuild his destroyed farm:

Would any of you like to have a garden of palm trees and vines, graced with flowing streams and all kinds of produce, which, when you are afflicted with old age and feeble offspring, is struck by a fiery whirlwind and burnt down? In this way God makes His messages clear to you, so that you may reflect on them. (al-Quran 2:266)

The same term was also used in both surah Āli 'Imrān and Maryam to describe the condition of Zakariyya being so old when Allah announced that he would be getting a child and he was surprised despite his weak appearance where normally it is impossible for such an elderly to be having any child:

He said, 'My Lord, how can I have a son when I am so old and my wife is barren?' (An angel) said, 'It will be so: God does whatever He will.' (al-Quran 3:40)

The same expression was repeated in Maryam highlighting the same point of surprise with a slight difference of arrangement where Zakariyya first mentioned the fact that his wife is barren, then said the fact that he is too old. Allah said:

He said, 'Lord, how can I have a son when my wife is barren, and I am old and frail?' (al-Quran 19:8)

Allah recorded the same mode of surprise posed by Ibrāhīm after being told that he would be getting a child, and specifically highlighting the word *al-Kibar* (الكبر) as he was too old to normally have a child:

He (Ibrāhīm) said, 'How can you give me such news when old age has come to me? What sort of news is this?' (al-Quran 15:54)

Prophet Ibrāhīm ended up being granted with two children who are Ismail and Ishaq. Ibrāhīm praised Allah for the great blessing while describing the fact that he received both of them when he was already at old age, he said:

Praise be to God, who has granted me Ishmael and Isaac in my old age: my Lord hears all requests! (al-Quran 14:39)

3. *al-'Ajūz (العجوز)*

This term is derived from the root letter ع – ج – ز which brings the basic meaning of weak and restricted strength (Ibn Manzūr, 1993, p. 280). However, the word *al-'Ajūz (العجوز)* specifically refers to elderly woman (Ibn Fāris, 1979). As such, this term was also mentioned by the Prophet PBUH in a number of occasions. A direct example is this narration below:

لَقِيَ رَسُولُ اللَّهِ ﷺ جِبْرِيْلَ فَقَالَ: يَا جِبْرِيْلُ إِنِّي بُعِثْتُ إِلَى أُمَّةٍ أُمِّيَّةٍ مِنْهُمْ
الْعَجُوزُ وَالشَّيْخُ الْكَبِيرُ وَالْغُلَامُ وَالْجَارِيَةُ وَالرَّجُلُ الَّذِي لَمْ يَقْرَأْ كِتَابًا قَطُّ

The Prophet PBUH met Jibra'il and said: 'O Jibra'il! I have been sent to an illiterate nation among whom are the elderly woman, the old man, the boy and the girl, and the man who cannot read a book at all.' He said: 'O Muhammad! Indeed, the al-Quran was revealed in seven modes.' (Al-Tirmidhī, Sunan, Hadithno: 2944).

There are only two verses which use the specific term *al-'Ajūz (العجوز)* in the Al-Quran, where both refer to Sarah, the wife of Ibrahim, as she expressed her amazement upon receiving the news from the group of angels that she would bear a child at her old age, after being barren for a long time. Allah recorded her words, saying:

She said, 'Alas for me! How am I to bear a child when I am an old woman, and my husband here is an old man? That would be a strange thing!' (al-Quran 11:72)

While in another verse, the same word is being repeated:

His wife then entered with a loud cry, struck her face, and said, 'A barren old woman?' (al-Quran 51:29)

4. *Arzhalu al-'Umr (أرذل العمر)*

This unique phrase consists of two basic words. The first word is *Arzhalu (أرذل)*, derived from its root letters ر – ذ – ل which means being inferior or lowly (Ibn Manzūr, 1993). While the second word *al-'Umr (العمر)* is derived from ع – م – ر which means age. Thus, the phrase *Arzhalu al-'Umr (أرذل العمر)* gives the meaning of inferiority and low quality of age, that is being old, senile and weak (Ibn Fāris, 1979).

The Prophet PBUH used this term expressing the phase of old age that we need to ask Allah from being afflicted with it,

اللَّهُمَّ إِنِّي أَعُوذُ بِكَ مِنَ الْبُخْلِ، وَأَعُوذُ بِكَ مِنَ الْجُبْنِ، وَأَعُوذُ بِكَ مِنْ أَنْ تُرَدَّ
إِلَى أُرْدَلِ الْعُمْرِ، وَأَعُوذُ بِكَ مِنْ فِتْنَةِ الدُّنْيَا، وَعَذَابِ الْقَبْرِ

O Allah! I seek refuge with You from miserliness, and seek refuge with You from cowardice, and seek refuge with You from being brought back to (senile) geriatric old age, and seek refuge with You from the affliction of the world and from the punishment in the Hereafter (al-Tirmidhī, Sunan, Hadithno: 3568).

In the al-Quran, the same phrase can be found in two verses from two different surahs, referring to the stage of old age accompanied by the weak state of mind and memory. Allah says:

It is God who has created you and in time will cause you to die. Some of you will be reduced, in old age, to a most abject state, so that, after having knowledge, they will know nothing at all: God

is truly all knowing and all powerful. (al-Quran 16:70)

Allah repeated the same phrase, highlighting the issue of old age in another verse:

People, (remember) if you doubt the Resurrection, that We created you from dust, then a drop of fluid, then a clinging form, then a lump of flesh, both shaped and unshaped: We mean to make Our power clear to you. Whatever We choose We cause to remain in the womb for an appointed time, then We bring you forth as infants and then you grow and reach maturity. Some die young and some are left to live on to such an age that they forget all they once knew. You sometimes see the earth lifeless, yet when We send down water it stirs and swells and produces every kind of joyous growth. (al-Quran 22:5)

Both verses show how the development of every individual moves from one stage to another stage in life until they reach the old age where they are powerless, and they keep on forgetting things they have known since before.

Thus, it is clear from the previous analysis that there are a variety of expressions being used in the al-Quran and prophetic Hadith to signify the issue of old age, showing their distinct characteristics accordingly. For instance, the word *al-Shaykh* shows the feebleness of the physical condition, while the word *al-Kibar* focuses on the last phase of age. Next, the word *al-'Ajūz* reflects the deficiency of strength. The word *Arzalu al-'Umr* highlights low quality of intellect (at-Tabarī, 2000). Generally, an elderly is a person who is at his late age, being feeble, powerless and mentally weak.

Thus, it is clear from this brief analysis that there are a variety of expressions being used in the prophetic Hadith that mention the issue of old age, showing their distinct characteristics accordingly.

Methods

This qualitative research was conducted to define and explore the halal hospitality for senior citizens in Malaysia. Qualitative research is a scientific method of observation to gather non-numerical data. This type of research "refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and description of things" and not to their "counts or measures".

Data were gathered inductively through library research utilising secondary data obtained from journals, books, seminar papers, internet resources and official news reports related to the field of study to discover the existing concepts and main features. After an analytical study, the researchers then deduced three important elements namely: (1) *al-Ihsān (الإحسان)*, (2) *al-Hikmah (الحكمة)*, and (3) *al-Tadarruj (التدرج)*, in order to improve the elderly hospitality.

Discussion

Challenges within Current Elderly Caretaking

Tracing back the history of the elderly caretaking system in Malaysia, the government has been exerting their earnest effort in dealing with the issue. In 1982, the country joined the 1st World Assembly on Ageing held in Vienna, Austria, which later geared the idea of producing the National Policy for the Elderly in 1995 (United Nations, 1982).

The initiative continued with the formation of the National Consultative and Advisory Council of Ageing (NACCE) in 1996. The National Policy of the Elderly was then reviewed and updated to a new National Policy of Older Persons and it was endorsed by the government in 2011 (Zaimi Abdul Rani, 2007).

Prof. Dr. Tengku Aizan, the founding Director for the Institute of Gerontology, UPM has produced a thorough study on 'Population Ageing in Malaysia' and she outlined 5 different domains of issues in addressing the problem of population ageing, namely: Health, Economics, Social, Psycho-spiritual and Environment (Tengku Aizan, 2015). The study also presented the progress of the existing caretaking effort in Malaysia and suggested initiatives to improve the system before reaching the aged nation status by 2035 (Abdul Rahim *et al.* 2018).

The rising concern on the elderly's well-being resulted from the study on statistical data on population ageing in Malaysia where the population of the aged persons has been drastically increasing and projected to double in number that might disrupt the social structure and affecting the lifestyle, functions and systems of the community as a whole.

This study proposes a division of the challenges faced within the current caretaking system of senior citizens from three different perspectives. The list of issues presented can be narrowed down involving the three different groups of social institution mainly: the family unit, the society and the government.

1. Family — Burden of caregiving & financial status

The traditional practice that has been the dominant norm in the Asian families' culture is to take care of the elderly which is an act of filial piety. The adult children will continue to look after their elderly parents causing an active intergenerational interaction within the extended family involving themselves, their children and the grandchildren.

As technology advances, cost of living increases and job opportunities flourish at distant urban cities, which lead to many adult children favouring migration to faraway cities to improve their life, where they must leave their parents behind (Tengku Aizan, 2015). This separation causes disintegration of the extended families creating multi nuclear families living far away from each other.

When one of the adult children takes in his elderly parents, he ends up facing hardship dealing with them. These adult children are often coined as the sandwich generation, being caught in the middle of handling two different generations who are their parents and young children where all of them are fully dependent and need careful attention. Meanwhile, they are struggling to make ends meet with their life especially in terms of financial.

Since 2004, the Department of Social Welfare (DSW) as the key government agency that focuses on the protection for older persons, has initiated various social assistance schemes to support the elderly. Among these programmes are the Financial Assistance Scheme for Older Persons (Skim Bantuan Orang Tua, BOT) which is a federal-funded cash transfer programme for the elderly who have no sources of income and no family support to sustain their livelihood.

Besides that, they also founded the Bed-ridden Disabled or Chronically Ill Care Aid (Bantuan Penjagaan OKU Terlantar) to reduce the burden of full-time family caregivers who are taking care of the disabled or chronically ill elderly, who are bedridden. Since welfare assistance is not a norm, most of the older persons' incomes come from retirement schemes such as the Employees Provident Fund (EPF) which offers a saving vehicle for retired workers, or schemes from private pension industry such as the Private Retirement Scheme (PRS), 1Malaysia Retirement Savings Scheme (SP1M) and other saving instruments.

Nevertheless, some of these schemes were not used effectively due to having fewer participants, in addition to the low level of savings in those schemes. EPF as the most participated scheme is doubted in its adequacy as a retirement saving for two reasons: the increase of life expectancy and the minimum amount of savings. Additionally, statistic shows that most elderly parents finish up their savings from their EPF (Employees Provident Fund) within the first three years after retirement (Tey, 2017).

Thus, the jumbled situation causes distress in the nuclear family where they end up abusing their elderly parents unknowingly or making them feel extremely lonely because they are left alone most of the time at the house, which actively contributes to the deterioration of their health mentally and physically due to lack of attention and care.

These challenges faced by the adult children in the nuclear family cause many elderly to be neglected, to the extreme point where there are cases reported that the elderly parents are left unattended at the hospital for a long period of time because of the stress and burden for not being able to give adequate caregiving.

2. Society — Stereotyping Elderly as Taxing

General Ban Ki Moon, as quoted by Tengku Aizan (2015, p. 55), during the celebration of the International Year of Older Persons, 2013 gave a great message regarding the elderly,

Older persons make wide-ranging contributions to economic and social development. However, discrimination and social exclusion persist. We must overcome this bias to ensure a socially and economically active, secure and healthy ageing population. On this International Day of Older Persons, I call on countries and people to commit to removing barriers to older persons' full participation in society while protecting their rights and dignity.

As an effort to fulfil the objectives shared by the General, Malaysia begins several initiatives under the body of the National Consultative and Advisory Council of Ageing (NACCE) that has been developed to achieve certain objectives including development regarding community activities and social care.

Among those efforts are the expansion of senior citizen activity centres (PAWE) and the establishment of lifelong learning programmes based on the University of the Third Age (U3A) model, led by The Institute of Gerontology, UPM (Rahimah *et al.* 2017). In addition, the National Policy for the Elderly was adopted in 1995 and one of the strategies being highlighted in the policy is to promote self-reliance and independence among the elderly as a mean to achieve the aim of developing the elderly potential to stay productive and live independently (Zaimi Abdul Rani, 2007).

However, a challenging scene that is currently interrupting the effort to actualise the initiatives above, is the stereotypical behaviour of the people towards the elderly. When it comes with dealing with the elderly, they feel that it is troublesome to treat them very well and carefully handle their welfare, since they have always been synonymous with the state of being weak, feeble, emotionally unstable and fully dependent on others with ill-health condition.

The negative perception causes less interaction or avoidance from dealing with elderly people and it results in the difficulty for the elderly to be mixing around and interacting in the community. There are also cases where some practices and policies were regulated rooting from the stereotype of ill-treatment towards the elderly.

All the bad impressions cause another level of abuse towards the elderly that creates a culture of exclusion and prevent them from receiving their rights and freedom of interaction in various fields and activities, be it in educational events, employment, social programmes, *etc.* The World

Health Organization has defined that elder abuse as 'a single or repeated act, or lack of appropriate action occurring within any relationship when there is an expectation of trust, which causes harm or distress to an older person' (WHO, n.d).

A study by the Institute of Gerontology on the 'Perception, Awareness and Risk Factors of Elder Abuse' 2006 was done to establish the prevalence rate of elder abuse in Malaysia. Unfortunately, the data on elderly abuse are insufficient and it shows how low the level of awareness and prioritisation among Malaysians concerning the elderly abuse.

With an active research study being conducted and the results being highlighted to rectify the mistreatment of the society towards the older persons, the elderly have the potential to be independent and are able to contribute to the society to their level best of ability if given the chance and space. They are also able to socialise with others if the environment is set in an elderly-friendly setting.

3. Government — Lack in specifying strict law and statutes for elderly

The government inevitably plays a critical role in maintaining a harmonious society that interacts well without discriminating any group of people, despite their weaknesses in terms of age, background, health, etc. Thus, government intervention is crucial in helping to control and raise awareness of elderly care when it comes to their well-being.

Any miscalculation or neglect with regard to the caregiving of the elderly will greatly harm the whole nation in various perspectives especially from the health and economic domains. While Malaysia expects to become an ageing nation in 2035, the effort to deal with the consequences has to be actively executed before it causes a downfall to the whole system in the country.

From the health perspective, NACCE has also initiated the effort to promote healthy ageing. The task was executed in 1996 by the Ministry of Health in creating health care services uniquely for senior citizens. The project reached 78% coverage to all primary health centres in 2009. The package of health care being offered combines health education, health assessment, treatment, counselling, visit to home, rehabilitation and social welfare (Tengku Aizan, 2015).

There were guidelines being provided as a framework on how to deliver the service: such as the Clinical Practice Guidelines on Management of Dementia that was set in 2003 and updated in 2009. The Elder Health Care Act is established to make sure that the initiative is being executed and updated, while the private sector contributes by developing special projects with regard to the caretaking of the elderly, such as building senior housings and dedicated rehabilitation hospitals for specific use by the senior citizens.

In public hospitals, there is a too limited number of geriatricians assigned at five geriatric units, which have only less than 150 beds altogether to accommodate over 1.4 million elderly people who need treatment (Tey, 2017) with only 10 public hospitals with geriatric wards at the moment (Tey, 2017). At the same time, the Ministry of Health provides post-basic geriatric care to over 22,015 medical workers. Extra provisions were suggested for a more elderly-friendly environment, especially in terms of the interior structure design and shortening their waiting time. Yet, the challenging part occurs when implementation is not taken seriously and carried out properly.

Prof. Dr. Siti Zahrah, from the Prevent Elder Abuse and Neglect Initiative (PEACE) which is a research group from University Malaya, found in their survey that at least one out of 10 elderly people is experiencing abuse in the urban area, while the figure is one in 20 in rural areas (Choo et al. n.d.). They suggested

that the most crucial action to be taken in order to deal with the issue of the elderly is to push for a specific law for them to protect their right (Indramalar, 2017).

Currently, there are statutes that may govern their welfare and rights, but it is generally implemented for everyone without special attention being given to defend the elderly status in the community from the danger of being neglected by their family or mistreated by the community. The purpose of executing a strict law is not meant to cause hardship, but it should cause more attention to be given on the awareness of their existence and recognise their role in society.

The government should also provide extra support especially for the family facing financial burdens by introducing a higher tax reduction for families taking care of their elderly and ease efforts for them to get financial relief in order to deal with their extra expenses. At the same time, they should promote positive habits in financial management to prepare them for their old age.

Currently, Malaysia does not have a universal social security and protection system in taking care of the welfare of the elderly. Thus, it is difficult for them to protect themselves from being taken advantage of especially in terms of financial. Therefore, they end up facing poverty and depend wholly on their adult children for their financial support.

Result

Implementations on Halal Hospitality in Elderly Caretaking

In order to offer a holistic approach to improve the caretaking system and fulfil the required standard that Islam highlights, this study suggests these four important concepts to be applied in every area especially within the three domains mentioned above, from the perspectives of family, society and government.

The three crucial key-concept to be instilled in all initiatives and services that the study would encourage to suggest are: (1) *al-Ihsān* (الإحسان) that focuses on quality performance and qualified personnel (2) *al-Hikmah* (الحكمة) which prioritises compatibility in services offered (3) *al-Tadarruj* (التدرج) as a gradual yet efficient process on the implementation of policies in elderly caretaking.

1. al-IHsān – Quality

This concept shows how Islam highly emphasises on making sure that every deed and action is done in the most qualified manner with optimised quality. This is because the main concern of evaluation by Allah on the day of judgment is the quality of the effort, not the quantity. Ismail (2011) as mentioned by Achmad Sani (2016, p. 7679), revealed that "*Ihsān* behaviour is the optimization of work and action, and carries out duties in accordance with good performance and high quality".

The Prophet PBUH once reminded the best way of understanding the concept of *Ihsānis* by relating it to a situation where one will make sure to uphold a task with utmost quality since he realises that he is being watched and observed. The Prophet mentioned this during the unique event where Gabriel came to the Prophet and asked questions. Umar ra mentioned,

Then he further asked, "What is Ihsān (perfection)?" The Prophet PBUH replied, "To worship Allah as if you see Him, and if you cannot achieve this state of devotion then you must consider that He is looking at you." (al-Bukhari, Hadithno: 50).

While in the al-Quran, Allah says:

(It is Allah) who created death and life to test you (people) and reveal which of you does best--He is the Mighty, the Forgiving. (al-Quran 67:2)

The verse above indicates that the purpose of life and death being created is as a stage to assess the believers whom amongst them are of the best quality of deeds, rather than highlighting the issue of a large number of deeds (Ibn Kathir, 1999).

This is also true in the effort to increase the quality of the caretaking of the elderly, which is crucial at every level, be it from the family, society and government perspectives. A family who observes a well-arranged routine in taking care of the elderly would help to increase their well-being be it psychologically since they will not feel lonely and emotionally abused. In terms of health, they are well taken care of, thus decreasing the need to spend much money on medication and even spending too much time to take care and regularly accompany them for health assessment.

Good financial management will also help the nuclear family to manage their expenses well as enough savings is prepared and wastage is prevented from spending on unnecessary expenses. This will lead to a quality way of life which prevents the elderly from being stranded and left unattended, as they might be considered to be a burden being fully dependent on their adult children, while they are financially broke. Rather, if a quality wealth management is applied, they will now be a source of happiness for the whole family because of them being well taken care of.

The same goes to the society level, with high courtesy and deep respect towards the elderly will help improve and provide a healthy interaction amongst the subject of the community. This involves a good quality of neighbourliness in a restricted neighbourhood area, where welfare and security awareness are highly encouraged and practised by every individual involved. Thus, this will promote active ageing among the elderly as they can contribute to the community without being discriminated.

From the government's point of view, as research continues being conducted, the data gathered by qualified professionals will increase the understanding of the real scenario, thus increasing the quality of the ideas on the efforts that need to be implemented for improving the services available. For example, from the aspects of healthcare, the government can always reflect on the changes in the data collection and set a high-quality standard in the healthcare services that ease the process of caretaking the elderly.

Allah encourages this practice of *Ihsān* in many verses, one of them saying:

God commands justice, doing good, and generosity towards relatives and He forbids what is shameful, blameworthy, and oppressive. He teaches you, so that you may take heed. (al-Quran 16:90)

Allah highlights that as He has perfected His treatment for the believers, thus the believers should also perfect their effort to fulfil their responsibilities in fulfilling the rights of Allah and the rights amongst themselves, which include the rights of elderly people. He says:

Seek the life to come by means of what God has granted you, but do not neglect your rightful share in this world. Do good to others as God has done good to you. Do not seek to spread corruption in the land, for God does not love those who do this. (al-Quran 28:77)

2.al-Hikmah — Wisdom

Another important key-concept to be applied for improved halal hospitality towards the senior citizens is *al-hikmah* or the practice of wisdom. Allah has always described himself in so many verses, as the possessor of ultimate wisdom that is *al-Hakim* (الحكيم). This is due to the fact that He has been administering the best and most appropriate system and management that is suitable for the entire worlds and even suitable for each single created being. Allah says:

God made this a message of hope to reassure your hearts: help comes only from God, He is mighty and wise. (al-Quran 8:10)

Al-hikmah or wisdom is often represented by a set of actions implemented using a suitable method, performed at the appropriate situation (al-Mustafa, 2017). Thus, this concept brings a broad paradigm on how to look at the compatibility of each case with regard to dealing and handling the senior citizens.

As different family has different conditions, different community has different surroundings, and different level of governmental agencies has different focuses and policies. These show how important it is to have a detailed method in dealing with repeated cases such as the matter of chronic illnesses shared by many elderly, and unique situations which might be faced by only a small number of them.

The personnel involved in dealing with the elderly should be chosen from those having a high level of alertness to the unique condition of the elderly. For them to be trained with an important method or basic geriatric treatment would really help build a more effective interaction. Thus, more elderly would be able to safely be active mixing around and attending to any services available for them.

Allah highlights the issue of *al-hikmah* when it comes to matter of interaction and inviting to goodness, where He says:

(Prophet), call (people) to the way of your Lord with wisdom and good teaching. Argue with them in the most courteous way, for your Lord knows best who has strayed from His way and who is rightly guided. (al-Quran 16:125)

It is important to highlight that to reach the perfect compatibility in any system has never been an easy task. It is relatively difficult, but such is a normal procedure where continuous trial and error in perfecting the method or the service is practised until a set of the standard operating procedure is regulated for anyone who will be dealing directly with any elderly to offer their services in the later time. This part on continuous improvement will later be explained in the next key concept.

3.al-Tadarruj — Gradation

The effectiveness of implementing the first and the second key concepts would unlikely be able to realise, at all levels, in a short period of time. That is why, time is an important element that needs to be entertained and well considered in planning for a wholesome effort that involves a nation.

That is the very reason why we have been exposed and trained to the fact that the best result is attained through procedures of going through stage by stage process, without being too rushing in getting a quick result, since most of the time the quality of outcomes from a rushed effort will be low and unfulfilling.

A clear example is shown from the process of the revelation that came down to the Prophet PBUH in a gradual manner. It triggered the disbelievers to pose an argument of why it had not been similar to the previous scriptures that were sent

once in just a package. Allah answered the question in the al-Quran, saying:

The disbelievers also say, 'Why was the al-Quran not sent down to him all at once?' We sent it in this way to strengthen your heart(Prophet); We gave it to you in gradual revelation.(al-Quran 25:32)

He explained that the gradual process helped the message to be effective in training the Prophet's durability and sustainability in the long run of spreading the message, thus easily developing a stage by stage method of implementation, especially when it comes to specific rulings such as the issue of prohibition of wine as narrated below:

When the prohibition of wine (*Khamr*) was yet to be revealed, 'Umar said: O Allah, give us a clear ruling on wine. So, the Verse in al-Baqarah was revealed: "They ask thee concerning wine and gambling. Say: In them is great sin...". 'Umar was called and then it was recited to him.

Then 'Umar said: O Allah, give us a clear ruling on wine. So, the Verse in An-Nisā' was revealed: "O you who believe! Approach not *as-Salāh* (the prayer) when you are in a drunken state". And when the *Iqamah* for prayer was said, the caller of the Prophet PBUH would cry out: "O you who believe! Approach not *as-Salāh* (the prayer) when you are in a drunken state." 'Umar was called and this was recited to him.

Then he said: "O Allah, give us a clear ruling on wine." Then the Verse in Surat Al-Mā'idah was revealed and 'Umar was called, and it was recited to him. When he reached the words: "So, will you not then abstain?" 'Umar said: We have abstained, we have abstained (al-Nasā'i, Hadithno: 5540).

The three stages of prohibition begin with merely comparing the harm and the benefits. It is continued by requesting them not to go to pray in the state of being drunk, which later reaches the final stage of complete prohibition, where Allah revealed in the al-Quran saying:

Will you not give them up? You who believe, intoxicants and gambling, idolatrous practices, and (divining with) arrows are repugnant acts — Satan's doing— shun them so that you may prosper. With intoxicants and gambling, Satan seeks only to incite enmity and hatred among you, and to stop you remembering God and prayer. (al-Quran 5:90–91)

A clear proof on how the gradual process had a great impact on the believers at the time is significantly shown from the serious response as recorded in the narration as related by Anas b. Mālik, where he said:

I was serving drink to Abu 'Ubaida b. Jarrāh, Abu Talha and Ubayy b. Ka'b prepared from unripe dates and fresh dates when a visitor came, and he said: Verily liquor has been prohibited. Thereupon, Abu Talha said: Anas, stand up and break this pitcher. I stood up and (took hold) of a pointed stone and struck the pitcher with its lower part until it broke into pieces. (Muslim, Hadithno: 4889)

al-'Uthaimīn (2002) explained that the gradual process of legislation is needed before reaching the stage of perfection, the way it was shown in the revelation of verses on the prohibition of wine where people begin to be alert and aware of the issue until they are accustomed to the final instruction. Otherwise, it might be difficult for them to submit to a sudden instruction if Allah revealed only a single verse on total prohibition. Therefore, Allah gradually entertained their need and trained their level of obedience through different stages.

This is also true in the sense for the preparation of the

country before reaching the status of an ageing nation. Ever since the 1st World Assembly on Ageing, held in Vienna, Austria in 1992, countless efforts and initiatives have been done and performed, where the results and achievements are so significant that they have helped and assisted many among the elderly.

Later, policies and statutes were outlined for the government and private agencies to heed as a guideline for them to perform any projects that will greatly benefit the increasing number of senior citizens. These policies were then revised and updated from time to time in response to changes and updated research data from every agency involved.

Any desperate and hasty measures might cause greater damage later on since forced effort is usually disliked and causes distress among those involved, and worse it might result in dangerous stereotype towards the elderly where people might end up having the perception that they are the reason for this confusion.

Conclusion

The main objective of the initiatives from both the government and non-government authorities in providing finances, social and health care to the elderly is to promote active and healthy ageing. These initiatives include the National Policy for the Elderly, BOT, Bed-ridden Disabled or Chronically Ill Care Aid, EPF, PRS, SPIM, PAWE, geriatric ward and many more. As the ageing population increases, this can be considered as an opportunity for the development of the country by utilising their experience and knowledge. Otherwise, mistreating and demeaning their status will only cause more complications and problems as they will end up becoming the subject of neglect and abuse.

This research is important due to the fact of the rapid changes that are happening in the country which influence the caretaking system from multiple perspectives. Immediate and serious measures need to be executed to prevent greater harm inflicting the elderly specifically and the whole nation generally.

Therefore, the study suggested the three key-concept for Halal hospitality, which are *al-Ihsān*, *al-Hikmah* and *al-Tadarruj* to be incorporated in all policies, programmes and initiatives that are currently ongoing and which are yet to be implemented. It is hoped that a continuous research and evaluation will be conducted further to equip the government and agencies involved with more updated and relevant data.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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Unani medical tourism in India: Scope, influential factors, development strategies

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Abstract: India is highly prosperous in a wide network of both conventional and alternative medicinal range. The term medical tourism has become famous due to its urgent necessity and desperate requirement among medical seekers. Herbal healthcare therapies are rapidly gaining ethical significance to suffice the medical tourists' needs. This paper focuses on the amalgamation of Unani medical system with tourism. Furthermore, it identifies the components of health in Unani system along with the factors determining medical tourists to choose this therapy with both domestic and international respondents. Finally, this study concludes with elements affecting travel frequency among medical tourists and the scope of Unani medical tourism in India. Thus, striving to find the best solution to promote Unani tourism and a healthy lifestyle.

Keywords: Unani system of medicine; Pearl-Marwareed; Aquaculture practice; safety contour; sustainable strategies.

Received: 30th October 2019

Accepted: 3rd February

Published Online: 2nd March 2020

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Citation: Rabbani M, Syakirin K, &Muflih BK. Unani medical tourism in India: Scope, influential factors, development strategies. J Halal IndServ 2020; 3(Special Issue): a000059. <https://doi.org/10.3687/jhis.a000059>

Introduction

Medical tourism is a phenomenon that refers to medical tourists travelling outside their residential area in order to obtain medical needs for a healthy life. This could include both domestic travel across the country and international travel across continents. Recent studies showed "India has emerged as one of the leaders in promoting medical tourism" (Ahmed, 2017). Many patients have been travelling across nations in recent years to receive the best quality medical treatments for various illnesses. Although rural people have been travelling to high tech urban areas for many decades, this dimension has been in the lighter shade of limelight compared to the recent years of international

medical tourism.

India is the world's largest producer of generic medicine and there is a wide scope for medical value travel to India, both in conventional and alternative medical treatments (India, 2018). The Unani medicinal system has its origin in Greece and was initially conceptualised by Hippocrates (460–370) and the term referred to Perso-Arabic traditional practice. After which the Roman, Persian and Arab scholars contributed to the enrichment of the traditional Unani medical science. Galen (131–210) secured the foundation, thus allowing* the great Arab physician like Ibn Sina to construct a remarkable edifice. Soon after this bridge, it stretched its roots to a different geographical belt which influenced the development of Unani medicine.



Figure 1. Expansion of Unani system across geographical belts (Author's source)

Figure 1 illustrates the geographical area through which the Unani medical system has expanded and bloomed, gaining popularity in various zones. Medical tourism has rehabilitated to traditional medical care therapies, herbal health care units and set a new benchmark for many countries across the globe. More medical tourists are travelling to India to seek the best alternative medical treatment. Apart from international medical travellers, it also opens the way for rural medical seekers to approach these systems. However, the rise in medical tourism for alternative medicine both domestically and internationally has widened up opportunities to enhance Indian comprehensive medicinal systems such as Ayurveda, Yoga, Unani, Siddha, and Homeopathy which are then abbreviated as AYUSH. AYUSH is a governmental Indian body educating, developing and conducting research in Indian traditional medicine. This body was created in the year

1995 and operated itself under the Ministry of Health and Family Welfare for a few years. Later it received its current name AYUSH in 2003, forming Ministry of AYUSH in 2014.

Materials and Methodology

Overview of Unani system

This system conscientiously deals with the state of the body (health) and its equilibrium (body function). According to Itrat (2016), Unani fully appreciates and understands the creation of man, his nature, his constitution and his relationship to the environment. In corresponding to Unani, health is classified into six components based on Scientific Proposition and Insights based on Wisdom (*Hikmah*).

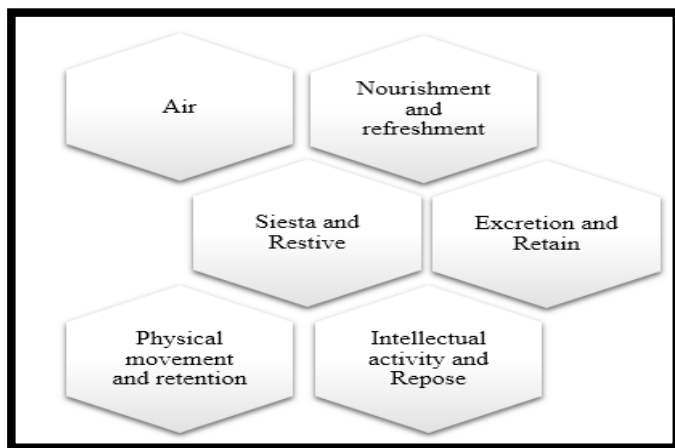


Figure 2. Components of Health in Unani system (Author's source)

Figure 2 explains the components of health according to Unani but this "theory is having an indirect partial similarity with the accepted definition of health as a state of physical, mental and social welfare" (Ahmed S., 2007). These components were derived after in-depth interviews with several Hakeem (Unani physician) in different parts of India.

Emergence of Unani system in Indian Structure

India is very popular for its oldest civilisation which dates to more than 5000 years along with its rich multifarious religious and cultural diversities. Indigenous Indian systems of medicine include Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH), and "all these traditional healthcare systems are attracting national and international patients and generate tourism flows" (Naaz, 2016). "AYUSH refers to traditional and non-allopathic medical systems in India" (India, 2018).

After the growth of Unani medicine outreach, it stretched its roots deeply and established its integral source in a country filled with prosperous inherited biodiversity of flora and fauna which strengthens the system to research and explore the health problems in the recent generation and to obtain solutions with the power of ethnobotanical knowledge. An initiative taken by the Indian government is by promoting the traditional Indian healthcare systems and the "direction has been to mainstream AYUSH under National Health Mission (NHM)" (Naaz, 2016).

Unani medicine education in India is governed by the Central Council of Indian Medicine (Govt. of India) (Ahmed S., 2007). The central council for research in Unani medicine has eight regional research centres in "Chennai, Bhadrak, Patna, New Delhi, Mumbai, Kolkata, Aligarh and Srinagar" (Naaz, 2016). The regional institutes at Hyderabad and Chennai have been serving as a famous destination for medical tourism in respect to the treatment of vitiligo (skin ailment), joint diseases and other dermatological issues. The centre's clinical research on vitiligo in Hyderabad along with research studies in cosmeceutical effects of Unani drugs in Chennai has become a huge success by popularising Unani system and attracting not just domestic patients but also international medical tourists from "developed countries like USA and UK" (Naaz, 2016).

Significance

The rise in multiple medical facilities with well-equipped technology is a major factor for the growth of medical tourism. High-value services provided by the physicians create an ambience for medical tourists which is convenient and efficient for developing and strengthening a better doctor-patient relationship. Therefore, expanding the facilities worldwide by analysing

the scope and determining the factors which inflate the choice of Unani treatment is beneficial and effective. Based on the elements that affect travel frequency among patients, it could make this specialised service industry improve the standard of providing appointments to its medical tourists in the prescribed given time. These aspects will bring sufficient enlargement and room for improvement in guest service. An amicable environment with better service staff and a good physician is of paramount importance. Furthermore, creating a record of Elevated Indian Physicians with a high level of medical training in the specialised field makes it a suitable estate for medical tourism.

Islamic Approach towards Unani

Unani is originally a Greco-Islamic Medical system, which inherited the innovation in the medicinal field by several Muslim physicians. One such specific Muslim scholar named Ibn Sina is popularly known as the "Prince of Physicians" (Ahmed, *et al.*, 2011) by the Latin Scholars because of his magnificent work called *Al-Qanoon fi al-Tibb (The Canon of Medicine)*. Furthermore, this renowned scholar produced many books and his fame chiefly rested on his two books namely *The Canon of Medicine* and *Kitab al-Shifa*. Due to his profound masterpiece, these books were considered as the two main encyclopaedias used by many countries in their scientific medical research.

The prime goal of health promotion in this *holistic form* of medicine (Unani) is only through the improvement of *Tabiyat* (Immunity) (Lone, *et al.*, 2012). According to this form, anything in excess leads to harm, in reference to Hakeem al-Ruhawi who stated in his 'Adab el-Tibb' that any excess which appears is due to excessive eating and drinking or harmful use of these two (Irfan, 2011). However, Islam encourages Muslims to eat in moderation because of its beneficial factors. The following verse from Surah al-Araf clearly explains that human is ordered not to commit excess in any way. As Allah SWT has instructed

"eat and drink and do not commit excesses; indeed, He does not love those who are excessive" (Translated, 2008)

Additionally, it improves self-control and instigates perfect changes in one's character, health and elevates the essence of spirituality. Thus, Unani medicine is referred to as the Halal version (Islam & Chandrasekaran, 2013) of the Indian nutraceutical in relation to nourishment and pharmaceutical drugs. This is because of its natural composition which caters the needs of Halal conscious purchaser and those with a specific religious belief like Vegetarians.

Recent research by Jawad Alzeer, a Senior Research Scientist working on Halalopathy (Cochrane, 2019) reported that it is an old concept with new terminology. This approach was advanced by ancient Greeks which was then promulgated by Muslim polymath like Ibn Sina whose influence still prevails in countries like India, Pakistan as a traditional medicinal system called Unani. Consequently, this health therapy, which is Muslim friendly, can have a huge impact in Muslim majority countries like Malaysia, Indonesia and Brunei and has a potential market because of the rise in demand for Halal drugs among consumers. This will be a positive technique to increase Islamic economy and a way to serve not only Muslims but the whole society.

Scope of Unani medical tourism

"An increase in awareness levels on alternative medicine is inspiring tourists to embark on wellness trips or engage in wellness activities," says Mr Vijay (Karai, 2018). Perhaps it has become a wellness retreat among international and domestic medical tourists.

Basically, these three categories of patients who travel for medical tourism were the optimum outcome of the survey

among Unani medical tourists;

1. Locals and foreigners who travel for medical treatment,
2. International patients travelling overseas for herbal treatment and leisure,
3. Emigrant or a guest worker in the host country/state.

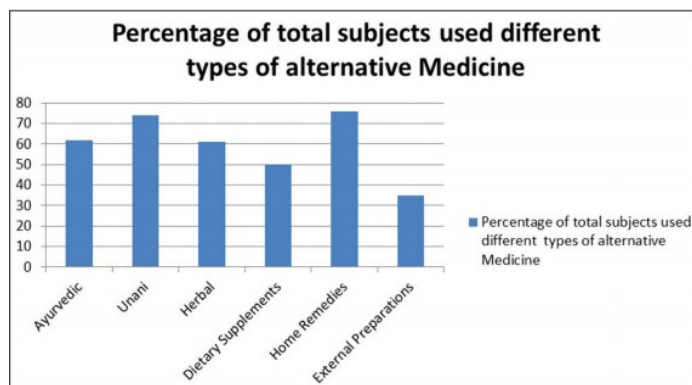


Figure 3. Preference of medical patients towards different healthcare therapies (Imran, et al. 2017)

Figure 3 shows the percentage in the usage of Unani has increased in the last few years among the domestic medical tourists and their preferences towards Unani healthcare therapy has inclined. Treatment in this therapy “includes prevention habits and management with the use of drugs from medicinal plants, herbs, minerals, metallic and animal origin” (Imran *et al.*, 2017).

Therefore, the above analysis magnifies that home remedies have equally seen tremendous growth besides Unani. Indeed, it is one of the familiar and customary practices prevailing among people through ages because of the simple preparation made out of obtainable resources at home. Thus, the method requires no administered prescription or professional observation. Yet, the soaring rate of both Unani and home remedies has elevated because of their benefits and restoring properties.

Executed Technique

An exploratory study was carried out to understand the concept of Unani medical system and to investigate the factors that drive patients’ demand and choice of this alternative medicinal system in India. Self-administered questionnaire was distributed to 200 domestic medical tourists across India with 50 international patients in various Unani dispensaries and Unani Govt College, Chennai. Most importantly, among 250 distributed questionnaires, only 172 respondents were used for further data analysis. Direct respondents’ answers were collected from different dispensaries and clinics in South India and online questionnaires were circulated among the rest. One-to-one interviews were conducted with Unani medical practitioners to further enhance the quality of the research.

Table 1. Stakeholders in traditional healthcare system

Stakeholders	No. of respondents
Indian medical tourists (North & South)	148
International medical tourists	7
Government Unani Administrators	3
Public clinic Unani Hakeem	4
Private dispensaries Unani Hakeem	6
Unani Pharmaceutical companies (Admin)	4

Data Analysis

Respondents’ profile

The participants shared their views on the Unani system, and opinion to spread the benefits of this medicinal method. They answered a 4-page survey sharing their experience of travelling to different cities for better treatments and the causes for seeking medical advice in another locality. Basic questions focused on the profile of the respondent and the remaining questions were focused mainly on factors, past medical history of Unani, sources who recommend travelling for this treatment and number of average travels per year domestically and internationally.

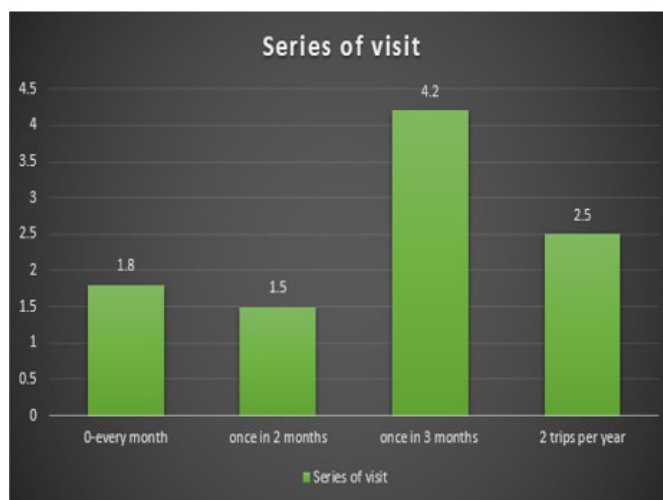
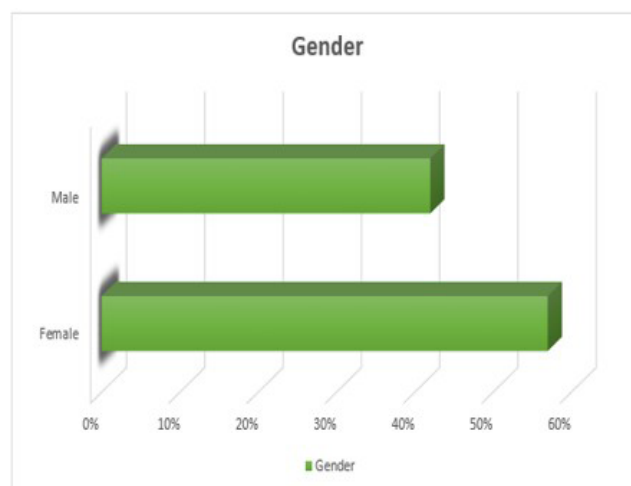


Figure 4. Gender and average travel per year

Figure 4 shows the number of female respondents was more compared to males as the health issues were more related to women such as fertility, thyroid, menopause, urinary tract conditions and PCOS. Male respondents were usually diagnosed with kidney bladder stones and liver ailments, high blood pressure, diabetes and heart health.

Factors determining the choice of Unani medical system among medical tourists

Realising the numerous benefits with the tremendous potentiality to treat diseases with no or comparatively minimal effect on the patients, Unani has gained fame across continents. This would have happened due to several inspiring factors; to list one such reason could be a Good Medical Physician’s virtuous behaviour towards his/her medical patient who travels from a different region plays an essential role in the arena of medical tourism.

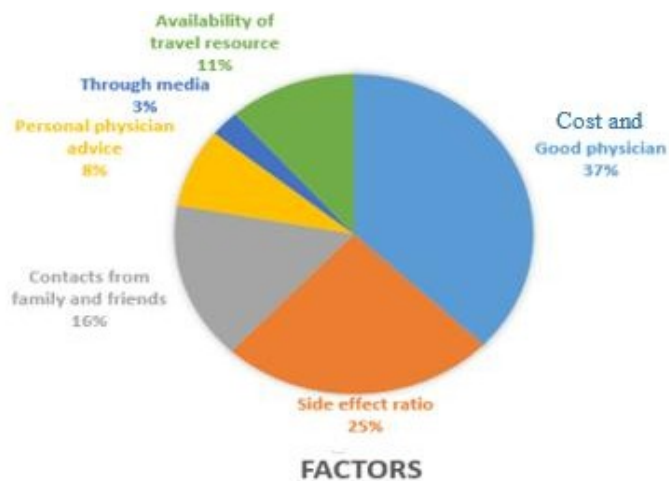


Figure 5. Factors determining the choice of Unani system among medical tourists

Based on the limitation of the respondents, the following results were evaluated based on their criteria and vital needs. Figure 5 explains the various factors that influence the choice of Unani. According to the respondents, these factors looked appealing when seeking medical treatment, above all these factors, the first “Core determinant was Cost and Good physician” for choosing this therapy. International respondents chose India because of its famous herbal heritage and the treatment is much cheaper than any other country.

The majority of the international medical tourists were from Malaysia and Singapore due to the Indian collaboration with these countries. Despite the fact of the limited sample size of respondents, the opinions and views delivered could not be constrained to the total population. Besides, their views were clearly demonstrated to comprehend the choice of Unani system and medical tourism.

Secondly, the well-known fact of side effect among the populous medical system is high, compared to this therapy. The profile of Unani drug is based on medicinal plants and herbs. Thus, making it consumable and inevitable for its consumers. Although it is known for its long-term medical treatment with no side effects, makes it more applicable for the medical tourists to travel for this eminent gem therapy.

Elements affecting travel frequency:

Figure 6 demonstrates the majority of patients prefer travelling once in every 3 months due to various reasons such as: 1. Health Condition; 2. Work; 3. Work off/Holiday; 4. Availability of Reliable Companion; 5. Affordability of Reasonable/Low-cost Travel requirements. The highest common reason for travel is health condition adjacent to the workplace scenario and a reliable companion to travel along. These are the prevalent factors based on the convenience of the medical tourists to establish a routine throughout the year. The rest of medical tourists travel based on their personal choice and availability of the above-mentioned resources.

Unani developmental strategies

Indian medical tourism developing strategies are based on Marketing Mix which includes 7 Ps (Dawn & Pal, 2011). Therefore, this study attempts to present active operation on the elaborated factors which can enhance the advancement of Unani sector not only in India but also in Southeast Asian countries like Malaysia, Brunei, Indonesia and Singapore because of its Muslim friendly nature. The following Figure 7 intensifies the 7

Ps of marketing mix strategies which are presumed to strengthen Unani Medical Tourism. Particularly this system of medicine has deep historical roots with traditional healers and practitioners with inflated international mobility. Hence, perceiving substantial development of Unani system in other countries. The rationale behind alternative medicine system is the lack of key competitors in the corresponding fields (AYUSH). Consequently, it provides auxiliary sustainability for Indian medical tourism through economic development.

Conclusion

Tourism for Unani system will soon spread the charm in the medical tourism industry. Although setbacks prevail in this traditional system, Unani is still a strong force (Irfan, 2011) which continues to spread across and improves not just Muslims’ well-being but additionally strengthens the doctor-patient relationship between non-Muslims. Another reason that will inspire medical tourists to travel would be its herbal benefits with affordable cost for the entire treatment. This will enhance the significant opportunity for herbal marketers across India for their valuable herbs and medicinal plants. Recent studies proved many physicians reported, “NCD treatment in other systems like Allopathy are very costly and the side effects of drugs are hazardous” (INDIA, 2018). Therefore, this increases the opportunity for various alternative medical therapies (AYUSH) in India. Unani’s bond with Indian soil has been generated for many distinct eras. The breathtaking combination of vibrant landscapes, diverse cultures and herbal care makes it a perfect match for medical tourism. The cooperative pact between Ministry of AYUSH and Ministry of Tourism will ultimately result in a well-defined composition in terms of promoting Indian tourism and AYUSH together. Perhaps it can intensify the herbal health care practice and improve the standard of quality between both sectors by achieving universal recognition for Eminent Unani Healthcare for domestic and international medical seekers. Indian low-cost herbal healthcare therapy creates a great ambience for international and domestic medical cost-conscious tourists who get a perfect deal of both stunning tourisms with “high-quality alternative herbal treatment facility”.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

Acknowledgement

The authors are thankful to the Ministry of Education of Malaysia for the funding through FRGS/1/2018/SSI03/UIAM/02/3grant.

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Abbreviation:**AYUSH:** Ayurveda, Yoga, Unani, Siddha, Homeopathy**NCD:** Non-Communicable Disease

Nature's Sustainable Aqua Gift — Pearl in Unani medicine

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Abstract: The Unani medical system is a holistic approach of science and the human body. It is a natural and simple method of extracting from nature and based on the way body responses. Contrary to the prevalent credence, good health is always associated with nutritious food and active lifestyle, but historical facts have laid a sturdy substructure that a natural gem-like Pearl has higher impact rate on the human body. Reports indicate that India is one of the top countries welcoming more medical tourists and the industry is expected to grow to \$8 billion this year. This paper explains the importance of sustaining the Unani system and drugs made from a component (Pearl-Marwareed) obtained from a marine animal, providing insight on good aquaculture practice in India. Hence, exploring the Islamic perspective of Unani medicine, the safety contour of the drugs and the usage of pearl in its composition. The data were collected from personal interviews with Hakeem (physicians with wisdom) across India and extensive literature. This paper recommends to promote Unani medical tourism in India. Thus, generating positive statistics and providing significant sustainable strategies for further improvement in the Aquaculture industry. Policymakers and researchers need to focus more on implementation of best techniques and technology to develop Indian traditional products and their usage in traditional medicinal system 'Unani'.

Keywords: Unani system of medicine; Pearl-Marwareed; Aquaculture practice; safety contour; sustainable strategies.

Received: 30th October 2019

Accepted: 3rd February

Published Online: 2nd March 2020

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Citation: Rabbani M, Muflih BK & Syakirin K. Nature's Sustainable Aqua Gift — Pearl in Unani medicine. J Halal Ind Serv 2020; 3(Special Issue): a0000060. <https://doi.org/10.3687/jhis.a0000060>

Unani Medical System in India

It originated in Greece, was developed by Persian and Arab physicians who brought the system to India part of the various alternative medical systems of India which include Ayurveda, Naturopathy, Siddah and Homeopathy. The Indian subcontinent has been a permanent home for the growth in Unani science and medicines. Currently, India is the global leader

of Unani medicine and has its wide network of a well-organised and functional network of educational, healthcare, research and Pharmaceutical institutions (Ur-Rahman, 2013). This system is popular among masses with Unani Hakeem (physicians & practitioner) scattered across the nation. The vital role is to form an integral part of national health care delivery structure (AYUSH, 2019)

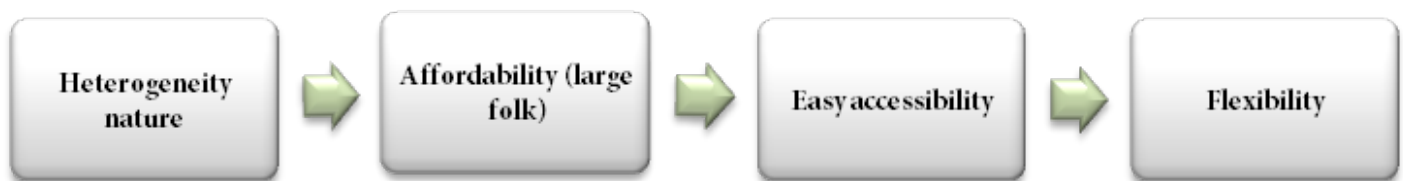


Figure 1. Advantageous attributes of Indian System of Medicine (AYUSH) (Author's source)

Figure 1 demonstrates the beneficial and advantageous attributes of the Indian systems of Medicine which include Ayurveda, Yoga, Unani, Siddah and Homeopathy commonly known as AYUSH. Tender steps are being taken by the Government and great dedication and consideration are provided to the multi-facet advancement of Unani medical system to use its potential strength in Indian healthcare services. Despite several measures taken Unani has not gained much recognition in the ultra-modern planet. According to Itrat (2016), this is due to the lack of research data and lack of adequate accepted research methodology for understanding and evaluating Unani medicine. Indeed, it is fascinating and incredible the work of these Unani practitioners and physicians in using these remarkable resources

into their drugs to cure the illness since it has become a part of the mainstream system of medicine in India, Bangladesh, the Islamic Republic of Iran, Pakistan (WHO, 2010). Although several researchers are working to find solutions for many diseases, this system still has not gained popularity in the modern world among the developers in this field, despite the beneficial fact for the patients.

Ideally, India would blend both its traditional and conventional medicinal systems to provide the best care to its medical patients in the best feature that matches each system and grants allowance to compensate each other's' weakness in the field of treatment and research.

Islamic perspective of Unani medicine

Although this formal medicine was developed by the Greek physician Hippocrates (Irfan, 2011), the latter portion was established by the Persian, Arab physicians. One such great scholar who wrote many books but one such book caught fame chiefly was '*al-Qanun*', the classical medical book in which the great Muslim physician and Polymath Ibn Sina popularly referred to as 'The Prince of Physicians' wrote and constituted the Proponents of Tibb al-Unani (Avicenna-Ibn Sina, n.d.). Eventually, this famous book became the Medical authority and influenced the development of Medical science and its therapeutics. Tibb Unani is basically Greco-Islamic medicine (Leslie *et al.*, 1992) and the literature was originally translated from Greek to Persian, then secondarily into Arabic text, by the Muslims who were non-Arabic.

Unani medicine is considered as the Halal version of Indian pharmaceuticals and drug industry (Islam & Chandrasekaran, 2013). It is the best alternative for non-alcoholic and vegetarian consumers for its Halal conscious aspect and its composition. A new term with core holistic principle has evolved in recent studies called Halalopathy (Cochrane, 2019). According to Jawad Alzeer, this Halalopathy is not new, but the approach was advanced by the Greeks and propagated by Islamic polymaths including Ibn Sina, al-Biruni and al-Razi (Cochrane, 2019) whose influence is apparently present in the Asian countries and referred to as Unani. Good health and sickness are closely related in Islam as it teaches Muslims to be more understanding of the concept of suffering and death which is considered as part of life. Muslims believe everything that is bestowed upon us is by the will of God and indeed it is a test for humanity. Thus, Prophet Muhammad Peace be Upon Him (PBUH) has shared the importance of showing respect for the body and maintaining it with good health. One such Hadith says: '*Your body has a right over you*' (Unity, 2017) and the Prophet PBUH also stated that '*Verily there is no disease that Allah has created, except that He also created its cure*' (Bukhari) (Rassool, 2014). In addition, health in Islam is based on the regime of hygiene/cleanliness which is a part of faith. Therefore, creating a better and healthy community to fight against illness. Physicians must possess the quality of mercy and without the permission of Allah it is impossible to deal with mutual respect between both parties: The physician and the patient. Consequently, in Islam, the reward of caring for a sick person is high and will be multiplied if done with proper treatment and intention.

Methodology and Data Analysis

The research was carried out based on the interest of Aquaculture in relation to its component usage in the age-old Unani system of medicine. Both primary and secondary sources were utilised to generate results. Personal interviews with several well acquainted Hakeem (Unani physician) (Usmani, 2018) were conducted to collect the data on resources used during the preparation of drugs and to compile a percentage figure based on the data received. Data on the usage of pearl as an ingredient in Unani drugs, its effectiveness, proportion and safety contour of drugs were collected and compiled through published articles and personal interviews. Information from various publications was used to analyse the current trend of Aquaculture practice in India and the significance of pearl usage in Unani.

Table 1. Medical Stakeholder roles in Traditional Healthcare system

Role in Medical system	No. of Interviewees
Government Unani Administrators	3
Private Sector Unani Hakeem	3
Public Sector Unani Hakeem	2

Interviews (n=6) were conducted both in English and Urdu. Digital recorders were used during interviews and each interview was later transcribed by the author. After successive transcription, all data were surveillance closely for potential criteria of this study.

Usage of Aqua-animal based component (Pearl) in preparation of Unani Medicine

Unani is one of the oldest medicinal systems based on its validity of principles in addition to its method of treatment. Pearls are calcareous concretions (Dubey, Dubey, Mehta, Saluja, & Jain, 2009) which are formed as protection against the minute particles or parasites which penetrate between the mantle and shell causing irritation in the mollusc. Consequently, these foreign objects deposit and form as an irregular or spherical shaped blister under the layer of the shell obtaining Pearl. The Unani common name given to pearl is 'Marwareed' (Jamal *et al.*, 2006). Very frequent usage of pearl powder is at the highest rank in the pharmaceutical and cosmetic industry. Pearl is used in ash form for its potential as an oral immunomodulator (Elahiet *et al.*, 2014). Therefore, pearl used in ash, calcinated and powder form is used to treat various illnesses which include heart weakness, myocardial degenerations, tuberculosis and habitual abortions (Elahiet *et al.*, 2014). These gems have been adored and admired as a symbol of beauty and power. Studies reported ancient Ayurvedic and Unani physicians have used powdered pearls in their medicines (Modayil & Kripa, 2001). However, they stated the whitening effect of the toothpaste was most probably due to the chemical effect. The market for halal food and products is growing robustly, both domestically and internationally (Zakaria & Buang, 2004).

Usage of pearl powder in Unani and Ayurvedic medicines is believed to generate cosmic energy and cure several illnesses (Jadhav, 2009). Whereas the unique preparation of Herbo-mineral (botanical herbs and mineral pearl) used for treating Tuberculosis, Diabetes, Asthma, cough (Wavareet *et al.*, 2014). Several preparational method this gem is mentioned in Unani therapeutics (Wavareet *et al.*, 2014).

Numerous formulations are used in different dosage for the cosmetic purpose in which the term is usually referred to as cosmeceutical. Some formulation contains a single dose of herb (plant-based), mineral/metal or animal-based origins like amla, almonds, neem, pearl, cucumber, aloe vera, clay and a few others to sought as a drug, thus (Begum & Idris, 2016) claiming to be scientifically validated to prove the accuracy of Unani medicine.

Aquaculture management in Pearl Oyster in India

Aquaculture practice is worked out on an annual basis in India (Sathia Dhaset *et al.*, 2009). The Aquaculture industry has seen tremendous growth in the last few decades, India with the production of approx. 2.3 million tons per annum (Sathia Dhaset *et al.*, 2009) is considered as the second largest Aquaculture producer. Despite its contribution is only around 5% out of the entire global production. India practises a traditional method

of coastal aquaculture. The Indian version of pearl is named as Mukta. The Aquaculture industry has seen a remarkable expansion in recent years with major development in states like Andhra Pradesh, Odisha, West Bengal, Karnataka, Tamil Nadu and Punjab (Mishra, 2017). In general, pearl production is a challenging task 'for the suite of numerous factors and processes that need to be understood and mastered' (Charpy & Lo, 2012). The technique of pearl culturing was initially started by the Chinese where pearl objects were first developed in freshwater mussel (Modayil & Kripa, 2001). These precious gems were used in old Traditional Chinese medicines.

Realising the utmost importance of pearl culturing, the Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar, India, initiated research in 1987 and evolved base technology for growing pearl freshwater environment (Ram, 1997). The process to culture pearl involves various implantation procedures. The culture of implanted mussels requires both biological and physiochemical conditions (Ram, 1997).

The opportunity to cultivate approximately 73 different marine organisms are highly potent for the pharmaceutical/ drug industry due to its importance which includes finfishes, crustaceans, MOLLUSCS, seaweeds and sea cucumber (Devaraj & Appukkuttan, 2000) along the shallow coastal region. The natural resource of pearl oysters is found in the Gulf of Mannar and Gulf of Kutch (Sathia Dhas et al., 2009), it requires a long-term investment for a successful process due to the high demand of pearls which are classified into categories based on their quality, size and shape and uniformity of coating. Indian pearl market has been preparing to enter the world's largest pearl merchandising business. This could not be possible without extensive planned research and developmental strategies constructed to grow and produce 'two types of pearls — golden and black pearl (Modayil & Kripa, 2001) in order to enter the international market for marine pearl industry.

Safety Contour of Unani medicine

The profile of Unani medicine is < 92% of medicinal plants and herbs used. Basically, these drugs are from herbal sources, therefore making them a herbal product or therapy for easy consumption. While the rest > 5% is from minerals, metallic and animal origin. The speciality is these drugs are collected and processed by the Unani physicians themselves based on the essential proportion.

Figure 2 illustrates the percentage of various resources used in the preparation of Unani drugs. These data regarding the resources used during the preparation were obtained from several Unani practitioners and physicians (Usmani, 2018) across India and from primary sources.

Despite the search for new research techniques and preparation of Unani medicine, valid data are yet to be confirmed based on its physicochemical parameters and activities (Wavare et al., 2014). Nationwide seminars are conducted in favour of Unani profound scholars, academicians to highlight treatments for various non-communicable diseases such as hypertension, mental illness, diabetes, obesity and many more through Unani system. "Clinical and pharmacological studies are being carried out at different Unani research institutions and hospitals of India showing good results" (INDIA, 2018).

Implementation of Significant Sustainable Strategies in utilisation of Pearl in Unani

1. The subsequent measures will contribute to the sustainability of pearl production and its usage in Unani. In collaboration with government policies, extensive positive factors can have a huge impact on the industry.
2. Creating awareness and promoting good farm management practice in the Indian aquaculture industry.
3. Development of human resource administration.
4. Environment awareness program.
5. Monitoring and constant recording of Ecosystem health.
6. Investigating the potential utilisation of pearl in Unani drugs as Aqua medicine.
7. Setting a proper design research chart to support Aquaculture farmers in India.
8. Promotion of positive and effective socio-economic environment for the local pearl communities.
9. Need for future Government policies to set sustainable schemes to encourage pearl farming in collaboration with Unani Drug Labs.
10. Require great technology with government intervention.
11. Largely organised and coordinative efforts to promote the Unani system of medicine in Southeast countries due to its Muslim friendly nature.

Challenges faced

There is a vast difference in the methodical and technical teachings of medical systems such as Ayurveda, Unani and Siddha (AUS) in India. This is especially with the domestic market contributing more to the demand and supply of freshwater aquaculture products, lack of proper infrastructure processing facilities (Jong, 2017) impairs the access to quality products. The pattern differs among areas. "Poor exposure to clinical skills, poorly equipped colleges and reliance on rote learning are major deterrents to quality AUS physicians" (Patwardhan, 2019). Promoting traditional herbal medicines comes with more challenges (Sen & Chakraborty, 2016) such as; 1. Quality and administration issues, 2. Infrastructure and technology issues, 3. Irrational Clinical issues, and 4. Lack of adequate R&D.

Conclusion

Based on the pharmacological effect of the (pearl-marwareed) dose; prepared in accurate proportion by Hakeem (Unani physician) the effect could change with a different dose

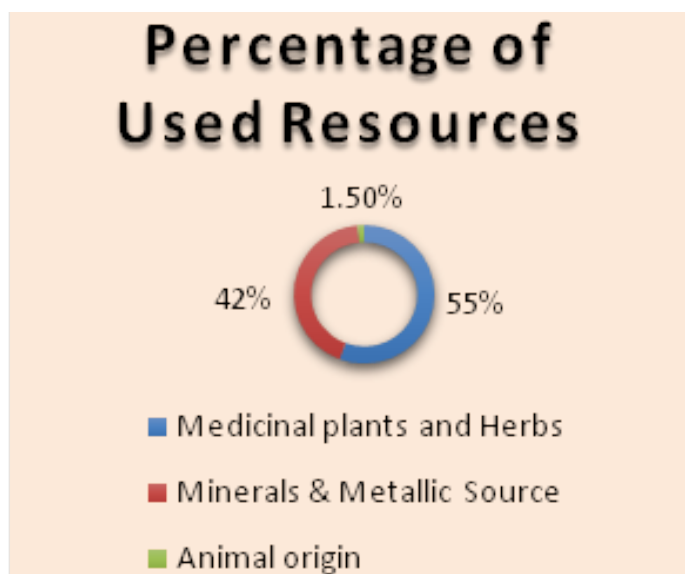


Figure 2. Percentage of resources used in preparation of Unani Drugs (Author's source)

of the same drug. Mainstreaming quality of Health and usage of herbal traditional medicine will provide the functionality of these gems in Unani medicine which is consumable, ensuring the Halal factor and the quality of the medicine and cultured pearl used. Since it attracts more Muslim medical patients who are also domestic and international medical tourists. The country must support qualified physicians and practitioners of this traditional medicine by establishing strong systems for accreditation and licensing the Unani dispensaries or clinics with Halal certification from well-organised and focused Halal certification bodies namely Halal India and others. Considering the requirements and safety of medical patients, the practitioners must upgrade their knowledge and skills of having better communication between traditional physicians and conventional providers.

The higher potentiality the better the progress and prospects of the Traditional System. If both Ministry of AYUSH and Ministry of Tourism join together, the possibility of a winning situation will be elevated for AYUSH and promotion of Traditional Medical Tourism in India. Proper investment opportunities for pearl farmers can generate high quality of pearl production with improvement in aquaculture practice across farming regions. Therefore, providing a better business venture for pearl farmers inclusive of good lifestyle through Unani.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

Acknowledgement

The authors are thankful to the Ministry of Education of Malaysia for the funding through FRGS/1/2018/SSI03/UIAM/02/3grant.

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Preliminary Analysis of Intention to Purchase Halal Cosmetics

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Abstract: The demand for halal cosmetics by consumers is seen to be increasingly growing in the last two years. The increase in demand is influenced by several factors such as psychological, product quality, religiosity, consideration for the future and attitude. Hence, this study aims to examine the factors that influence the purchase of halal cosmetics among Malaysians. This paper presents the results of a pilot study. Empirical data were collected via the survey questionnaire. A total of 129 responses was collected and used for analysis. Using the correlation test it was found that there is a relationship between intention to purchase with attitude, psychological, product quality, religiosity and consideration for the future. Nevertheless, the strength of the relationship varies. The strength of the relationship is highest for attitude and lowest for psychological. The results of this study will be used to refine the instrument and subsequently used to collect data from a larger pool of respondents.

Keywords: attitude; consideration for the future; intention to purchase; psychological; religiosity

Received: 30th November 2019

Accepted: 27th Marc 2020

Published Online: 24th April 2020

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Citation: Sulaiman A, Ramli SQ, Shoid NZM, et al. Preliminary analysis of intention to purchase halal cosmetics. J Halal Ind Serv 2020; 3(Special Issue): a0000075. <https://doi.org/10.3687/jhis.a0000075>

Introduction

The global halal market size is expected to reach USD 9.71 trillion by 2025 (Adroit Market Research, 2019), while the global halal cosmetics market is expected to reach USD 54.16 million by 2022 (Allied Market Research, 2017). This figure illustrates that the demand for halal cosmetic products will be increasing which is due to several factors. Among the factors are the increase in purchasing power of the growing Muslim population and also the desire of Muslim society to associate their interest in cosmetic products that adhere to religious loyalties. Hence, the emergence of the term halal cosmetics.

Halal cosmetics are cosmetic products that contain ingredients permitted under the *Shariah* law and *fatwa* and fulfil the following conditions: 1) do not consist of or contain any part or matter of an animal that is prohibited by *Shariah* law and *fatwa* for a Muslim to consume or that has not been slaughtered in accordance with *Shariah* law and *fatwa*; 2) do not contain anything which is *najs* according to *Shariah* law and *fatwa*; 3) do not intoxicate according to *Shariah* law and *fatwa*; 4) do not contain any part of a human being or its yield which is not allowed by *Shariah* law and *fatwa*; 5) are not poisonous or hazardous to health; 6) have not been prepared, processed or manufactured using any instrument that is contaminated with *najs* according to *Shariah* law and *fatwa*; and 7) have not in the course of preparing, processing or storing been in contact with, mixed, or in close proximity to any materials that fail to satisfy items (1) and (2) (Department of Standards Malaysia, 2019).

In Malaysia, for a cosmetic product to be labelled as halal, the cosmetic manufacturers have to obtain the halal certification and they have to ensure that they comply with the standards and conditions set by the National Pharmaceutical Regulatory Agency (NPR) as well as the Department of Islamic Development Malaysia (JAKIM).

The demand for halal cosmetics is expected to increase and this has spurred the growth of the halal cosmetics industry

in Malaysia and worldwide. The manufacturers both big or small have invested huge capital to participate in the industry and generally would want their business to sustain over a longer period of time. One way to do so, is to ensure there will be a demand for the products. Hence, the need to identify factors that may contribute to the increase in demand. Knowing these factors would allow the manufacturers to strategize their marketing plans.

A review of the literature revealed that there have been several studies such as Abd Rahman *et al.* (2015); Ahmad and Omar (2016) and Ali *et al.* (2018), conducted to examine factors that influence the intention to purchase halal cosmetics. Abd Rahman *et al.* (2015) focused on religiosity and attitude while Ahmad and Omar (2016) focused only on attitude and Ali *et al.* (2018) concentrated on branding factors. This study would like to fill in the literature gap by studying the influence of religiosity, attitude and brand on purchase intention. In addition, the study also incorporates two individual characteristics factors i.e. psychological as well as an individual's consideration for the future (CFC). Hence, the aim of this study is to examine whether religiosity, attitude, brand psychological and CFC influence the intention to purchase halal cosmetics.

This paper proceeds by highlighting literature pertaining to intention to purchase cosmetics in general and halal cosmetics in particular followed by a discussion on the methodology used to collect the empirical data. This is then followed by the discussion on the results and conclusions of the study whereby future research and research limitations are described.

Literature Review

Purchase intention can be defined as consumers' power of making a decision for purchasing particular products and services that are available in the market (Rani and Krishnan, 2018). According to Garg and Joshi (2018) purchase intention also re-

fers to the mental stage in the decision-making process where the consumer has developed an actual willingness to act toward an object or brand. Hence, the tendency of a person to take a buying action with regard to his/her attitude towards a product can be interpreted as purchase intention as suggested by Hanzae and Ramezani (2011). It could be explained that the interest of purchase is a form of behaviour or a positive attitude towards an object, so as to make an individual try to use or own the object even though he/she must spend some money or make some sacrifice (Hussin *et al.*, 2013).

A review of the literature suggests that there are several factors that influence the intention to purchase halal cosmetics. This paper focusses on five factors i.e. religiosity, attitude, brand, psychological and CFC. The reasons these factors were chosen are discussed in the following paragraph.

Attitude and brand were chosen as most of the past studies by Abd Rahman *et al.* (2015), Hussin *et al.* (2013); Haque *et al.* (2018); Hashim and Musa (2013) and Foster *et al.* (2016), included these two factors, thus illustrating their importance, therefore included in this study. Some authors such as Abd Rahman *et al.* (2015), Garg and Joshi (2018) have illustrated that religiosity is a key influencer of halal products such as halal cosmetics and must be included when studying intention to purchase any halal product. The fourth factor, psychological was hypothesised to have an effect on purchasing of any goods; consequently, it has been suggested by many to be incorporated in studying purchase intention (Fathali and Kheyri, 2014) (Quintal *et al.*, 2016). Finally, CFC was included in the study as it is a factor that measures a person's perception towards the future (Hassan, 2014) (Ottman, 2017). The more a person cares for the future, the more environmentally friendly he/she will be and subsequently will purchase more environmentally friendly products such as halal cosmetics.

Religiosity

In many societies, religion plays an effective role in shaping food habits (Wilson & Liu, 2011) and religious commitments play a critical role in people's lives through shaping beliefs, knowledge and attitude (Ireland & Rajabzadeh, 2011). The demand for Halal products today is rapidly increasing since the consumers are becoming more religious through knowledge and information and are more concerned towards halal products (Rani & Krishnan, 2018). Religious influences behaviour more compared to knowledge pertaining to halal matters and there is a significant difference in respondents' behaviour between halal food products and halal cosmetic products (Abd Rahman, 2015). The overall decision-making process, starting from selecting the product to making purchases and eventually its consumption extensively relies on individuals' degree of commitment toward their respective religion (Haque *et al.*, 2018). The religious and safety concepts associated with the halal cosmetics product influence the customers to purchase it. In addition to this, Garg and Joshi (2018) have also proved that Muslims adhere to their Islamic values as a source of reference before making any reasonable spending.

Attitude

Attitude could be described as the feeling and perception that one has towards a single thing (Haque *et al.*, 2018). According to Abd Rahman *et al.* (2015), and Hashim and Musa (2013), consumers' attitudes have a positive impact on their intentions to buy a product. Moreover, consumers' attitude towards the purchase of halal products is more likely to be positive if the source of information obtained is from the religious authorities or

leaders (Ahmad and Omar, 2016). Subsequently, many researchers Haque *et al.* (2018); Briliana and Mursito (2017) and Jawahar and Tamizhjothi (2013) discovered that attitude significantly affects the purchase intention toward halal products such as food and cosmetics.

Brand

Consumers' overall judgment on the superiority of a product is normally associated with the perceived quality of a brand (Ali *et al.*, 2018). Consumers purchase only familiar and well-established brands because they do not always spend a great deal of time or cognitive effort in making purchase decisions and often try to minimise decision-making (Hussin *et al.*, 2013). Businesses that embrace their brands fully are the ones that people will remember (Foster *et al.*, 2016). Hussin *et al.* (2013) found that brand familiarity positively influenced shoppers' purchase intention while examining traditional retail stores while Meng (2014) found brand awareness affected the intention to purchase halal cosmetics among university students.

Psychological Factors

Psychological factors include motivation, personality and emotions which are all influential factors that affect consumer decision making (Vainikka, 2015). Motivation can be described as an "energising force" by Hawkins (2010) that activates certain behaviours that in turn provides purpose and direction to these behaviours. Personality is a set of unique characteristics which lead to permanent reactions towards the environment (Azizpour, 2016). The concept of personality can be helpful in analysing the marketing and related variables (Ebrahimi, 2012). Emotions can be defined as strong, uncontrollable feelings that have effect on behaviour (Vainikka, 2015). Fathali and Kheyri (2014) reported that psychological characteristics affect the consumers' attitude toward luxury products and the quality of the products. Quintal *et al.* (2016) also insisted that psychological factors affect the purchasing of goods.

Consideration for Future

The Malaysian Government has likewise reacted positively to the green issue, as consumers have become more affluent and concerned about the environment, safety and animal welfare (Hassan, 2014). Marketers have realised that the growing concern of consumers toward the environment is because of an apprehension that the planet is losing its ability to sustain human life (Ottman, 2017). According to a worldwide survey conducted by Nielsen Company Nielsen (2015) in 2015, the Asia-Pacific area has the second highest number of consumers who wish for increased availability of green (halal) products in the market. Past research and empirical evidence stressed the importance of environmental concern as one of the major factors in consumer decision-making (Hassan, 2014).

Based on the discussion above, the theoretical framework is formulated (Figure 1).

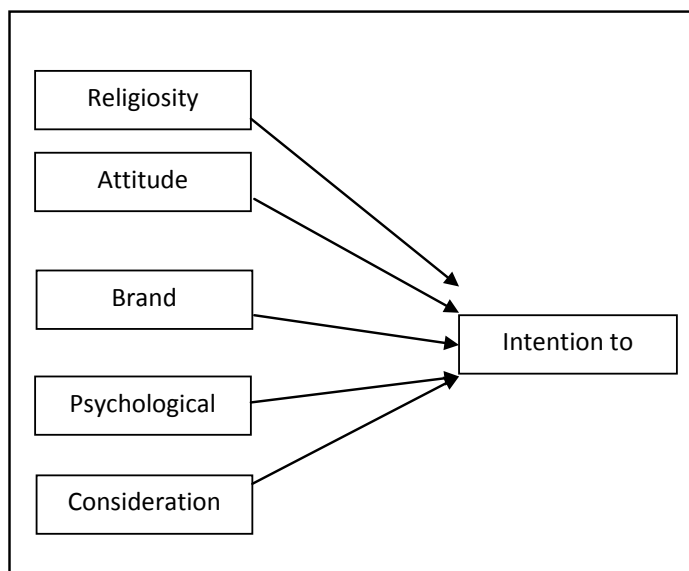


Figure 1. Research model adapted from Lada *et al.* (2009), Briliana and Mursito (2017), Jawahar and Tamizhjothi (2013), Meng (2014), Bailey (2011) and Chin *et al.* (2018).

Methodology

The empirical data used for this paper were collected via a survey questionnaire. The questionnaire was distributed to Malaysians living within the Klang Valley area. This area was selected because it is the most populated area in Malaysia. As this study is a pilot study, the respondents were randomly selected. Two enumerators were stationed at selected public places within the Klang Valley. They then approached individuals that walked pass by them. After the respondents had agreed to participate, the aim of the survey was explained to them and they were informed that they are free to walk away if they do not want to participate in the survey. Most of the respondents filled in the questionnaire on the spot. Data collection was carried out over a period of four weeks. A total of 145 questionnaires was distributed, however, only 129 were used for analysis as 16 were found to be incomplete.

The questionnaire consists of two main sections: Section A consists of items that measure the factors influencing purchase intention, while Section B requires the respondents to fill in their demographic details. The questionnaire was formulated based on past studies (Table 1). The demographics are based on Chin and Harizan (2017) while the factors influencing purchase intention were adopted from Jawahar and Tamizhjothi (2013); Meng (2014); Briliana and Mursito (2017); Chin *et al.* (2018); and Bailey (2011). Intention to purchase was adopted from Lada *et al.* (2009).

Table 1. Constructs, number of items, and sources

Construct	Source	No. of items
Intention to purchase	Lada <i>et al.</i> , 2009	6
Religiosity	Briliana and Mursito, 2017	5

Attitude	Jawahar and Tamizhjothi, 2013	8
Brand	Meng, 2014	6
Psychological	Bailey, 2011	4
Consideration for future	Chin <i>et al.</i> , 2018	4

Items (33 in total) in Section A were measured using a Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree). The empirical data were analysed using the Statistical Package for the social sciences application (SPSS) for statistical tests such as descriptive, reliability test, factor analysis, and correlation test.

Discussion of Findings

As mentioned earlier a total of 129 responses was analysed and their profile is summarised in Table 2. The majority of the respondents were female, between 26 to 50 years old and earning more than RM2,000.00 a month. This sample of respondents although randomly selected is reflective of consumers that have the intention to purchase halal cosmetics as most of them have a purchasing power of their own. As this is a pilot study, the targeted respondents were all Muslims as it is assumed that they would be the main consumers that are interested to buy halal cosmetics.

Table 2. Profile of respondents

Category	Items	Freq. (N=129)	Percent (%)
Gender	Male	28	21.7
	Female	101	78.3
Age	18–25 years	18	14.0
	26–35 years	50	38.8
	36–50 years	47	36.4
	>50 years	14	10.9
Education	Diploma	64	49.6
	Bachelor	44	34.1
	Master/PhD	21	16.3
Income per month (RM)	RM0–1,999	33	25.6
	RM2,000–2,999	49	38.0
	RM3,000–3,999	32	24.8
	RM4,000–4,999	15	11.6
	>RM4,000		
Occupation (Sector)	Government	93	72.1
	Private	17	13.2
	Student	18	14.0
	Self-Employed	1	00.8

One of the first statistical tests that was carried out was the descriptive and reliability test although the items were adopted from past studies. The reason is that the constructs (the independent variable) were studied separately from one another whereas in this study the five constructs were studied as a full model. From Table 3, it can be observed that the mean values of all the constructs were very high i.e. more than 3.5 for all constructs showing the high level of agreeableness for each construct and the values of the standard deviation range from 0.62 to 0.81. The values of the Cronbach's Alpha were all between 0.8 to 0.9 illustrating that the constructs are reliable and can be used for further analysis.

Table 3. Descriptive statistics and reliability analysis

Factors	Mean	SD	Cronbach's Alpha
Intention to purchase	4.4186	.71477	.849
Religiosity	4.1876	.69721	.889
Attitude	3.9118	.62410	.830
Brand	3.9703	.65632	.845
Psychological	3.8198	.81128	.895
Consideration for future	4.0833	.75346	.905

Subsequently, factor analysis was carried out to explore the possible underlying structure of the 5 constructs without imposing any preconceived structure on the outcome as suggested by Hair *et al.* (2014). By performing the exploratory factor analysis (EFA), the number of constructs and the underlying factor structure were identified. In performing the analysis, the cut-off score chosen was 0.4, hence, any values less than 0.4 were not taken into consideration based on Ertz *et al.*'s (2016) study. The results of the analysis (Table 4) illustrated that all 27 items were loaded into 5 factors as per literature. Nevertheless, it was found that most of the items were loaded into Factor 1 and only 1 item (ATT26) was loaded into Factor 5. In addition, 7 items which were loaded under Factor 1 were also loaded under other factors although the values are smaller than those loaded under Factor 1, thus indicating that they are loaded under Factor 1. These results are not consistent with the literature as it illustrated that the items are loaded under Factor 1, which actually can be categorized as attitude. Consequently, the researchers will conduct another factor analysis test with the actual data collection to examine whether the items will be loaded into 5 different factors as indicated by past literature or the results would be the same as in this pilot study.

Table 4. Factor analysis results.

Item	1	2	3	4	5
CFC36	.799				
CFC39	.796				
CFC38	.789				
ATT24	.762				
R43	.755				
R40	.753				
ATT23	.748				
B33	.732				

CFC37	.732				
R44	.730				
R42	.722				
ATT28	.711				
P45	.701	-.514			
P46	.698	-.542			
B32	.696	.405			
ATT22	.688				
P47	.687				
B31	.672				
B35	.668				
R41	.660		-.422		
P48	.639				
B32	.621				
ATT29	.580	.451			
ATT27	.551		.409		
ATT25	.547				
B34	.538				-.509
ATT26				.427	.611

*Note: R = Religiosity; ATT = Attitude; B = brand, P = Psychological; CFC = Consideration for future consequences

After the factor analysis test, the correlation test was conducted to examine the linear relationship between the intention to purchase with religiosity, attitude, brand, physiological, and CFC. In addition, the linear relationships between the five constructs can also be observed. The results are illustrated in Table 5.

Table 5. Correlations between constructs.

Construct	IP	ATT	Brand	CFC	Religiosity	Psychological
Intention to purchase (IP)	1	.800	.701	.744	.732	.619
Attitude (ATT)		1	.763	.746	.684	.601
Brand			1	.719	.636	.590
Consideration for future (CFC)				1	.734	.610
Religiosity					1	.657
Psychological						1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

From Table 5 it can be observed that the strength of the relationship between 'intention to purchase' with all the constructs except 'psychological' is strong with 'attitude' the strongest and 'brand' the lowest. The relationship between 'intention to purchase' and 'psychological' is moderate. Although in Table

4 all the items from the five constructs were loaded under one factor, the results of the correlations suggest moderate relationship exist between 'attitude' with 'religiosity' and 'psychological', 'brand' with 'religiosity' and 'psychological', 'CFC' with 'psychological' and 'religiosity' with 'psychological'. Generally, these results illustrate that the items in the five constructs actually measure the individual constructs and not factored as one as what was found in Table 4.

Conclusion

The aim of this study is to examine factors that influence the intention to purchase halal cosmetics among Malaysian Muslims. This study is a pilot study and this paper presents the preliminary analysis based on 129 respondents. The preliminary results showed there was a linear relationship between 'intention to purchase' with 'religiosity', 'attitude', 'brand', 'physiological' and 'CFC'. These findings are consistent with past studies that studied the relationship between 'intention to purchase' with 'religiosity' (Abd Rahman *et al.*, 2015); 'attitude' (Abd Rahman *et al.*, 2015; Haque *et al.* 2018; Briliana & Mursito, 2017; Jawahar & Tamizhjothi, 2013); 'brand' (Meng, 2014); 'psychological' (Quintal, 2016); and CFC Nielsen (2015).

The study like any other studies has a few limitations. The first limitation is the sample size. Future study should include a bigger sample of respondents. Second, the respondents were conveniently selected, future research should use stratified random sampling which considers sampling by regions or locations. Third, the items of each construct chosen were selected based on past studies. Future studies must include an expert panel to validate the content before the final questionnaire is distributed. The results of this pilot study will be used to develop a research model, and hypotheses will be formulated and tested to determine whether religiosity, attitude, brand, psychological factor and CFC have any effect on the intention to purchase halal cosmetics.

It must be highlighted here that this study is a pilot study, thus the results are preliminary. Subsequently, the limitations of the study should be used as a guide for the actual study. It is hoped that the findings of the actual study will be used by the halal industry manufacturers to develop their strategies in capturing the halal cosmetics market.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

Acknowledgements

This work was supported in part by the Malaysian Higher Education Consortium of Halal Institutes, Ministry of Education, Malaysia, and in part by the University of Malaya under Grant MO001-2018.

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Legal Control for the Safety of Cosmetic Products Application Use in Malaysia

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Abstract: This study discusses the legal control over the safety of local cosmetic products and the extent to which users are protected in Malaysia. Beauty is inseparable from women. Various efforts have been made to make the face look beautiful and perfect by using a variety of cosmetic products available in the market. As a result, manufacturers have to develop a wide range of promising products that show reaction within a short period by using illicit substances that threaten consumers in Malaysia. The purpose of this study is to examine the type of safety protection particularly on the cosmetic products application use in Malaysia. The results of the study found that there were still many products containing prohibited substances in the market which found that consumers experienced the harmful effects of the use of unsafe cosmetic products. Therefore, the law enforcement provided can control this matter through composition to operators who still produce products containing these prohibited substances.

Keywords: consumers law; cosmetics; cosmetics safety; ingredients in cosmetics

Received: 30th November 2019

Accepted: 13th March 2020

Published Online: 26th April 2020

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Citation: Othman NN, Zakaria Z, and Aziz A. Legal Control for the Safety of Cosmetic Products Application Use in Malaysia. *J Halal Ind Serv* 2020; 3(Special Issue): a0000080. <https://doi.org/10.3687/jhis.a0000080>

Introduction

Beauty is a natural fit for women; especially, to stay beautiful, attractive and stylish. Therefore, beauty practices are also synonymous with women which have also been practised since ancient times to maintain beauty. To achieve that goal, women are willing to spend money on buying cosmetic products with the aim of looking good and beautiful. This is evidenced by a study conducted in the United States of America where 88% of women aged 18 years and above are trying to beautify themselves by using cosmetics, and they feel that cosmetics will make them look more beautiful and more confident (Seewan & Benjaronkij, 2014). Along with the development of current knowledge and technology, the need for beauty also goes hand in hand by producing a variety of cosmetic products, and it is growing from time to time. Not only does it look at the technology, education and health point, but the need for self-improvement is also a key priority in everyday life especially for women, and one of the ways used to maintain the beauty and change one's appearance is to use cosmetic products.

The use of cosmetics has been known to human beings since centuries ago, which began in the 19th century. At that time, cosmetic products were used not only for beauty but also for maintaining health. Over the past 40 years, the production of cosmetic products has increased. The medical or physiological field has expanded their knowledge in the skin leading them to collaborate with beauty scientists and beauty experts in producing cosmetic products by compiling various formulas based on the concept of dermatology or health (Tranggono, 2007).

The production of cosmetics is now not only for personal use but also for domestic and international businesses. In line with the development of technology, various innovations have been done in producing cosmetic products for the community, especially for women, by promoting skin beauty, skincare, whitening and so on to attract consumers. The entrepreneurs and manufacturers are working and racing in producing products to gain profit without thinking about the safety aspects of con-

sumers. The widely used active ingredients in cosmetics products such as mercury, hydroquinone, and steroid (Ho *et al.*, 2017) are associated with various changes in reproductive hormones, such as estrogen (Zota & Shamasunder, 2017).

In Malaysia, there are a number of legal provisions to control the production of these harmful cosmetic products in the market to ensure the safety and protection of consumers are guaranteed from using cosmetic products that use prohibited materials. Among the provisions of the law protecting the safety of cosmetic products are the Control of Drugs and Cosmetics Regulations 1984 (Peraturan-Peraturan Kawalan Dadah dan Kosmetik 1984) and the Sale of Drugs Act 1952 (Akta Jualan Dadah 1952). The provisions of this law have been enacted to protect consumers from using risky and dangerous cosmetic products.

Although there are some clear provisions forbidding and controlling the production and sale of these harmful products, there are still some issues regarding the sale and production of products that are mixed with harmful chemicals and the sale of unregistered cosmetic products.

Issues On Cosmetic Products Safety

Human desires, especially among women, have always been wanting to look beautiful and perfect in all respects, and this has been fully exploited by a number of irresponsible cosmetic product operators by producing and selling cosmetic products that do not meet the requirements by the authority. Their main target is women that want to look beautiful, but with quick and maximum results. They tend to buy cosmetic products that are easily available at cheap prices which lead them to look for an alternative way of buying cosmetic products, even though they do not meet the requirements, and these cosmetics are still sold freely in the market. This condition is clearly seen based on a newspaper report stating that women users prefer to use artificial products because there is a famous "brand" attached to it even though that product may cause adverse effects on their facial skin

(Nor Amalina Alias, 2017).

The legal provisions relating to product safety have been enacted and enforced to ensure that the products which are manufactured and used by consumers are safe, of good quality and do not bring any harm to consumers. They also aim to provide protection to consumers and encourage them to be more careful and sensitive in selecting and purchasing cosmetic products that do not contain any prohibited substances. Despite that, further production is still going on in the market, and various issues have arisen as a result of the use of these dangerous cosmetic products.

Among the issues that arise is the mix of ingredients in cosmetic products with chemicals such as drugs, poisons and even heavy metals that are not allowed by the Ministry of Health. The National Pharmacy Regulatory Division (NPRD), Ministry of Health Malaysia (MOH) made a press release in 2018 of 27 cosmetic products that contain scheduled poisons and prohibited substances such as Hydroquinone and Tretinoin. The products listed have been revoked by the Senior Director of Pharmaceutical Services, MOH and thus the sale of these products is banned in the Malaysian market (Kementerian Kesihatan Malaysia, 2019). In fact, as of May 2019, NPRD has taken back the notification number for 20 cosmetic products as they contain banned substances, including scheduled non-permissible poisons in cosmetic products such as Hydroquinone, Tretinoin, Mercury, Diphenhydramine and other harmful chemicals such as Chlorpheniramine, Griseofulvin, Metronidazole, Sulfamethoxazole, Ketoconazole and Trimethoprim (Biro Farmaseutikal Kebangsaan Malaysia, 2019).

Hydroquinone is a type of chemical that was originally used to kill 'melanocytes', a type of cell that acts to produce melanin (Biro Farmaseutikal Kebangsaan Malaysia, 2019). Therefore, the skin will look brighter and whiter. According to Guidelines for Control of Cosmetic Products in Malaysia, ANNEX III-Part 1-List of substances which cosmetic products must not contain except subject to restrictions and conditions laid down, the maximum authorised concentration in the ready for use preparation of hydroquinone is only 0.02% (after mixing for use). Moreover, the use of Hydroquinone is only allowed for artificial nail systems (Guidelines for Control of Cosmetic Products in Malaysia, 2018). Tretinoin is the second dangerous chemical that can be found in some of the cosmetic products. It is usually used by doctors to treat serious acne (Biro Farmaseutikal Kebangsaan Malaysia, 2019). Also known as Vitamin A, Tretinoin belongs to a class of medications called retinoids. It will affect the growth of skin cells by gradually destroying the skin layer bit by bit as much as Hydroquinone does. The skin will look peeled, dry, red, painful and itchy when it is used and it will also become more sensitive to sunlight (Biro Farmaseutikal Kebangsaan Malaysia, 2019).

Mercury exists in three forms: organic, inorganic and elemental. Mercury is a protoplasmic poison, which can be absorbed by the respiratory tract as vapour or through the skin and gastrointestinal tract as finely dispersed granules and excreted through the kidneys and the colon (Park & Zheng, 2012).

Diphenhydramine is usually used in cosmetics and personal care products as the formulation of tonics, dressings, and other hair grooming aids (Iwata & Shimada, 2013). According to a statement issued by the National Pharmaceutical Regulatory Agency (NPRD), the Malaysian Health Ministry (MOH), the use of diphenhydramine without the supervision of a health professional could cause the skin to become more sensitive to sunlight, resulting in severe allergies (Bernama, 2019).

The Experimental Results of Chemical Ingredients Used in Cosmetic Products

Various studies have been conducted to study the ef-

fectiveness of chemicals in cosmetic products. Among them was the study of the effectiveness of Hydroquinone on the liver and kidneys from the aspect of Histology. The study used 24 female rabbits (weighing 400-1500 gm) and was divided into four groups (control, use of cream in the right ear, left ear, and stomach). These animals were given 2% hydroquinone for a period of 6 weeks. Histological findings from this study suggested that chronic exposure to hydroquinone resulted in significant histological changes that can affect the liver and kidneys (DeCaprio, 1999).

Other scientific studies identifying genotoxicity and cytotoxicity of Hydroquinone in cosmetic products proved that besides Hydroquinone inhibiting the formation of tyrosine enzymes, it also uses depigmentation action by producing cytotoxic effects on melanosomes which means it can kill living cells in the human body. In fact, Hydroquinone can also cause an increase in DNA fragmentation in the human body. The results showed that safe hydrocarbon concentrations used in cosmetic products were 1.89 ug/ml and this concentration was believed to reduce the damage to DNA (Khan *et al.*, 2017).

Next, was a study to identify the ability of Hydroquinone in forming caseins (mutagenic) in the bodies of laboratory mice. Laboratory rats were given Hydroquinone doses of 0, 25, 50, 100, or 200 mg/kg bw/day for 28 days. The study found that hydroquinone affects the formation of cell adenosine in the kidneys and the rats' weights also decreased in all the treatment groups. However, no significant difference was observed in terms of mutations in the liver, abdomen, lungs, or kidneys between rats treated with Hydroquinone and simultaneous negative controls, while significant mutation inductions were observed in the positive control groups. This result indicated that mutagenic mechanisms are not responsible for the carcinogenesis caused by Hydroquinone (Matsumoto *et al.*, 2014).

A past study has proven that the amount of mercury excreted by the kidneys was proportional to the quantity applied on the skin (Hursh *et al.*, 1985) and this may lead to Nephrotic syndrome (Silverberg *et al.*, 1967; Bérody *et al.*, 2019). Previous studies have shown that membranous glomerulonephritis and proliferative glomerulonephritis were found in patients who had used skin lightening creams which contained mercury.

Subsequent past studies with an electron microscope have demonstrated that mercury bleaches the skin by probably inactivating the sulfhydryl enzymes (Denton *et al.*, 1952; Silverberg *et al.*, 1967). These enzymes will inactivate the tyrosine molecules and interrupt melanin production. Chronic use of mercury can also lead to increased pigmentation due to the accumulation of mercury granules in the dermis. These granules are absorbed via the skin appendages such as the hair follicles and sebaceous glands in the dermis. The deposition of mercury in keratin also leads to the discolouration and brittleness of the nails (Cole *et al.*, 1930).

Hydroquinone and Tretinoin are pharmaceutical products that need to be registered with the Drug Control Authority and they are controlled and can only be used with advice from health professionals. Cosmetics that have been mixed with chemicals such as Hydroquinone, Tretinoin and also mercury can cause redness, swollen skin, discomfort, skin changes, and even make the skin become sensitive (Rabbayani, 2014).

The effect of using these materials can prevent the process of pigmentation (depigmentation) that can reduce the skin's protection from harmful UV rays and may increase the risk of skin cancer (Callender *et al.*, 2011). It is clear that the prohibited substances are extremely risky and endanger the health and it is clear that the prohibition contained in Regulation 7 (A) of the 1984 Drugs and Cosmetics Regulations prohibits any products that are mixed with prohibited substances (Peraturan-Peraturan Kawalan Dadah dan Kosmetik, 1984). In the era of technological

and telecommunications advancement, it is undeniable that it is more convenient for people to shop online. As a result, online business activity has expanded and this has allowed traders to sell and become entrepreneurs independently without any restraints and by using only mobile phones, laptops and internet networks. In this regard, the sale of online cosmetic products has been done independently, without any restrictions, and thus causing cosmetic products containing these harmful substances being sold in the market despite getting no approval and notification from the Ministry of Health.

The issue of the use of prohibited substances in local cosmetic products has been increasing in recent years. Local cosmetic operators seem to challenge the authority of product safety and consumer protection laws that have been outlined by the government. This can be seen clearly through local newspaper reports and news that often illustrate the issue of prohibited substances in these local cosmetic products in their main report. The rapid development of this issue has sparked public concern over the safety of their cosmetic products. Director-General of Health Malaysia, Datuk Dr. Noor Hisham Abdullah, has directed that sellers and distributors of the involved cosmetics be warned to stop selling and distributing their products immediately (Noor Aiman Haziq, 2019). The toxic substances contained in the cosmetic products are clearly prohibited by the MOH and have been scheduled. Unfortunately, most of the local cosmetic entrepreneurs only think of profits instead of protecting consumers from danger. This clearly demonstrates the low quality of the inspection process for the cosmetics industry in this country. Consequently, the issue of the use of prohibited substances in these local cosmetic products should be taken seriously so that this issue can be handled appropriately.

Legal Control Methods for Cosmetic Products in Malaysia

Consumer Protection and Product Safety Regulation in Malaysia

As users, we should be provided with protection to control issues related to user's rights. Accordingly, the provisions of the law on consumer rights are enforced to protect consumers' rights to avoid harmful risks of low-quality products that contain prohibited substances.

Consumer protection is gradually becoming a characteristic of modern law that has begun to be recognised. This demonstrates the right to consumer protection rather than something that is considered to be a simple and trivial thing, but it has already begun to be taken seriously by the society and the authorities who are now more aware of the protection needs of consumers in the cosmetic products market (Yusoff, 2002).

Users have also the right to be protected from the marketing of goods or services that can harm their health and life. The government has created several alternatives to solve this problem by approving several laws for the purpose of protecting consumer rights from practices and things that could be harmful to consumers such as the use of various chemicals in the marketing of products and goods in the market. In addition, to ensure that all medicines and products are marketed in safe and effective markets, each drug and product sold in Malaysia should be registered with the Ministry of Health (MOH). For cosmetics and beauty products, they should be notified to the MOH and then only can they be advertised with the ministry's permission (Hamid, 2011).

The product security aspect should be emphasised to ensure safety and avoid hazardous risks in the use of each product by consumers. This has been explained by Rahmah Ismail (2000)

on the right to secure security —it is the right to be protected from products, production processes and services that endanger health and life. The safety of a product is an important aspect that should be taken into account in maintaining the user's welfare. Therefore, each user has the right to view and inspect the goods or the products that they wish to purchase to ensure that they are safe and free from any defects (Rahmah, 2000).

As there are many consumer products that flood the market, the safety of a product in the market must be emphasised and it is very important to protect consumers. Although product manufacturers have the sole power in producing and marketing their products, they must be responsible for ensuring that they use only safe materials that have been approved by MOH for consumer use to provide better safety standards for the users (Zakaria, 2014).

The issue of dumping goods that are of poor quality and that do not meet the prescribed standards is due to the uncontrolled trade and sales activity in Malaysia. Trading activities in Malaysia's sales of goods cannot be resolved due to the lack of resources and qualified staff as well as weak technical facilities that cause some problems in controlling the production of these cosmetic products that contain the prohibited substances by companies here as compared to other developed countries, such as the companies in the European and American Countries (Zakaria, 2012).

Consequently, consumer protection laws and product safety laws have been discussed to identify the level of consumer safety. Furthermore, through the legal concept, it will be linked to cosmetic products in Malaysia by looking at consumer protection and prescribed security controls to control the production of cosmetic products that contain prohibited substances.

Related Laws On Consumer Protection and Safety Of Cosmetic Products In Malaysia

Consumer Protection Act (CPP)

Product safety is an important part of every party to take care of and safeguard the harmful things that occur to consumers. Furthermore, how a country cares for the welfare of its people can be seen through its policy and regulatory safeguards on product safety that have been enacted and enforced in a country (Rahmah, 2000).

In this regard, Malaysia is also protecting its consumers in maintaining product safety. In order to now safeguard consumers, Malaysia has come up with the Consumer Protection Act (CPP) 1999 by enforcing laws pertaining to consumer rights. In this act, it details the consumer protection and product safety. The existence of this act is also intended to fill the gaps contained in product safety laws, and it is also the basis of government monitoring of product safety in Malaysia (Jalil, 2017).

As understood briefly in CPP 1999, it is a role not only to protect consumer rights against the safety of a product in the marketplace but also to avoid the production of products with no quality and that bring harm to consumers. In the provision of CPP 1999, there is a touch on product and consumer safety in some sections of Part III, where a Minister is authorised to prescribe the safety standard of an article through the regulations stipulated in it (Seksyen 19, Akta Perlindungan Pengguna 1999). Accordingly, producers and suppliers should comply with the rules set out in Section 19 as they are mandatory and enforceable. Furthermore, compliance with safety standards (Seksyen 20, Akta Perlindungan Pengguna 1999), the prohibition of any supplier, offering or advertising goods that do not comply with the safety standards set is deemed to be an offence. Therefore, suppliers and manufacturers of goods or products must follow the prescribed safety standard instructions. The collision of compliance with this safety standard is an offence subject to Section

25 (1) of this Act. The general requirement of safety for goods and services (Seksyen 21 dan 21A, Akta Perlindungan Pengguna 1999), in Section 25 (1) of the CPP Act clarifies the safety of goods and services for consumers.

Suppliers who supply and advertise unreasonable items will get a penalty. This clearly demonstrates that it aims to prohibit all the marketing and product release services that will endanger users (Seksyen 23, Akta Perlindungan Pengguna 1999. Seksyen 23(1), Akta Perlindungan Pengguna 1999). According to the order from the authorities, suppliers producing goods and services that are harmful shall bear the cost of loss or whatever the prescribed instructions are to prevent the marketing of hazardous products which are in the market such as, by recalling the prohibited goods that are located in the market (Seksyen 23 (2) (a), Akta Perlindungan Pengguna 1999), stop the supply or stop the offers to supply the prohibited goods or services (Seksyen 23 (2)(b), Akta Perlindungan Pengguna 1999) as well as stop the advertising of the prohibited goods or services (Seksyen 23 (2)(c), Akta Perlindungan Pengguna 1999).

Furthermore, any party supplying the prohibited products shall disclose to the public of any information relating to the character of the prohibited goods or services that make them unsafe (Seksyen 23 (2)(d)(i), Akta Perlindungan Pengguna 1999); that disclose shall include the use of such prohibition is insecure (Seksyen 23 (2)(d)(ii), Akta Perlindungan Pengguna 1999), repairs or replaces the prohibited goods or services of the prohibition (Seksyen 23 (2)(e), Akta Perlindungan Pengguna 1999), repay or indemnify any user who has used the prohibited product (Seksyen 23 (2)(f), Akta Perlindungan Pengguna 1999).

The Control of Drugs and Cosmetics Regulations 1984 (CDCR)

The government has taken several steps in protecting consumers and product safety by establishing specific activities relating to consumer rights. Cosmetic products are controlled under the Drug Sale Act 1952 and the Control of Drugs and Cosmetics Regulations 1984 (CDCR) (Portal MyHEALTH Kementerian Kesihatan Malaysia, 2019). These regulations will take into account the safety, quality and cosmetic product claim to ensure that all cosmetic claims can be supported by adequate data, to protect and promote public health.

The provisions of the Control of Drugs and Cosmetics Regulations 1984 are enforced to protect consumers for quality and safe cosmetic products in the market. It also aims to control the production of unregistered cosmetic products that contain prohibited substances.

Every cosmetic product must be first registered before it is marketed to ensure the safety of the cosmetic product before it is used by consumers. Registration for cosmetic products involves requesting a notification number from the National Pharmacy Regulatory Division (NPR) and Ministry of Health Malaysia (MOH) before they are manufactured, imported, distributed or sold in the Malaysian market. Product notification is a process whereby companies or parties responsible for marketing cosmetics produce declarations regarding their product information to NPR before they market the products in the Malaysian market. Companies that want to market cosmetic products in Malaysia must comply with the requirements of the prescribed Cosmetic Products Control Guidelines (Kementerian Kesihatan Malaysia, 2019).

Part 3 of the Control of Drugs and Cosmetics Regulations has clarified on the notices of cosmetic products which is to clarify that no party is authorised to produce, sell, import, own or administer any cosmetic product unless notified, or if such party is the person responsible for providing notice in the market or authorities by notification notes issued by the Director of Phar-

maceutical Services (Peraturan 18A (1) (b), Peraturan Kawalan Dadah dan Kosmetik 1984). Therefore, each manufacturer must be notified beforehand with a valid NPR before making any cosmetic product withdrawal. It aims to safeguard the safety of cosmetic products in the market by ensuring that only safe products can be marketed.

The ingredients found in cosmetic products must be safe for consumers to use. The cosmetic products that have been identified to contain any poisonous substances must be registered in the Poison Act 1952 (Peraturan 18A (1) (c), Peraturan Kawalan Dadah dan Kosmetik 1984). Therefore, cosmetic products that use poisonous substances found in the scheduled poison list under the Poisons Act 1952 will be subjected to actions taken against them (Akta Racun 1952 (Akta 366). Furthermore, the ingredients found in cosmetic products have been identified as the registered product (Peraturan 18A (1) (d), Peraturan Kawalan Dadah dan Kosmetik 1984). The content of the ingredients found in cosmetic products is particularly of concern to the authorities because if it is a prohibited substance then it will be harmful to the users.

Furthermore, another thing mentioned in the Control of Drugs and Cosmetics Regulations 1984 is the payment of fees during the notification process will not be returned (Peraturan 18A (6), Peraturan Kawalan Dadah dan Kosmetik 1984). The Director of Pharmacy Services has the power to decline the notification application (Peraturan 18A (7A), Peraturan Kawalan Dadah dan Kosmetik 1984) and to cancel the designated product (Peraturan 18A (8), Peraturan Kawalan Dadah dan Kosmetik 1984) at any time without providing a reason. The manufacturers of cosmetic products must also comply with any instructions or guidelines issued and any conditions that have been imposed by the Director of Pharmaceutical Services (Peraturan 18A (10), Peraturan Kawalan Dadah dan Kosmetik 1984) and maintain good records (Peraturan 18A (11), Peraturan Kawalan Dadah dan Kosmetik 1984). Therefore, for any party who violates any of the provisions of these Regulations, the Director of the Pharmaceutical Services, may release written instructions to the person responsible for withdrawing and issuing products already in the market (Peraturan 18A (12), Peraturan Kawalan Dadah dan Kosmetik 1984).

Authorities have strived to ensure that cosmetic products that are sold in the market are safe by making certain specific provisions regarding cosmetic products. Consumers should also take precautionary measures in purchasing cosmetic products by checking the notification and the listed materials before opting for cosmetics to avoid the use of health-damaging cosmetic products.

Conclusion

This research has proved that the consumer protection safeguards in Malaysia are not only emphasised before a product being notified but also after the sale of the product and the effect that will be received by the consumer upon using the product. Moreover, it is also to control the producers of dangerous products from supplying their unsafe cosmetic products to consumers in the market to ensure the safety of consumers is guaranteed and not violated. The sale and supply of unmarked products are an offence under the Control of Drugs and Cosmetics Regulations 1984 and if convicted, an individual under these Regulations shall be liable to a fine not exceeding RM25,000 (Malaysian Ringgit Twenty-Five Thousand Only) or imprisonment not exceeding three years or both. For the first offence, the fine shall not exceed RM50,000 (Malaysian Ringgit Fifty Thousand Only) or imprisonment not exceeding five years, or both for subsequent offences and a fine not exceeding RM 100,000 (Malaysian Ringgit One Hundred Thousand Only) for further offences. The cosmetic

product will certainly be evolving at some point due to the rapid development of technology. Therefore, related authorities particularly the Ministry of Health Malaysia always need to be alert and aware of the movements of the era for the law to be valid and applicable under any circumstances in the future.

Conflict of Interest

The authors declare that there is no conflict of interest.

Acknowledgments

This research was supported by Ministry of Education Malaysia research grant (grant vote MOO02-2018 awarded to Malaysian Higher Education Consortium of Halal Institutions) and University of Malaya Research Grant Challenge: Grant vote 002B-17HNE.

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A Proposed Conceptual Framework for Blockchain Technology in Halal Food Product Verification

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Abstract: Despite rooted from Islamic needs, Halal certification also attracts both Muslims and non-Muslims. In fact, the non-Muslim players are the ones dominating the industry. It is widely known that Halal food chain is quite vulnerable due to complications in maintaining Halal integrity, the necessity to prevent doubtful materials, lack of control of food norms, and the importance to retain high quality. The presence of Halal certification is a form of consumer protection and therefore, the integrity of Halal certification must be carefully monitored. There are some Halal violation cases and this can potentially affect the reputation of the Halal food products. Therefore, it is important to develop a system that integrates a verifiable, open, and safe shared database that is not run by a centralised operator. Blockchain technology is the one that offers such. The study presents a conceptual framework for blockchain technology for Halal product verification for manufactured food products. The results are desired to help the food industry players in maintaining a system that can improve the transparency and the integrity of their Halal food chain. The system also intends to ensure the affordability and accessibility of Halal certification for as many industry players as possible as blockchain technology is believed to remove the complications in the certification process and reduce paperwork related cost.

Keywords: blockchain; halal supply chain; halal certification; food verification; halal industry; technology solutions

Received: 30th November 2019

Accepted: 27th Marc 2020

Published Online: 24th April 2020

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Citation: Abidin NZ, and Perdana FFP. A proposed conceptual framework for blockchain technology in Halal food product verification. J Halal Ind Serv 2020; 3(Special Issue): a0000079. <https://doi.org/10.3687/jhis.a0000079>

Introduction

Despite rooted from the needs of Muslim consumers to fulfil their religious needs, the Halal industry has proved to attract non-Muslim consumers and non-Muslim players as well. It is no longer seen only from its religious point of view, and the Halal concept is also seen as a system that embraces quality assurance and lifestyle choice (Lada, Tanakinjal, & Amin, 2010). Islam is known as a religion with the highest level of growth in the world. In 2017, it was estimated that there were more than 1.8 billion Muslims all over the world making it the second-largest religion behind Christianity. Due to the high birth rates of 2.7 children per family, it is projected that Islam will be the number one religion on earth in fifty years' time (Pew Research Center, 2017). With this situation, it is believed that the demand towards Halal products will continuously grow and currently, the Halal industry is valued around 2.1 billion USD. It is expected to reach 3 trillion USD by the year 2023 (Shahbandeh, 2019).

Halal food chains are known to be quite vulnerable mainly due to complications in maintaining Halal integrity, the necessity to prevent doubtful materials, lack of control of food norms, and the importance to retain high quality (Tieman & Darun, 2018). Halal food chain issues mainly include cross-contamination, Halal counterfeiting, Halal fraud, logistic issues and no development towards a standardised Halal standard that is applicable around the world. It is also important to note that the Halal industry is dominated by the non-Muslim players as 80% of the system is controlled by non-Muslim majority countries (Power, 2008). Nestle, KFC, McDonald's, Tesco, and Carrefour are some of the key players in the Halal industry (Kassim, 2010). Around 20% of the budget of Muslim consumers are spent for

meat purchase and the majority of the Halal meat (65%) comes from non-Muslim majority countries like New Zealand, Australia, Brazil, and India (Al-Jazeera, 2017). The total export values of meat from Brazil are estimated to be around 6.5 billion USD (Riaz & Chaudry, 2004). Back in 2017, there was a case in Brazil regarding food fraud scandal and this situation leads to a question about the integrity of Halal meat exported to the Organization of Islamic Cooperation (OIC) countries (Alim, 2017).

Halal risk and reputation management need to be maintained to ensure the trust of Halal consumers around the world. However, the lack of authenticity and inaccuracy is a huge issue that can hurt the integrity of the Halal supply chain. As the Halal food chain issues continue to spread, it is important to find a system that is potentially able to prevent such things. The blockchain concept integrates a verifiable, open, and safe shared database system that is not run by a centralised operator. The incorporation of Blockchain technology can potentially improve transparency in every single process (Tieman & Darun, 2018).

The paper presents a conceptual framework of Halal food chain verification for the manufactured food products. The framework is hoped to assist the food industry players in designing a system that can improve the transparency and the integrity of their Halal food chain. The developed system is expected to speed up the Halal certification process, and the transparency of the system allows the Muslim consumers to have a higher level of trust towards the products.

Literature Review

Challenges in the Halal Food Industry

It was claimed that research and development of new products are still somehow limited. Therefore, the presence of Halal-certified products around the world is quite minimal. Chances are high that the Muslim consumers in the non-Muslim majority countries will have difficulty to find Halal products for their consumption. Eventually, they have to resort to ingredient checking towards the products and those without proper knowledge may not notice the presence of *Subhah* (doubtful) materials or even Haram content inside the products. Not only that, but some manufacturers also deliberately hide some ingredients behind the trivial names and this practice makes it even more difficult for the Muslim consumers to confirm the Halal status of the products (Adams, 2007).

Halal supply chain involves farm to fork processes and it is crucial to maintain the integrity of every single aspect. The halal industry is hugely controlled (80%) by the non-Muslim players and this is quite alarming as there are potentials that the industry players do not have proper knowledge regarding the process and the integrity. Some Muslim consumers also question their integrity in doing such business process as they are not necessarily the ones at stake when it comes to the final product. The lack of supply in Halal raw materials and Halal meat also highly affects the backbone of Halal industry (Bohari, Hin, & Fuad, 2013). One of the most crucial issues in the Halal industry is authenticity and accuracy in the data of the Halal products (Tieman & Darun, 2018). Halal food chain processes are highly challenged by cross-contamination, Halal counterfeiting, Halal fraud, logistic issues, and unstandardised Halal standards.

The existence of many Islamic teachings around the world leads to the difficulty in standardising Halal standards. Therefore, Halal certification systems developed are mainly not recognised globally. Halal certification bodies usually do not recognise each other as they have different practices. JAKIM (Department of Islamic Development Malaysia) and MUI (Indonesian Ulema Council) list the Halal certification bodies that they recognise and the list changes according to the situations of the recognised bodies. However, some Halal logo fraud cases also haunt the Halal industry lately and this issue needs to be soon addressed. It is also important to note that the Halal status of cargo is not communicated on cargo labels, freight documents, and in ICT systems (Tieman & Darun, 2018). The cargo can easily be used for transporting non-Halal products and Halal products at the same time. This can lead to a cross-contamination issue.

Another issue in the Halal industry is the slow loan process and this especially affects the small and medium-sized enterprises (SMEs). This puts an effect on the affordability of the Halal certification process, and some of the SMEs are discouraged and cannot ensure the availability of Halal certification in their products (Majid, Abidin, Majid, & Chik, 2015). These SMEs cannot compete with the major players as it is hard for them to gain trust from the consumers. Applying for Halal certification might be considered cheap, but the implementation of Halal certification involves a lot of resources and financial issue is a major contribution to the failure of implementation.

Halal Food Chain Violation Cases

To ensure that a Halal product is achieved, the Halal supply chain must be accordingly monitored. However, due to the complicated and lengthy processes, some parts of Halal food chain can easily be violated by the irresponsible players. Brazil is one of the most important key suppliers of meat for the OIC countries and the export is valued at around 6.5 billion USD

(Riaz & Chaudry, 2004). However, since Brazil is a non-Muslim majority country, it is quite difficult to control the integrity of the Halal supply chain in the country. It was reported by Reuters a food fraud issue in Brazil and this involved bribery towards the politicians as well as the food inspectors (Alim, 2017). The food inspectors and politicians were bribed to ensure that the industry can get away with their unhygienic practices. It is hard to identify how much Halal food is involved in this travesty. The total of meat exports in Brazil was 12 billion USD in 2016, both for Halal and non-Halal sections. Approximately 25% of beef exports and 50% of poultry exports in Brazil are Halal (Alim, 2017). A Malaysian study discussed the food from Middle Eastern and North Africa and it conducted an investigation into some Arab shops around Klang Valley area. They discovered that some of the products with Arabic writings were manufactured in countries like the Netherlands, China, Spain, India, Vietnam, and Thailand (Perdana, Jan, Altunişik, Jaswir, & Kartika, 2019). Since the products were produced in non-Muslim countries, these can be exposed to cross-contamination or practices that are not in line with the *Shariah* Law (Perdana, Jan, Altunişik, Jaswir, & Kartika, n.d.).

In Malaysia, Halal counterfeiting cases were identified by the Domestic Trade and Consumer Affairs Ministry in 2018. Around 41 cases were identified, and 17 million products involved in the fake Halal logo cases were seized. Datuk Muez Abd. Aziz reported that Halal counterfeiting cases are crucial to be solved as the Halal food industry in Malaysia is estimated to be valued around 560 million USD (Reduan & Anwar, 2018). A meat supplier in the UK that claimed to sell Halal meat was arrested for a food fraud case. The food fraud was identified after the laboratory test indicated that cheaper beef cut was found in the lamb meat sold by the supplier. The supplier also put a Halal logo at the shop and it had never been certified before (Johari, 2010). McDonald's in the USA discontinued the production of Halal chicken nuggets and chicken sandwiches at two of its chains. It was accused of false advertisement regarding Halal chicken and a lawsuit was filed for that. McDonald's had to pay 700,000 USD for the case but it denied any wrongdoing in the situation (Sacirbey, 2013). Aosse, the founding father of Midamar Corporation (a US company that specialises in the Halal food trade), was arrested for mislabelling cases that involved the export of beef that was not in accordance with Indonesian and Malaysian Halal standard. The man himself is one of the pioneers of Halal trade in the US (The Jakarta Post, 2016).

Cross-contamination is a huge issue that disrupts the integrity of the Halal supply chain. Doosti, Ghasemi, & Rahimi (2014) conducted a study in Iran and unlawful meats like poultry, pig, donkey, and horse meat were found in the 17 meat products studied. In 2017, pork meat was found in the four containers that were designated to carry goat meat. The four containers were seized by MAQIS (Malaysian Quarantine Inspection Services) and allegedly there were 74 more containers with similar content. It was believed that some of those were sold to the Malaysian consumers already. The containers were owned by a local company claiming to have a Malaysian Halal certification. However, upon investigation, it was found that the company was not registered to the Halal certification body. The company was charged for misusing the Halal logo in its business (Suhaini, 2017).

Despite careful attempts in complying with the Halal certification requirements, some companies may have to experience failures in the system, and this can lead to violations. Halal certification of High-5 bakery in Nilai was withdrawn as it was found that the company involved unsanitary process, had an issue regarding the employment of illegal workers, and most importantly cooking oil without Halal certification was found during an audit (The Star, 2012). Two of the Cadbury products namely Cadbury Dairy Milk Roast Almond and Cadbury Dairy Milk Hazelnut had a Halal integrity issue as the Malaysia Health

Minister found a trace of porcine (pig) DNA in those products (Halalmedia, 2014). Eventually, JAKIM conducted a test and the results indicated that Cadbury complied with Halal certification requirements. It was later announced to the Muslims that Cadbury was safe for consumption (EatHalal, 2014; Reuters, 2014).

The Technology to Solve the Halal Food Issues

The presence of Halal certification is crucial for the Muslim consumers and even to them, it is more important than International Standardized Organization (ISO) certification (Shafie & Othman, 2006). Halal certification is a form of assurance that protects their religious needs, and the integrity of Halal certification must be maintained. As Halal products are also consumed by the non-Muslim consumers, it is also imperative that the Halal certification bodies and industry players maintain the reputation and the trust so they can retain the consumers. However, the Halal industry also deals with so many inaccuracy and inauthenticity issues lately. It is quite difficult to control the whole system as not everyone has access to the information. All the stakeholders and industry players have their own in-house ledgers that store their information. This is where the issues may arise as the current system does not really embrace transparency. Transparency is the key to a successful Halal food chain, and the presence of transparency will improve both authenticity and trust of a Halal certified product. Blockchain itself is a technology that allows a shared database that is equipped with an open, safe, and verifiable system. The implementation of blockchain also does not require the presence of a central operator and thus, the information flow cannot be easily manipulated.

One of the most sensitive issues in the Halal industry is the integrity of the food supply chain. Halal food supply chain issues mainly include cross-contamination, Halal counterfeiting, Halal fraud, logistic issues and no development towards a standardised Halal standard that is applicable around the world. There was an *E. coli* outbreak back then in 2018 and it took so long for the Walmart to identify which batches of romaine lettuce that contained *E. coli* bacteria. The blockchain technology could have prevented the time wasted and complications during the identification as the information would have been accessible for everyone. Malaysia Health Minister found a trace of porcine (pig) DNA in Cadbury Dairy Milk Roast Almond and Cadbury Dairy Milk Hazelnut. The Muslim consumers in Malaysia lost their trust in Cadbury for some time and it took a while for the company to eventually gain their trust again. JAKIM eventually announced that the company complied with the Halal certification requirements, but the damage caused by issues from certain batches could have cost Cadbury the reputation. The implementation of blockchain would have directed the company to the tainted products right away and the issues would have been solved in no time. JAKIM could have easily confirmed the Halal status of everything else as the presence of blockchain technology would have shared all the information required.

Overview of Blockchain Technology

Initially, blockchain technology was destined to solve a problem in the financial sector (Zheng, Xie, Dai, Chen, & Wang, 2017). Blockchain can be defined as a secure ledger that serves every transaction. Each ledger is attributed to every involved party within a particular distributed network of computers. Everything involved in every transaction is accordingly archived and recorded, and this is to ensure the integrity and authenticity of all the distributed information. The system is possible due to the distributed consensus mechanism.

Blockchain resembles our DNA structure as it is not centralised at a certain place. It is accordingly distributed on var-

ious servers available in the world (Tieman & Darun, 2018). All the blockchains are ciphered, and they are integrated into the distributed blockchains. This allows them to be a public ledger that everyone finds trustworthy. Every single user has access to check the value, but no user is able to control. Smart contracts are contracts between all involved parties that serve to ensure compliance in each node (Kiayias, Russell, David, & Oliynykov, 2017). The integration between distributed ledger system and smart contracts will allow an improved system for the Halal supply chain. For the blockchain system in general, please see Figure 1.

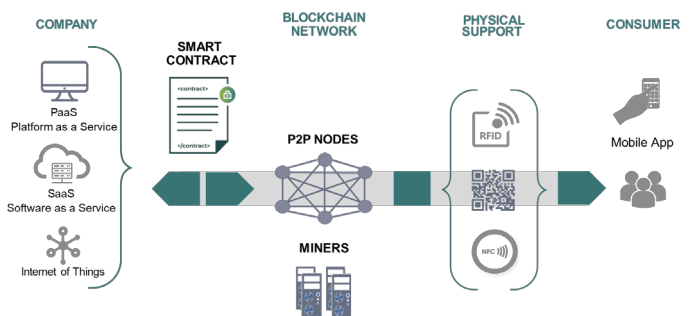


Figure 1. General Blockchain System.

The information in all blockchain nodes can be presented in any size and form such as video, documents, and images. Every single block attributed to a blockchain network is bound to save some information along with the hash of its preceding block. A hash is defined as a special mathematical code which is attributed to a certain block. Once there is a modification in the information inside the block, a modification inside the hash will occur as well. The system allows the connection of many blocks through a special hash code and this ensures the security of blockchain (Kiayias *et al.*, 2017). With the utilisation of a mobile app and website, the information available can be open to the public for the entire supply chain, shared with only certain users in the supply chain system or reserved. The benefits of blockchain include improved trust, chain integrity, transparency and performance optimisation (Axfoundation, SKL Kommentus, Swedish county councils and regions, Martin & Servera, & Kairos Future, 2017). The usage of blockchain allows the consumers to validate the integrity of the products and therefore, it will retain their trust in using the products. In terms of chain integrity, it allows automatic alignment of market requirements to a supply chain scenario (Tripoli & Schmidhuber, 2018). Apart from that, blockchain improves transparency in the sense of a better audit system and effective isolation towards important issues (Yiannas, 2018). Blockchain implementation can also be a system that can gauge the performance of every party involved, thus identification towards the optimisation in the system will be possible (Caro, Ali, Vecchio, & Giaffreda, 2018).

Implementation of Blockchain Technology in The Food Industry

As it progresses, many potentials are unlocked and the versatility of blockchain technology allows it to be implemented in many different industries (Axfoundation *et al.*, 2017; Lin, Shen, Zhang, & Chai, 2018; Mathisen, 2018; A Rejeb, 2018; Abderahman Rejeb, 2018; Verhoeven, Sinn, & Herden, 2018; Yiannas, 2018; Zubaidi & Abdullah, 2017). The food industry is one of the sectors that has been actively developing blockchain technology, especially in the traceability department. The World Wildlife Fund (WWF) in Australia, Fiji and New Zealand used a blockchain technology to trace and track tuna fishing journey from "bait to plate". The project was intended to prevent illegal fishing and violation of human rights in the industry (Visser &

Hanich, 2017). A company called AgriDigital utilised blockchain technology for their grain sales. The company settled their very first sale in December 2016 and 23.46 tonnes of grain were sold with the help of blockchain (ICT4Ag, 2017). The company has since elevated efficient and trustworthy agricultural supply chain to the next level (AgriDigital, 2017). Food contamination is one of the major contributors in American health issues as around 48 million of Americans were found to be sick and 3,000 were to die each year due to that particular issue (CDC, 2018). This situation inspired Walmart and Kroger to incorporate blockchain technology in their food supply chain and one of their first pilot studies focused on Mexican mangoes (CB Insights, 2017). Cargill Inc., a giant in agriculture business, incorporates blockchain technology that allows their consumers to trace the origin of their turkeys (Bunge, 2017). The pilot project conducted by the company also involves concerns in their animal welfare (Hendrix Genetics, 2018). The grocer giant from Europe, Carrefour, also involves blockchain technology in their system, and this helps standardise and trace food origins in many categories, including dairy products, vegetables, fruits, fish, and meat (Love & Somerville, 2018)

Framework of Blockchain in the Halal Industry

Halal Food Chain and Process Flow

The Halal food supply chain is defined as a series of the farm-to-fork process involving Halal food supply and the Halal integrity of all the processes is accordingly maintained. Bahrudin, Ilyas, and Desa (2011) defined the Halal food supply chain as management towards the procurement, transportation, storage and handling of livestock, parts, materials, as well as semi-finished food inventory. The process also manages the non-food and food-related information as well as the documentation flows in the supply chain. All the processes are conducted according to Sharia Law. Based on the proposed context, the supply chain of Halal food products includes Transporters, Suppliers, Manufacturing Plants, Warehouses, Wholesalers, Distributors, Retailers, and Final Consumers (see Figure 2).

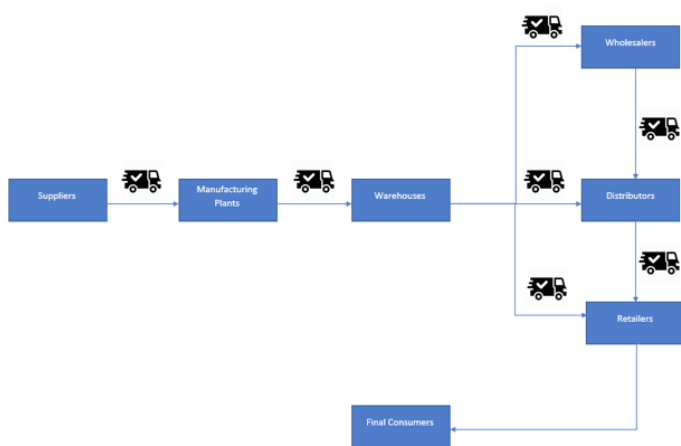


Figure 2. General Halal Food Products Supply Chain.

The process starts with the Suppliers and at this point, it is very critical to ensure the Halal status of the raw materials, food additives, and packaging materials (Ab Talib, Abdul Hamid, & Zulfakar, 2015). If an animal is involved in the raw materials, food additives or packaging materials, it is important that the animals are being fed with hygienic, good quality, and nutritious animal feed. If genetic modification process is present, it must be ensured that no Haram substances are involved in the process. They

also must be slaughtered according to *Shariah* Law. Any food additives that involve *khamr* or other *Haram* substances must also be avoided. The Halal certification of the suppliers must also be carefully monitored, especially the information regarding the expiry date (Soon, Chandia, & Regenstein, 2016).

For the transporters point, it is important to understand the segregation level of the truck in case non-Halal products are also transported using the same truck. If the truck area was previously used for transporting non-Halal products, *Samak* process must also be performed before loading the truck with the Halal products. At the manufacturing plants, the production process must be conducted in the Halal only line. Halal equipment and worker practice must follow the hygiene requirement that is in line with *Shariah* Law. At the warehouses, it is crucial to monitor segregation between Halal products and non-Halal products, storage conditions (temperature, impacts, humidity), and adequate control of contamination with non-Halal products. The products from the Warehouses are later transferred to Wholesalers, Distributors and Retailers. It is also crucial to understand the segregation level between Halal products and non-Halal products, storage conditions (temperature, impacts, humidity), and adequate control of contamination with non-Halal products (Zailani, Arrifin, Wahid, Othman, & Fernando, 2010).

Proposed Framework for Blockchain in the Halal Food Chain

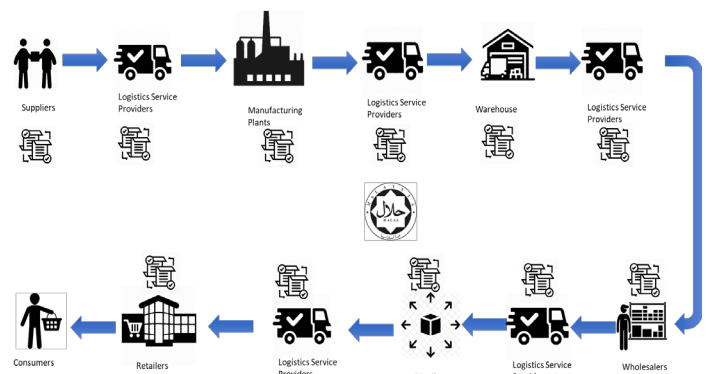


Figure 3. Halal Food Chain without Blockchain Technology.

The implementation of blockchain technology in the Halal industry is desired to achieve more reliability in the supply chain data and improve the trust level in the supply chain processes. Blockchain can also potentially improve the efficiency of the processes that include all the players from the source point to the final consumer point. The confidence level of the consumers is potentially improved as blockchain technology embraces transparency and security. Blockchain technology also offers an automated system that can lead to time reduction in solving certain problems. Problems that are solved in a short period of time will help Halal certified products minimise the damage of their brand image or reputation. Most importantly, blockchain technology allows globalisation towards the Halal industry. The technology integrates all the different Islamic teachings and Halal certification requirements around the world. *Fatwas* (local religious rulings) and local customs can also be included in the blockchain system. With the integrated system, it is hoped that we can have a Halal certification system that can be globally accepted. Without blockchain technology, the information will be stored individually in the in-house ledger of every party (Figure 3). With the help of blockchain technology, all the parties can access the available information (Figure 4).

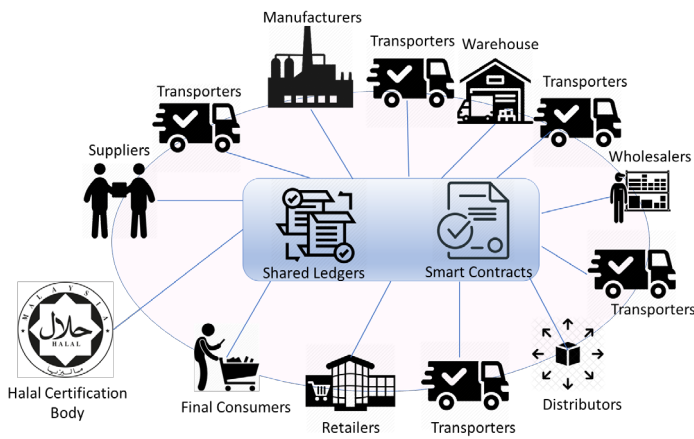


Figure 4. Halal Food Chain with Blockchain Technology.

To ensure smooth implementation of Blockchain technology in the Halal industry, there are many requirements that need consideration. Identification numbers will be placed on the animals at the farm and those identification numbers will be saved in a certain ledger. There will be a monitoring system for the animals, and it covers their living conditions and food intake. At the slaughterhouses, the health of the animals will be carefully checked, and there will be a report from an esteemed veterinarian to validate the health conditions of the animals. Upon that, various timestamps will be added to the blockchain, and this is intended to understand the cut of meat from the animal and the way the animals were treated while they were at the slaughterhouse. The data will be used as a reference to ensure the Halal integrity of the animal/meat.

DNA sensor can also be incorporated to ensure that Halal meat is up to standard upon being processed. The meat is packed with smart packaging, and this will allow a monitoring process that can track the logistics of the product from factory to supermarket or restaurant. The smart packaging and the sensors can be integrated with blockchain technology to monitor the Halal integrity of the products. Apart from that, it is also crucial to store environmental data attributed to the locations in the blockchain system.

Having all the data stored in the available ledger, the stakeholders and the consumers can have access to the information regarding Halal integrity. They can either access the information through mobile application or website. Blockchain technology is also important for the governments as it offers solutions related to import controls. The implementation of blockchain allows improvement in the regulatory compliance standards.

Once blockchain receives the information from various stakeholders across the supply chain, it is also possible to monitor the data related to legal and tax. Both B2C (Business to Consumer) and B2B (Business to Business) relations can benefit from blockchain implementation as it is a device that ensures a higher level of transparency and authenticity assurance. Consumers will have a higher level of confidence as they will be able to trace the origins of the ingredients as well as the way the animals were treated during the slaughtering process. Eventually, the implementation of blockchain technology is served as a platform for Halal industry players to enhance responsibility and transparency in the process. Improvement in both transparency and responsibility means higher quality for Halal products available in the market.

The idea of blockchain technology developed for Halal chain is to obtain information regarding the Halal certification body that issues the Halal certification towards the products, the country of origin, the *Madhabs* that can accept the Halal standards/requirements, commence date of Halal certification, the expiry date of Halal certification, recognition from JAKIM as

well as recognition from other Halal certification bodies. All the *Madhab* requirements are integrated, and some products can be acceptable for more than one single *Madhab*. The information regarding Halal certification bodies is hoped to create a data pool that incorporates as many registered Halal certification bodies as possible. With the information, Halal certified products that are only locally recognised can further their presence in the national or even international market. This will help increase their sales and revenues and by achieving so, they will be more interested to develop more products in the future. The framework of blockchain technology for Halal food chain flow can be seen in Figure 5 and the explanation of each node can be seen in Table 1 below.

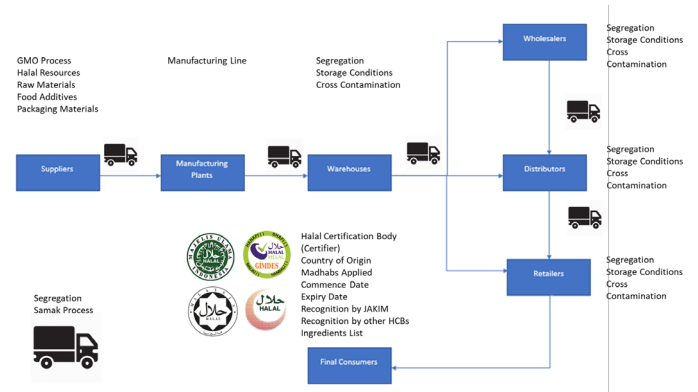


Figure 5. Tracked Items at Halal Chain Point.

Many food industry players in the OIC countries are most likely not Halal certified as most of these countries apply the *Kullu Halal* concept. The *Kullu Halal* concept means everything is Halal unless stated otherwise (Cochrane, 2016). Despite heavily applied, these countries also import ingredients from non-Muslim countries and some of them are even animal-based (Latif, Mohamed, Sharifuddin, & Mahir, 2014). With the blockchain technology, the integrated system for Halal certification requirements will speed up the Halal certification process in the future. This will eliminate the complications in the certification process as well as potential cost reduction in the documentation aspect. The Muslim consumers, especially the ones living in non-Muslim majority countries, will also take advantage of the system by having more trust towards the products they consume as blockchain technology improves transparency in every single point.

Table 1. Items Controlled by Blockchain Technology.

No.	Process	Controlled Items
1	Suppliers	Halal certified raw materials
		Halal certified food additives
		Halal certified packaging materials
		Halal certified suppliers
2	Manufacturing Plants	Halal certified manufacturing line/ dedicated machinery and equipment
3	Warehouses	Proper segregation between Halal products and non-Halal products
		Proper storage conditions (temperature, impacts, humidity)
		Adequate control of contamination with non-Halal products

4	Transportation	Samak process if the truck was used to transport non-Halal meat
		Segregation between Halal meat and non-Halal meat
5	Wholesalers	Proper segregation between Halal products and non-Halal products
		Proper storage conditions (temperature, impacts, humidity)
		Adequate control of contamination with non-Halal products
6	Distributors	Proper segregation between Halal products and non-Halal products
		Proper storage conditions (temperature, impacts, humidity)
		Adequate control of contamination with non-Halal products
7	Retailers	Proper segregation between Halal products and non-Halal products
		Proper storage conditions (temperature, impacts, humidity)
		Adequate control of contamination with non-Halal products
8	Halal Certification Bodies	The name of Halal Certification Body (HCB) that issues the certification
		The country where the product originated
		List of <i>madhab</i> followers that can accept the Halal practices/Halal standards
		The commence date issued by the HCB
		The expiry date issued by the HCB
		The Halal Certification Bodies that recognise this particular product

Conclusion

The study showcases an insight towards the issues in the Halal food chain as well as the violation cases that have occurred in the past few years. Despite the supply chain applied in the system, monitoring every single step can be quite challenging. It is also important to note that implementing Blockchain technology can be somewhat challenging to the industry. Some of the challenges include implementation issues, regulatory issues, potential security threats, uncertain ROI, no available use case in the Halal industry, and concerns regarding sensitive information. Blockchain technology is quite new, and people’s awareness of the importance and benefits of it is quite low. It is important to educate the Halal industry players regarding the Blockchain technology and what it can potentially offer to their business model. The incorporation of blockchain technology is hoped to overcome the issues in the Halal food chain. The paper also presents a framework that incorporates blockchain technology in the Halal food chain. The proposed framework is hoped to help the food industry players in maintaining a system that can improve the transparency and the integrity of their Halal food chain. Apart from that, the developed system is expected to speed up the Halal certification process and eventually it will lead to the affordability of the certification process. The transparency of the system allows the Muslim consumers to have a higher level of trust towards the products and this is a form of consumer protection for them.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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Significance of Financial Literacy among Women Entrepreneurs on Halal Business

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Abstract: Muslim women have created a unique space for them in the economy by advocating halal entrepreneurship. Islam has encouraged women to engage in business activities. However, Muslim women are struggling to gain acknowledgement from society and face multiple challenges, including limitations in running the business. Besides the gender gap that is prevalent globally, women also have limited knowledge about business. They run the business based on their informal managerial experience and little understanding of financial literacy. This study identifies the characteristics of Muslim women entrepreneurs who engage in entrepreneurship as well as their challenges in running the business.

Purpose of study: To explain the significance of financial literacy for Muslim women entrepreneurs to run their business and achieve high business performance.

Methodology: Library research was used to critically review the literature on the behavioural factors influencing women entrepreneurs in doing the halal business and the significance of financial literacy on business performance.

Findings: Women entrepreneurs are often driven by the push factors and run their business with limited skill and knowledge particularly financial and business knowledge. In the case of Malaysia, women often spend their income more on non-related business expenses which might prevent business growth. This study found that the significant problems faced by Muslim women entrepreneurs were the lack of access to capital and finance, business management skills, business operation and government regulations and policies. This study explained that financial literacy was essential for women entrepreneurs to manage finances for business well and to help them face the challenges related to finance and improve business performance.

Keywords: Halal business; financial literacy; women entrepreneurs

Received: 30th November 2019

Accepted: 27th Marc 2020

Published Online: 24th April 2020

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Citation: Yasin RFF, Mahmud MW and Diniyya AA. Significance of financial literacy among women entrepreneurs on Halal business. *J Halal Ind Serv* 2020; 3(Special Issue): a0000076. <https://doi.org/10.3687/jhis.a0000076>

Introduction

Advancing women's economic empowerment through entrepreneurship is essential for sustainable development. Women's participation in economic activity could result in the additional US \$12 trillion to annual global output by 2025 (United Nations, 2018). Women's entrepreneurship supports the sustainable development agenda to reduce poverty and gender equality goals. Islam encourages Muslims to work and create a better life, regardless of gender. Islam gives freedom for women to engage in halal economic activities. Prophet Muhammad (PBUH) also encouraged women to engage in halal activities, such as trade and commerce.

Women empowerment is a cornerstone of the 2030 Agenda for Sustainable Development. The 2016 Report of the United Nations Secretary-General's High-Level Panel on Women's Economic Empowerment shows the strong evidence that women are left behind men in terms of the number of female business owners, the size of women-owned businesses, and their access to economic resources. According to Demirgüç-Kunt *et al.* (2015), women in OECD high-income economies were about 20% less likely than their male counterparts to report having borrowed from a financial institution in 2014. Most of the women are weak in understanding different financial products and operation of financial services, particularly in the area of mortgages

and investing (Melissa, 2011). Women face additional barriers than men in accessing financial services (OECD, 2013). In many countries, women display lower financial knowledge than men, which the barrier often comes from limited access to education, employment, entrepreneurship and formal financial markets.

Undeniably, women running a business have limited access to education and training, financial resources, technology and social capital. Tambunan's (2009) study of women entrepreneurs in Indonesia found that businesswomen also face motivation, family support, and access to material and labour problems. Given the role and responsibility as a woman and entrepreneur, they need to understand the financial and business managerial topics to face the challenges. Therefore, financial knowledge is essential for a business player in running his/her enterprise.

For Muslim women, the religious issue is essential in doing business. Islam teaches Muslims to conduct business ethically and implement Islamic rules into business operations. Halal entrepreneurship is linking halal development to business activities (Bustaman, 2012). Muslim women entrepreneurs are obliged to implement Islamic values into their business practices as well as engage in Shariah-compliant activities. Understanding business management and the market is also essential for entrepreneurs. As an entrepreneur, it is important to emphasise those aspects of business operations. Women need a better understanding of financial markets, products, and component functions, as well as

understanding how the financial institution operates in its transaction in order to be financially literate.

Materials and Methods

Financial Literacy

According to the President's Advisory Council on Financial Literacy (PACFL), financial literacy is the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being. Utilising financial literacy, an entrepreneur could gain personal welfare. To accommodate the financial problem; female entrepreneurs need financial literacy to manage their cash-flow and money wisely to ensure the sustainability of their business and support their families.

The OECD defines the financial literacy for adults as "a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make a sound financial decision and achieve financial wellbeing" (Atkinson & Messy, 2012). In the context of small-medium enterprises, financial literacy is defined as "the combination of awareness, knowledge, skill, attitude, and behaviour that an entrepreneur or an owner of micro, small, medium businesses should have for an effective financial decision making to start, run, and ensure the sustainability and growth of the business" (OECD, 2018).

Typically, financial literacy is a model for financial education and explains variations in financial outcomes. Financial knowledge and financial education are often used interchangeably in the literature and popular media. Defining and measuring financial literacy is essential to understand the educational impact and barriers to financial decision-making.

There are five standards to measure financial literacy (The Institute for Financial Literacy, 2007), namely:

1. Money Management: The utilisation of cash-flow management and analysis of net worth to achieve financial goals.
2. Credit: Understanding to obtain credit and implication of using/misusing the credit.
3. Debt Management: Understanding to use debt as a building asset tool. Knowing how to measure and solve the debt issue.
4. Risk Management: Protecting assets and life quality using risk management strategies.
5. Investing and Retirement Planning: Achieving financial goals by applying investment and retirement strategies.

Huston (2010) defines four standards to measure financial literacy:

1. Money basics: understanding personal financial accounting concepts, purchasing
2. power, and the time value of money.
3. Investing: knowing how to save present resources for future use.
4. Borrowing: knowing how to bring future resources into the present.
5. Protecting resources: understanding the strategies to secure assets.

Huston conceptualised financial literacy into understanding personal finance knowledge and use of the financial application. The first dimension is knowledge; an understanding

acquired through education and experience towards the financial product. While the other is the application dimension, the ability to apply the knowledge to personal finance decision effectively.

Financial literacy is a component of human capital that might affect the utility of consumption. Other influences such as behavioural/cognitive bias, self-control, family, social, economy and institutional environment might affect a person's financial behaviour and well-being, while financial education is defined as an input intended to increase human capital by understanding the financial knowledge and application (Huston, 2010). It is the process by which people improve their understanding of financial products, services and concepts, so they might be able to make the right decision for their financial well-being. A well-structured financial literacy plan can improve human capital and financial decisions.

Halal Business Practices

Islam encourages Muslims to engage in positive activities and benefit the universe as *Khalifah fi al-Ardh*. The Prophet (PBUH) and his wife were business people. *Al-falah* is the goal of every Muslim. To achieve this goal, we must obey Allah's command and avoid His prohibitions. Islam is a way of life that integrates material and spiritual aspects in daily life. Rafiki and Kalsom (2013) categorise Islamic business practices into religious practices and Shariah compliance. The religious practices include prayers, almsgiving (*zakah*) and charity (*sadaqah*), fasting in Ramadhan and networking. While Shariah compliance encompasses Islamic finance, permissible products and services, almsgiving (*zakah*) and implementation of Islamic values in business.

In Islamic religious-based business, the halal industry represents the religious practice of its stakeholders. From the Islamic perspective, according to Bensaid and Machouche (2013), one critical outcome of religious learning is fulfilling the *maslahah* or well-being. The halal business has the goal to fulfil the needs and desires of the community for sustainability. From an Islamic point of view, its fulfilment should comply with *Maqasid Al-Shariah* as the objectives of Islam (Rahman *et al.*, 2017).

Halal business and commerce introduce the new paradigm to stakeholders whereby the profit maximisation is not the primary objective. As a business organisation, Shariah-compliant enterprises are expected to promote Islamic values. The Islamic principle is based on the benefit of humanity and obeying God's commands (Ullah & Yousuf, 2013). In halal business practice, there is no conflict between its aim and profit-making activities.

A halal business includes the complete process of entrepreneurship including its capital, planning, process, management, marketing and profit-making. The content should be based on guidance from the divine revelation.

According to Ullah and Yousuf (2013), Islamic or halal entrepreneurship focuses on the following principles:

1. Entrepreneurship is an integral part of the Islamic transaction (*mu'amalat*).
2. Muslim entrepreneurs are essentially playing their role as a 'khalifah', and they have the responsibilities to bring prosperity to this life (*imarah al-ard*). The halal business should be seen as part of *ibadah* or performing good deeds.
3. Taqwa (God-consciousness) — it relates entrepreneurs with total recumbence to Allah and fostering good relationships with others
4. Motivation—success in Islam is not merely measured by the result but also the way and means of achieving it.
5. Noble position of entrepreneurship and halal business in Islam in which Islam encourages its ummah to venture into

business.

6. Islamic Economic System — Islamic entrepreneurship should operate within the domain of the Islamic economic system and act as the vehicle towards its acceptance globally.
7. The guiding principles of Islamic entrepreneurship are the al-Quran and al-Hadith.
8. Entrepreneurial ethics are based on the exemplary conduct of Prophet Muhammad (PBUH).

Halal is not only related to religion in terms of halal certification or halal standard but also viewed as the “best value” for economic development (Zailani *et al.*, 2015). The halal industry can increase the income and quality of people’s lives through trade, investment, service provision and employment opportunities. Thus, people’s involvement in the halal economy, halal entrepreneurship and human capital development is emphasised.

Islamic Perspective on Women Entrepreneurs in Doing Business Activities

In the Islamic perspective, entrepreneurship is doing business with innovation and risk under the guidelines of Islam that forbid dishonesty, greed, exploitation and monopoly. Muslim entrepreneurs should have a noble intention and holistic approaches compared to other entrepreneurs. The essential task of a Muslim entrepreneur is to hold on to his/her faith (*iman*) and to serve Allah SWT in seeking success (*al-falah*) (Nayeam, 2006).

Male and female Muslim entrepreneurs spread positive perceptions in promoting Islamic values through business activities. The positive correlation between women and earnings is stated clearly in the Holy al-Quran:

لِّلرِّجَالِ نَصِيبٌ مِّمَّا كَسَبُواْ وَلِلنِّسَاءِ نَصِيبٌ مِّمَّا كَسَبْنَ

“Men shall have a benefit from what they earn, and women shall have a benefit from what they earn.” (al-Quran 4: 32)

In Islam, women are treated equally to men spiritually as well as in other aspects of life with different rights and responsibilities. Women have survived by engaging in agriculture, business, trade and commerce, writing, and manufacturing, among others. The daughter of Abu Bakr, Asma’ was given land to farm when she was married to Zubair in order to farm and collect wealth. Khadijah bint Khuwailid, the wife of Prophet Muhammad (PBUH), successfully managed her father’s business and became a wealthy woman at the time. There were many well-known female traders during the Prophet’s (PBUH) time such as Umm al-Munzir binti Qays, Asmah binti Makhzemah bin Jandal. During the leadership of Saidina ‘Umar Ibn al-Khattab, a woman trader named Al-Shifa binti Muawiz was elected to be the “commandant” of the Madinah market (Abbas, 2012).

Gender is not an obstacle in Islam for female entrepreneurs. Islam has ruled and covered every aspect of rights and obligations. Women are allowed to express themselves and work in various fields as long as the work is done in an atmosphere of respect, protection and modesty where activities can be carried out while maintaining their faith and religion. They must ensure they avoid the negative impacts of work on themselves and the environment (Anggadwita *et al.*, 2015). According to Ullah and Yousof (2013), there are five guidelines that women should follow if they want to run a business. First, women must gain consent from their guardian or husband (if married), who may offer a broader perspective on how their activities may influence the

family. Second, a woman must ensure that her home and children are properly cared for. Third is choosing the proper business activities that fit their skill and do not contravene the Shariah. Fourth, any activity that prevents her from fulfilling any of her Islamic obligations, like wearing the Hijab and covering the ‘*awrah*, performing the obligatory prayer, for example, cannot be considered. While the fifth is that the Muslim women dress code should adhere to Islamic rules.

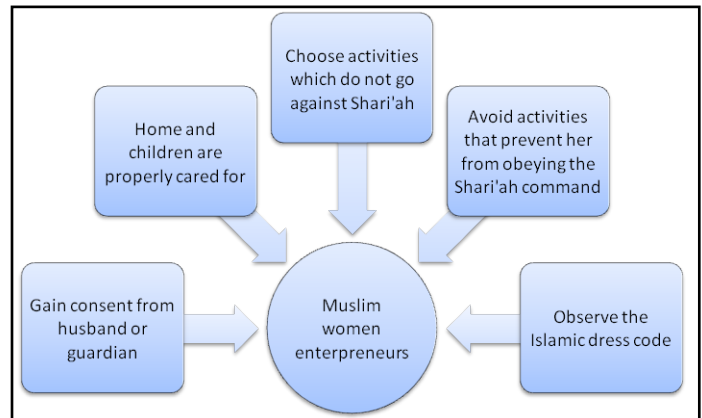


Figure 1. Guidelines for Muslim women entrepreneurs in running their activities. Adapted from Ullah and Yousof (2013).

Factors Influencing Women Entrepreneurs in Practising Halal Business

DeMartino and Barbato (2003) concluded that women choose to be entrepreneurs to achieve a better work-life balance. Some studies revealed that women with small children are likely to choose becoming an entrepreneur. In addition to the motivation behind the business, women often prefer the compatibility of family and profession as well as flexible working hours (Ebbers & Piper, 2017).

The utilisation of financial services is closely related to the income and wealth of individual consumers. Whether women work full time or part-time is a crucial factor in determining their consumption of financial services (Burton, 2015). Women entrepreneurs with high financial understanding will benefit from wise spending between organising their business and family spending.

The tendency of women to create new businesses is mainly in the service sector, such as saloon, tailor, SPA, laundry, nursery, interior designer and wedding planner. It has been argued that women have the most knowledge and experience in the service sector. Women frequently lack technical skills which discourage them from starting a business in the manufacturing and high-tech sectors (Bruni, Gherardi, & Poggio, 2004). The difficulty faced by women in obtaining financial resources has led them to choose low capital-intensive activities such as those found in the service sector.

Bruni *et al.* (2004) found that previous studies classified women entrepreneurs into seven classifications (Goffee & Scase, 1985; Cromie & Hayes, 1988; Monaci, 1997):

1. The “aimless” young women who set up a business primarily as an alternative to unemployment;
2. The “success-oriented” young women for whom entrepreneurship is not random or obligatory choice but a long-term career strategy;
3. The “strongly success-oriented” women, usually without

children, who view the entrepreneurial activity as an opportunity for greater professional fulfilment or as a means to overcome the obstacles against career advancement encountered in the organisations for which they previously worked;

4. The “dualists”, often with substantial work experience, who must reconcile work and family responsibilities and are therefore looking for a solution which gives them flexibility;
5. The “return workers”, or women (usually low-skilled) who have quit their previous jobs to look after their families and are motivated by mainly economic considerations or a desire to create space for self-fulfilment outside the family sphere;
6. The “traditionalists”, or women with family backgrounds in which the owning and running of a business is a longstanding tradition; and
7. The “radicals”, or women motivated by a culture antagonist to conventional entrepreneurial values who set up initiatives intended to promote the interests of women in society.

Dechant and Lamky (2005) and Naser and Mohammed (2009) argued that push factors are associated with low-income, dissatisfaction, strict working hours, lack of job opportunities whereas pull factors are associated with self-accomplishment, desire to help others. In other words, push factors are related to the necessary factors that force individuals to do entrepreneurial activities while pull factors draw and inspire them to pursue the opportunities in the market (Holmen *et al.*, 2011). Among developing countries and emerging economies, push factors are the dominant motivation among entrepreneurs while entrepreneurs in developed countries are mostly motivated by pull factors.

Soltanian *et al.* (2016) found that becoming halal entrepreneurs (halalpreneur) is attractive, and many entrepreneurs regard halal entrepreneurship as a necessity. They found seven factors associated with halalpreneurs. They are; the awareness of halal entrepreneurship, intrinsic motivation, effort to seek out opportunity, perceived desirability, peer influence, perceived feasibility and perceived governmental support. Those factors are considered important in encouraging entrepreneurs to engage in halal business.

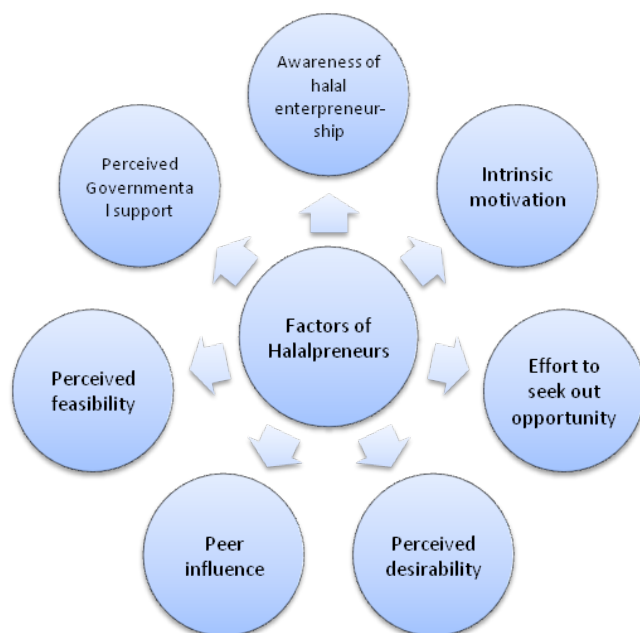


Figure 2. Factors influencing Halalpreneurs. Adapted from Soltanian *et al.* (2015).

In the Theory of Planned Behaviour by Ajzen (1991), intention can be explained as the degree of hardship and effort that people are willing to perform. It is a reliable predictor of human behaviour. Entrepreneurial motivation is the driving force behind one's behaviour and decision. It is an important factor shaping the outcomes for women-owned business. In low-income countries, most women entrepreneurs are doing business out of necessity due to lack of employment opportunities. While women-owned business in the developed countries is driven by market opportunities (Asian Development Bank, 2018). However, regardless of the motivation of being an entrepreneur, every Muslim should implement Shariah-compliant activities into their business.

Women Entrepreneurs in Malaysia

In the case of Malaysia, some of the women empowerment programmes have been conducted to promote entrepreneurship. Women of Will is a non-profit, non-governmental organisation that helps women from a disadvantaged background in Malaysia to facilitate about RM2,000 in micro-credit. SME Bank also provides Women Entrepreneur Financing Programme which provides financial assistance up to RM2.5 million. The other financing programmes such as Temanita Financing Scheme, National Entrepreneurship Institute (INSKEN), Global Accelerator Programme (Malaysian Global Innovation & Creativity Centre), and Cradle Investment Programme are providing entrepreneurial grants for Malay women.

Although some programmes offer a financial grant for women's business, surprisingly the recent study showed that financial literacy among SME players, particularly those who are still in the development phase is still low. Most of the women-owned businesses in Malaysia face some problems and challenges such as lack of capital, and skills particularly in marketing, low motivation and confidence level (Roddin, 2012; Mohamad & Bakar, 2017). Supported by the study from Loveline, Uchen-na, and Karubi (2014) that the problem related to labour burden, limited access to financial resources, limited access to markets, low education and training, and limited network to the government policies were among the problems faced by Malay women entrepreneurs.

Besides, family structure is playing another dominant role in persisting women from an entrepreneurial society. A study by Kamaruddin *et al.* (2018) found that social and cultural factors are the most factors that encourage women to do business, followed by economic factors and legal and administrative factors. Karami *et al.* (2013) also found that women entrepreneurs in Malaysia have a limited financial management skill which might prevent business growth. They also argued that women entrepreneurs in Malaysia spend a large proportion of their income for other expenses not related to business.

Financial Literacy among Women Entrepreneurs

The study by Pellegrino and Reece (1982), after interviewing 20 women small business owners in Virginia, revealed that controlling expenses, cash-flow planning, and forecasting were significant problems. These business owners expressed the belief that management was their area of weakness and indicated the necessity of training. Supported by Amatucci and Crawley (2011), successful entrepreneurs tend to have education, training or work experience in their target industry and can secure sufficient capital for start-up and ongoing operations. The typical success factors for small business include a combination of human/social and financial capital. Financial training plays a vital role in establishing a business.

The Asian Development Bank and other financial in-

stitutions and authorities recognise that financial literacy needs to be improved through financial education programmes (Farrell, Fry, & Risse, 2016). An individual needs to be motivated to pursue financial information, the ability to control emotions that can affect his/her decision-making and assurance in his/her decision-making and financial management capabilities (Atkinson & Messy, 2011). Finance behaviour is improved by first having the willingness to seek financial knowledge, understanding it, and then gaining confidence in implementing that knowledge in decision-making. Individuals who have greater confidence in their financial management capacities are more likely to approach financial difficulties as a challenge to be mastered instead of a threat to be avoided. This typical behaviour is likely to result in better accomplishments and more favourable financial outcomes.

Individuals with financial product exposure and experience determine how well they can manage their finances. Actions such as budgeting, saving and controlling overspending are indicators of forward-thinking and responsible financial behaviour which ultimately result in better financial outcomes (Farel *et al.*, 2016; Perry & Morris, 2005). Women who have higher levels of financial literacy are more likely to hold an investment or credit card, while those who are more financially risk-averse, have a higher propensity to hold a saving account to secure themselves and avoid higher risk.

Financial literacy is necessary to evaluate risk and prospects in the market accurately, such as keeping track of expenses, revenue, investment and capitalisation choices (Abubakar, 2015). Women need a better understanding of financial markets, products, and component functions, as well as understanding how the financial institution operates in its transaction in order to be financially literate. Most women possess a weak understanding of financial products and services, particularly in the area of mortgages and investing (Melissa, 2011).

Having access to capital will make women responsible for their financial behaviour. Women who have access to financing are likely to experience and understand financial instruments and the functions and products of financial institutions. Without access to capital, women's financial knowledge cannot be expanded, and decisions regarding financial behaviour are likely to be less than ideal.

Women face additional barriers than men in accessing financial services (OECD, 2013). In many countries, women display lower financial knowledge than men. The barriers are often limited access to education, employment, entrepreneurship and formal financial markets, as well as disadvantageous social norms and legal treatment. Nevertheless, the digitalisation of financial services can provide useful tools to empower women, particularly in the developing world.

The Significance of Financial Literacy on Business Performance

Performance is generally defined as how a person or groups reach a conclusion to achieve the goal. Yildiz *et al.* (2014) define business performance as the extent to which the target task of the business is accomplished compared to the final output at the end of the period. Business performance can be described as the success level of the firms in fulfilling their objectives. Performance is evaluated based on the achievement of the organisation towards its goal in terms of the effectiveness of its human resources, supplier performance, product and service quality, markets, and other financial factors (Fielden *et al.*, 2003). Mahmudova and Kovacks (2018) argue that the performance of the business is usually evaluated from financial and non-financial measures. In terms of financial success, performance measures can be based on return on profits, investment and turnover of the customer (Wood, 2006). The most frequent measures that are applied in

the business performance include efficiency, growth and profit.

Some studies observed the relationship between financial literacy and business performance. According to Adomako and Danso (2014), financial literacy was believed to improve the firm performance particularly when the resources are flexible, and entrepreneurs are able to access finance easily. Their findings imply that flexible resources and access to financial capital are resources that are valuable for enhancing the financial literacy-firm performance relationship. Fauzi *et al.* (2018) found that bookkeeping literacy can predict the performance of SMEs related to sales growth and profit growth, whereby budgeting literacy can predict the performance related to the overall business. This finding is also supported by Kimunduu *et al.* (2016) that personal saving skills are relevant in enhancing the profitability of the SMEs. Pandey and Gupta (2018) also argued that record-keeping is a very important element of financial literacy in the context of business owners. Therefore, training in financial literacy enhances the financial result, improves the survival rate and reduces the default rate of the business.

Kimunduu, Erick, and Shisia (2016) management and thriving of SMEs. However, the exact effect they have on the financial performance of SMEs hasn't been fully established by the available literature thus the need for further research in this area. This study sought to establish the influence of financial literacy on the financial performance of SMEs in Ruiru sub county, Kiambu County. A descriptive survey design was adopted in conducting the study. The study population entailed the registered SMEs in Ruiru Sub County and who have undergone some financial literacy training by Equity bank through a programme known as financial knowledge for Africa (FiKA) found that entrepreneurs who are adequately equipped with personal saving skills make more profits compared to those with no knowledge of personal saving. This is because the skills help them to focus on making personal savings, thereby increasing more capital for re-investing and business expansion. This profits them in the long run. Chamwanda (2015) also argued that financial literacy is positively related to financial returns of SMEs.

Several studies also confirmed the positive relationship between financial literacy and business performance. Andoh *et al.* (2015) argued that financially literate owners were more likely to use financial services. They also highlighted that gender, secondary or technical, and financial education were statistically significant in explaining financial literacy. Fernandes (2015) added gender, education (especially economics), size of the business, and finance significantly impacted financial literacy. High levels of financial literacy correlated with higher profitability and better working capital management (Mwithiga, 2016).

Challenges of Women Entrepreneurs and Financial Literacy

Shmailan (2014) classified the challenges faced by women entrepreneurs into individual, socio-cultural, and institutional. In addition to those challenges, business phases are also considered obstacles. The three challenging business phases are start-up, operation, and expansion (Ahmad, 2011; Sadi & Ghazali, 2010). Ahmad (2011) found that women entrepreneurs in Saudi Arabia lack access to capital, respect within the community, business management skills and business operation, business and bureaucratic procedures, government regulation and policies, access to finance and spatial mobility. Women entrepreneurs in Pakistan also face lack of access to finance, education, managerial skills, governmental support and related issues, skilled labour, product marketing and promotion societal issues, cultural norms and stereotyping, immobility and heavy domestic workload (Anwar & Rashid, 2012).

Ithaamie *et al.* (2014) found that the most frequent types of challenges faced by Muslim women entrepreneurs in Malaysian SMEs are lack of financial access and capital (79.2%), lack of demand (50.9%) and location problem (50.9%). Tambunan (2009) argued that in the case of Indonesia, women entrepreneurs face discrimination, which includes removal of their business places, exploitation such as illegal charges by agents such as the police or security officers, and vulnerability to price rise, particularly in raw materials. Those problems arose mainly because of weak economic players, lack of education, heavy household chores and legal, traditional, customary, cultural or religious constraints on the extent to which women can open or operate their businesses.

Besides managerial understanding, women with limited understanding of financial literacy will face many challenges in running their business in terms of accessing capital, which will lead to other problems. There are several challenges in addressing financial literacy and education. Mitchell and Abusheva (2016) found four challenges in financial literacy. First, the challenge of equality; women display lower financial knowledge than men and are also less confident in their skills and long-term investment plans. Culture and family are the main reason for this, as women have more responsibilities with the family rather than men who focus on their career in socio-economic status. Second, the challenge of preparedness. The issue of retirement planning is often neglected by the majority of the working population. For women entrepreneurs, preparation for retirement is essential for their financial sustainability. Third, the challenge of confidence; the main problem of trusting financial institutions is that they are not transparent enough. Fourth, the challenge of legislation; many governments are aware of the importance of financial literacy in order to reach financial stability within their country, but they do not know how to go about it. It is challenging to teach financial literacy at school because most financial experts engage in the industry rather than education.

How to manage a business and financial literacy should be taught to all Muslims engaged in entrepreneurial activities. Muslims engaged in business should possess the basic knowledge of business management and financial literacy to avoid prohibited activities in their transaction. Avoiding *Riba*, *Gharar*, and *Maysir* is a foundation of Islamic finance. *Riba* is any excess in amount, including interest in a commercial transaction, *Gharar* is uncertainty which the consequences are unknown by contracting parties, and *Maysir* is speculation of doing a business transaction.

Discussion & Conclusion

In Islam, women have an important role in promoting the economic growth of the country through entrepreneurial activities. Islam encourages women to engage in creating a better life as *khalifah* through various fields, including trading and commerce. In doing so, women's activities must be based on Islamic values and avoid the negative impacts of the work on themselves. They also need to implement the Shariah principles into their business.

Halal business covers every aspect of business activity and creates value to gain *maslahah* for the community. Understanding the basic principles of halal business is vital for every Muslim as a guide in running a business. Business management and financial literacy are crucial for women entrepreneurs in running their business. Lack of understanding in both areas will prevent business growth. The study found that the major problems faced by Muslim women entrepreneurs were lack of access to capital and finance, business management skills and business operation, government regulations and policies. These problems can be resolved through proper training and education in business knowledge.

Financial literacy is found to be significant for women entrepreneurs to run their business and face the challenges. Women entrepreneurs would be successful in business through a good understanding of financial literacy. Business activity is part of the Islamic way of life. Thus, successful women entrepreneurs will contribute to empower women as well as promote the development of halal business.

Recommendation

This study critically reviewed studies concerning the significance of financial literacy on business performance. Women empowerment is important in developing economies as well as achieving the SDGs (Sustainable Development Goals). However, as Muslim women, it is obligatory to implement Islamic rules in business and become successful by having proficient financial literacy.

To promote and provide financial literacy education for women entrepreneurs, government agencies and relevant financial institutions should organise financial education programmes among women entrepreneurs to create awareness on the importance of financial literacy. This could also be supported by the establishment of Muslim women entrepreneur community to create awareness and provide training of the halal business concept that should be implemented by every Muslim. This community can help in promoting halal industries and Islamic values in society.

Further study and research can be conducted to propose an in-depth theoretical and practical framework as a solution to the challenges faced by Muslim women entrepreneurs in the education of financial literacy and running halal business activities.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

Acknowledgement

Special thanks to Yayasan Al-Bukhari for funding this research under the Project "Influences of Islamic Civilization on Malay Muslim Women and Their Contributions in Malay Archipelago".

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