



Research article

Assessing Muslim travellers' preferences regarding food in Japan using conjoint analysis: An exploratory study on the importance of prayer room availability and halalness

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ABSTRACT

This study investigates the priorities of food preference attributes of Muslim travellers in Japan to identify Muslim consumers' willingness to pay for food at establishments that offer religion-related services and to divide Muslim travellers in Japan into consumer segments. A mixed methods approach combining a questionnaire survey (386 respondents) and semi-structured, in-depth interviews (12 respondents) was employed. Food preference priority attributes were examined using discrete-choice conjoint analysis, while willingness to pay was investigated via the incentive-compatible elicitation of a consumer's reservation price range, commonly known as ICERANGE, procedure. Muslim travellers were segmented via hierarchical clustering. The results indicate that Muslim travellers in Japan prioritise prayer room availability first and halalness second when dining out. Other attributes, which figure less strongly, include access, word of mouth, and price. Muslim travellers in Japan are willing to pay 1.4 to 1.7 times more than the average price of a meal when the establishment also offers a religion-related service such as a prayer room. Moreover, the study identifies four segments of Muslim travellers in Japan: prayer-room oriented, halal-label oriented, low-budget oriented, and high-end oriented. The study's findings offer valuable insights for business owners and managers who seek to target Muslim travellers in Japan.

1. Introduction

Muslims attract interest for their religious beliefs, practices, political views, roles in society, and involvement in geopolitical events, and the Muslim market is thriving in both Muslim-majority and Muslim-minority countries (Bergeaud-Blackler, 2016a). Moreover, the joint effects of tourism and globalisation highlight the value of the massive Muslim market for businesses around the world (Wilson, 2014). CrescentRating (2017a) estimated the number of international Muslim travellers at 121 million in 2016 and expected this number to grow to 156 million in the following five years. Furthermore, CrescentRating (2017a) projected that Muslim international travel expenditures would reach 220 billion USD by 2021 and 300 billion USD by 2026.

In Japan, both the size of the Muslim population and the number of Muslim travellers have increased significantly. In 2008, the number of Muslims living in Japan was estimated at 10,000; by 2017, this estimate increased to between 100,000 and 200,000 people, only 10% of whom

are native Japanese (CrescentRating, 2017b). Over a similar period (2004–2016), Muslim tourist arrivals to Japan also increased from approximately 150,000 to 700,000, and this number was projected to surpass 1 million by 2018 (CrescentRating, 2017b). Noting the global Muslim population and the increasing trend among Muslims to travel internationally, both Samori et al. (2016) and Battour and Ismail (2016) highlighted the significant potential for halal tourism in Japan. Therefore, this study focuses on Muslim travellers in Japan whose presence could boost Japan's economy.

In 2016, 1.7 million, or nearly 60%, of Muslim travellers in Japan originated from ASEAN countries, with Indonesia, Malaysia, and Singapore representing 27%, 23%, and 5%, respectively (CrescentRating, 2017b). These numbers, too, are expected to increase in the years ahead (CrescentRating, 2017b). The opportunity for visa-free travel to Japan, which Indonesians have enjoyed since 2014 and Malaysians have enjoyed since 2013, has likely contributed to this increase, as has the availability of low-cost carrier flights to Japan (Japan National Tourist Organization [JNTO], 2018).

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A preliminary study (Saville, 2020) to the present investigation identified halal food and prayer room availability as the most significant issues for Muslim travellers. 'Halal' itself is an Arabic word from the Muslim holy book of the Quran, which is translated simply as 'permissible' according to the teachings of Islam (Bergeaud-Blackler, 2016a). Typically, the term 'halal' describes permissible food for Muslims. Muslims are known for abiding by halal food regulations (Chaudry and Riaz, 2014), which deem foods other than pork and alcohol as halal. Several decades ago, Muslims began to demand labels on halal foods imported to Muslim-majority countries (Rosnan et al., 2015; Faridah, 2019) and halal foods served in Muslim-minority countries (Bergeaud-Blackler, 2016b). Since then, Muslims' awareness of halal-labelled food has increased (Verbeke et al., 2013; Jamal and Sharifuddin, 2015), and the availability of halal food is among the key concerns of Muslim travellers when they visit Muslim-minority destinations (Battour et al., 2011; Abodeeb et al., 2015). Because Muslims must pray at five set times each day and begin each prayer session with a ritual washing, another priority for Muslims is prayer room availability. Although Japan is known as a Shinto and Buddhist country and only four mosques operated there in the 1980s, the number of mosques in Japan exceeded 90 by 2017 (Ambler, 2017; Tanada, 2019a). In the last several years, prayer rooms have also become increasingly available in Japanese restaurants and shopping areas. Therefore, the magnitude of the influence of these two priorities – halal-labelled food and prayer room availability – on Muslim travellers' food preferences in Japan must be clarified.

While the increasing availability of halal food and prayer rooms and the exponential growth in the number of Muslim consumers underscore the immense potential of the halal market, the academic literature examining these topics remains sparse. Furthermore, Muslim consumer behaviour in Japan remains unclear; thus, efforts must be made to understand the defining characteristics of Muslim travellers (Henderson, 2016). Several studies have targeted the mini-market form of halal food stores and their distribution channels (Higuchi & Tanno, 1999, 2000; Shimizu, 2007; Fahmida, 2012), but few studies have specifically investigated Muslim consumer behaviour, especially among Muslim travellers in Japan. Kojima (2012, 2013) reported the frequency with which Muslims who live in Japan use halal shops and restaurants for their daily needs. However, Kojima's works solely targeted Muslims who live in Japan and not Muslim tourists in Japan. Moreover, Kojima's works were conducted several years before the rapid increase of Muslim-friendly establishments and Muslim consumers in Japan. Consequently, it remains necessary to investigate the consumer behaviour of Muslim travellers in Japan.

Several recent studies have examined the behaviour of Muslim travellers in South Korea, a neighbouring country of Japan which has also experienced an increase in Muslim travellers (Kim et al., 2015; Han et al., 2019; Al-Ansi et al., 2020). Kim et al. (2015) reported that from the perspective of Muslim travellers, South Korea surpasses Japan in offering 'access to Muslim culture' and thereby satisfying Muslim travellers. Meanwhile, Han et al. (2019) identified halal-friendly attributes of Muslim travellers in South Korea which can be useful for tourism marketing. Finally, Al-Ansi et al. (2020) reported inconveniences Muslim travellers experienced in South Korea and thus offered insights for Korean tourism stakeholders to consider when addressing common issues afflicting this valuable tourist market. With these studies in mind, it is important for Japan to learn from South Korea as it engages in its own efforts to target Muslim travellers.

Examining Muslim travellers in other contexts, Syed (2001) and Al-Hamameh and Steiner (2004) identified the mosque as among the most crucial facilities for Muslims. Mansfeld et al. (1995) stated that Muslim travellers in Israel tend to choose hotel accommodations based on their proximity to a mosque. A study by Mohsin (2005) suggested a similar tendency among Malaysian Muslim travellers in Australia. This choice of accommodations close to a mosque likely implies that Muslim travellers in Israel and Australia are not mobile and tend to participate in activities near their hotels. However, the studies were conducted decades

ago, and the characteristics of travellers in Japan might differ from those in Israel and Australia. Travellers in Japan enjoy significant mobility via public transportation, including the JR pass, a rail pass for overseas visitors sold by the Japan Railways Group. This pass even includes the Japanese bullet train, the *Shinkansen* (JR East, 2018), which enables travellers to make the 500-kilometre trip from Tokyo to Osaka in just two hours. Because there is no reason to suspect that Muslim travellers are any less mobile than other tourists in Japan, the mobility issues experienced by Muslims in Israel and Australia might not apply to the Japanese context. As with mosques, Muslim travellers also prioritise prayer room availability. Nevertheless, before the current study, an investigation of Muslim travellers' preferences and prayer room availability in Japan had not been conducted.

Another priority for Muslim travellers is halal-labelled food. Japan has witnessed a veritable boom in halal-labelled food since 2010 (Adidaya, 2016). The 30 halal certification agencies operating in Japan in 2019 attest to this attribute's importance (JHBA, 2019). For comparison, only four halal certification agencies were operating in South Korea in 2019 (Seth, 2019). During the preliminary study, several business owners mentioned that halal certification, which is must be secured at least once every one to five years, is complicated and expensive (Saville, 2020). Yamaguchi (2019) also reported the issues impeding halal certification. Counterfeit halal certifications pose an additional problem (Adidaya, 2016), which further confuses business owners. Therefore, questions remain regarding the influence of halal-labelled food on Muslim travellers' preferences in Japan. For example, does the halal label truly influence Muslim travellers' selection of food service establishments in Japan, or does another factor, such as prayer room availability, word of mouth (WoM), or price, take precedence?

Pricing for food with religion-related services (halal-labelled food with a prayer room available) was among the issues mentioned by business owners and managers during the preliminary study (Saville, 2020), as was the segmentation of Muslim travellers in Japan. Business owners further seek to determine the appropriate price threshold for Muslim travellers; in other words, willingness to pay (WTP) must be clarified. No previous study has quantified how much more than the average price of food Muslim travellers are willing to pay for food with religion-related services. To establish a niche target market based on customers' preferences, business owners and managers require this information and the segmentation of Muslim travellers (Liu and Shih, 2005). As with WTP, however, no previous study has attempted to segment the market of Muslim travellers in Japan.

The objectives for this study are as follows: (i) to clarify Muslim travellers' preferences regarding food from the point of view of prayer room availability and halalness relative to other attributes, (ii) to identify the WTP of Muslim travellers for food with religion-related services in Japan, and (iii) to segment the market of Muslim travellers in Japan. By accomplishing these objectives, this study illustrates the characteristics of Muslim travellers in Japan, which can inform and improve the effectiveness of Japanese business owners' strategies.

2. Data collection and analysis methods

2.1. Research design and process

This study followed a systematic process comprising six stages to satisfy its research objectives. As illustrated in Figure 1, the first stage entailed a preliminary study conducted from October 2018 to January 2019 in the Greater Tokyo and Greater Osaka areas (Saville, 2020). The preliminary study involved a literature review; interviews with travellers, restaurant owners, and managers; and focus group discussions (FGDs) with experts from Food Diversity (the parent company of Halal Media Japan, a widely known media outlet in Japan and the first Japanese media outlet dedicated to halal- and vegan-related issues in Japan). The results of the preliminary study were used to design the questionnaire and interview in the second stage. Specifically, this entailed

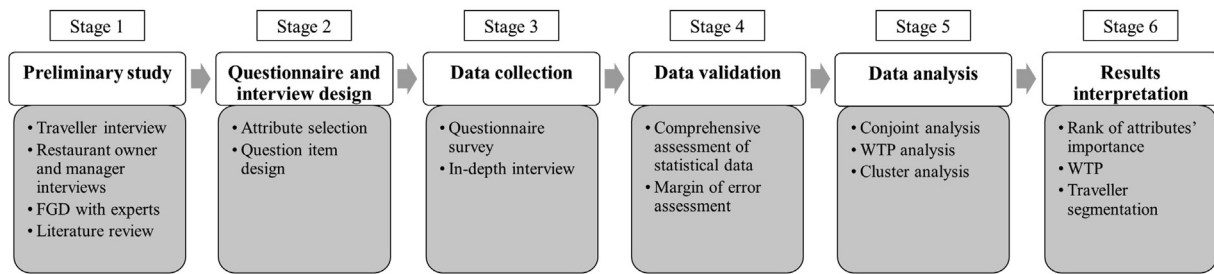


Figure 1. Research design and process.

selecting attributes and designing items for the questionnaire and for the in-depth interviews.

In the third stage, data was collected using a mixed method, namely the concurrent triangulation method. The fourth stage involved screening the collected data for validity (Kish, 1965). To complete this comprehensive assessment of the statistical data, the study employed the Validation and Transformation Language (VTL; SDMX, 2018) and evaluated the margin of error. In the fifth stage, data analyses using discrete-choice conjoint analysis (DCCA), willingness to pay (WTP) analysis, and cluster analysis via hierarchical clustering were conducted. Finally, in the last stage, the results of data analysis were interpreted and applied to answer the research questions.

2.2. Data collection

Using mixed methods, the study integrated qualitative and quantitative data to clarify Muslim travellers' preferences and willingness to pay and to segment Muslim travellers. In particular, the study implemented the concurrent triangulation method by conducting the questionnaire survey and in-depth interviews simultaneously (Creswell and Clark, 2011). Among the different types of mixed methods research, the concurrent triangulation method is the most common and well-known approach (Creswell et al., 2003). Its advantages include the ability to directly compare quantitative statistical results with qualitative findings and to validate or expand quantitative results with qualitative data (Greene and Caracelli, 1997). Moreover, mixed methods analysis offers social science researchers a richer understanding of the phenomena of interest through complementarity, insight, and expansion of the study scope (Greene, 2007). A combination of quantitative and qualitative methods has also proven accurate in reflecting social science research phenomena (Allan, 2002). Khoo-Lattimore et al. (2017) highlighted the use of mixed methods in numerous studies investigating phenomena in the tourism research sector. Among these, Al-Ansi et al. (2020) recently used mixed methods to clarify the inconveniences experienced by Muslim travellers in South Korea.

2.2.1. Quantitative approach

The data employed for the quantitative analysis were gathered from a random questionnaire survey distributed online via Food Diversity's social networking services (SNS), including Halal Media Japan's SNS (see Appendix for questionnaire form). The questionnaire survey was posted on Food Diversity's SNS six times from July 2019 to February 2020. Target respondents were Muslims who had travelled to Japan within the last five years (since 2014). The study used 2014 as the threshold because visa-free travel from Muslim-majority Southeast Asian countries began in that year (JNTO, 2018). The questionnaire consisted of a demographic component as well as an assessment of Muslim travellers' food preferences and WTP.

To determine the number of respondents required for the questionnaire survey, this study employed the well-known Cochran's (1977) formula to calculate a representative sample for proportions. The equation can be written as follows:

$$e \leq Z \sqrt{\frac{p(p-1)}{n}}, \quad (1)$$

where e is the margin of error (the desired level of precision), z is the z -value of the confidence level (the selected critical value of the desired confidence level, which can be derived from a z -table), p is the estimated proportion of an attribute that is present in the population, and n is the sample size. The sample size n can be represented as shown in Eq. (2):

$$n \geq \frac{z^2 p(p-1)}{e^2} \quad (2)$$

Aczel and Sounderpadian (1999) and Anderson et al. (2008) asserted that it is common in social scientific studies for margins of error to be no greater than $\pm 5\%$ at the 95% confidence level (here, z is 1.96). As for p , a number must be chosen assuming the optimum variability of $p(p-1)$, which eventually equals 50%, or 0.5. Thus, the number of samples n must exceed 384 respondents.

2.2.1.1. Conjoint analysis design: selection of food attributes and levels. To analyse Muslim travellers' food preferences quantitatively, detrended cross-correlation analysis (DCCA) was applied (Louvriere et al., 2000). This study used DCCA because the method is proven to conceptualise in a straightforward manner a product or service as a series of multi-level attributes (or factors driving consumers), including the importance of the attribute (Orme, 2006; Anderson et al., 2008). The DCCA was conducted twice to ensure that the consumers were consistent in their preferences. Specifically, this study selected ramen restaurants and shopping malls as sample cases for the DCCA. The choice of ramen restaurants and shopping malls was based on a preliminary study (Saville, 2020), which identified ramen as the first-choice Japanese food among Muslim travellers in Japan in recent years. For their part, shopping malls are recognised among the places Muslim travellers are most likely to visit in Japan, typically for dining, shopping for souvenirs (mostly food), or merely relaxing during their travels. In addition, Japanese shopping malls usually offer a variety of food options, which makes the shopping mall an important sample case to consider in the presents study.

The profiles of the ramen restaurants and shopping malls used in the questionnaire for the DCCA were based on the results obtained from the preliminary study (Saville, 2020) and a review of the literature. Table 1 presents a summary of the selected attributes and their levels. The attributes for the ramen case are halalness (Kojima, 2012; Takei, 2018; Han et al., 2019; Miyake and Onishi, 2019), prayer room availability (Kojima, 2013; Sumi, 2018; Han et al., 2019; Tanada, 2019b), WoM (Park and Han, 2016; Saville et al., 2020), and price (Ritson and Petrovici, 2001; Olya and Al-ansi, 2018), while the attributes for the shopping mall case are halalness (Kojima, 2012; Takei, 2018; Miyake and Onishi, 2019), prayer room availability (Kojima, 2013; Sumi, 2018; Tanada, 2019b), and access (Hackett and Foxall, 1994; Komura, 2019).

Halalness is as an important factor in Muslims' decisions regarding where to dine out (Kojima, 2012; Takei, 2018; Han et al., 2019; Miyake and Onishi, 2019). After conducting the FGDs in the preliminary study, this study divided halalness into two levels: halal-labelled food and Muslim-friendly food. Halal-labelled food is defined as food that has

Table 1. Attributes and levels used in conjoint analysis design.

Sample case	Attributes	Levels
Ramen restaurants	Halalness	Halal labelled, Muslim friendly
	Prayer room	Available, none
	WoM	Positive, negative
	Price (USD)	7, 8, 11, 13
Shopping malls	Halalness	Halal-labelled food available, Muslim-friendly food available
	Prayer room	Available, none
	Access	Easy, not

formally received halal certification from an organisation, while Muslim-friendly food is defined as food that does not contain any pork or alcohol, or food that has itself been labelled as ‘Muslim-friendly’.

Prayer room availability, a daily need, is another important factor for Muslim travellers (Kojima, 2013; Sumi, 2018; Han et al., 2019; Tanada, 2019b). After conducting the FGDs in the preliminary study, this study divided prayer room availability into two levels: prayer room available in the food establishment and prayer room not available. Because WoM represents another factor influencing food choices (Park and Han, 2016; Saville et al., 2020), this study also incorporated a WoM attribute, including electronic WoM via the Internet or social media. Based on the interview results from the preliminary study, the present study opted to divide WoM into two levels: mostly positive (reviews) and mostly negative (reviews).

In addition, price – a crucial element predicting customer behaviour before, after, and while using a product or service (Ritson and Petrovici, 2001) – has also been reported as an important factor influencing Muslim customers' perceptions of and purchase decisions regarding halal products (Olya and Al-ansi, 2018). Based on the FGDs and interviews, this study divided price in the ramen sample case into four levels: 7 USD/portion, 8 USD/portion (the average ramen price in Japan, according to J-cast [2018]), 11 USD/portion, and 13 USD/portion.

Finally, this study also included access among the attributes affecting the shopping mall's ability to attract customers (Hackett and Foxall, 1994). Komura (2019) reported that access to shopping malls is especially important for foreign travellers, including Muslim travellers, in Japan. Thus, this study adapted Komura's (2019) work to divide access into two levels: easy access and not easy access. It defines easy access as a location within 10 min walking distance from the train station or bus stop.

Because the questionnaire survey entailed a large number of possible profiles – the ramen case with four attributes and several levels ($2 \times 2 \times 2 \times 4 = 32$) and the shopping mall case with three attributes and two levels for each attribute ($2 \times 2 \times 2 = 8$) – a full factorial profile was not appropriate. Additionally, the study was deliberately designed to enable trade-offs and thereby encourage the respondents to think deeply about the main factors that influence their choice of food establishments in Japan. A fractional factorial trade-off profile design was therefore

employed to test the effect of attributes on consumer preferences (Harrison et al., 1998). The hypothetical trade-off ramen and shopping mall profiles used for the questionnaire survey are shown in Table 2. For the quantitative analysis, 64-bit R software version 3.6.1 was used, while the conjoint R package library was implemented for the DCCA (Bak and Bartlomowicz, 2018).

2.2.1.2. Willingness to pay for halal food with prayer rooms available. This study sought to illustrate the WTP range of Muslim travellers in Japan when they can eat halal-labelled food while also accessing a prayer room in the restaurant or nearby. In general, WTP can be calculated via direct and indirect measurement, and both approaches have been shown to produce pricing decisions that align with real purchase data (Miller et al., 2011). This study calculated WTP via the direct approach because the direct approach is simpler in both its questions and its interpretation (Dost and Wilken, 2012; Steiner and Hendus, 2012; Hofstetter et al., 2020). In the ramen case study, moreover, the WTP range – rather than a single price point – was used because WTP varies based on several factors. To account for this variability, WTP is typically expressed as an aggregate number with a corresponding range of upper and lower limits rather than as a single price point (Wang et al., 2007; Dost and Wilken, 2012).

In the questionnaire survey, this study implemented the incentive-compatible elicitation of a consumer's reservation price range (ICERANGE) procedure (Wang et al., 2007), which is easy to interpret and capable of capturing actual price sensitivity (Dost and Wilken, 2012; Hofstetter et al., 2020). The ICERANGE procedure involved three steps. The respondents were asked to (i) state the maximum price at which they would definitely buy the product (100% purchase probability), (ii) indicate the price level at which they would be indifferent to buying or not buying the product (50% purchase probability), and (iii) state the price at which there was only a small (10%) probability that they would purchase the product. Based on this information, the study computed the average WTP range at a 95% confidence interval.

Like the DCCA, this study used ramen restaurants as the sample case to measure the WTP range because ramen is among the most preferred Japanese foods for travellers, including Muslim travellers. Moreover, using ramen, which was also used for the DCCA, made the organisation of

Table 2. Hypothetical ramen restaurant and shopping mall profiles used for the questionnaire survey.

Sample case	Attribute 1	Attribute 2	Attribute 3	Attribute 4
Ramen restaurants	Halalness	Prayer room	WoM	Price (USD)
	Halal labelled	Available	Positive	13
	Muslim friendly	None	Positive	8
	Muslim friendly	Available	Positive	11
	Halal labelled	None	Positive	11
	Halal labelled	Available	Negative	7
Shopping malls	Halalness	Prayer room	Access	
	Muslim-friendly food available	Available	Easy	
	Halal-labelled food available	None	Easy	
	Halal-labelled food available	Available	Not easy	

the questionnaire survey more straightforward and easier to understand for the respondents.

2.2.1.3. Muslim travellers' segmentation via cluster analysis. Customer segmentation – defined as the process by which the customers of a business are divided into groups according to their preferences, characteristics, and purchasing behaviours (Qian and Gao, 2011) – is a common method of partitioning customers into externally distinct and internally uniform groups to create varied marketing strategies that target each group according to its characteristics (needs and wants). Segmenting customers into groups also enables marketers to be more efficient in their use of time, money, and other resources (Cooil et al., 2008). By analysing large volumes of collected customer data, businesses can improve their marketing decisions based on customers' preferences (Liu and Shih, 2005). Furthermore, a business entity can generate an optimum profit if, based on customer segmentation, it uses its resources thoughtfully to cultivate the most loyal and useful group of customers (Zeithaml et al., 2001).

Recognising that the approach has proven an effective method for customer segmentation (Namvar et al., 2010; Gaur and Gaur, 2013; Hung et al., 2019), this study applied hierarchical clustering with the agglomerative approach. Namvar et al. (2010) applied hierarchical clustering to a data set from an Iranian bank, which resulted in valuable management measures and suggestions. Similarly, Gaur and Gaur (2013) employed hierarchical clustering to analyse the transaction data from a supermarket and offer suggestions for management strategy. Meanwhile, Hung et al. (2019) implemented hierarchical clustering to segment e-commerce consumers. In this study, to define more precise consumer segments via the agglomerative approach to hierarchical clustering (Rokach and Maimon, 2005), the preloaded 'hclust' function in the 'stats' R package library was employed. In determining the number of clusters, empirical judgement was exercised while also considering the heterogeneity measure for each cluster solution by applying the cubic clustering criterion (Milligan and Cooper, 1985). To apply the cubic clustering criterion, the 'NbClust' in the R package library was used (Malika et al., 2014).

2.2.2. Qualitative approach

To complement its quantitative approach and clarify the main factors affecting Muslim travellers' decisions regarding where to dine out in Japan, this study employed a qualitative approach (concurrent triangulation). Qualitative data was collected to understand these decisions – and the reasons behind them – more deeply than would be possible through a quantitative approach alone. The qualitative data was collected by conducting semi-structured, in-depth interviews that adhered to guidelines set out in Guion et al. (2011) and that aligned with the seven stages of Kvale's framework (1996). The in-depth interviews were conducted in places popular with Muslim travellers, such as halal-labelled and Muslim-friendly restaurants and experience activities, a shopping area that provides halal food or prayer rooms, and so on. The target study areas for the interviews ranged from the north to the south of Japan, namely, the Hokkaido Prefecture, the Greater Tokyo area, the Greater Osaka area, and the Fukuoka Prefecture. These target areas were selected based on the preliminary study (Saville, 2020), which identified regions popular with Muslim travellers. Twelve Muslim respondents were interviewed (three respondents in each target study area) to verify the credibility of the information gathered (Guion et al., 2011). Respondents in each target area consisted of single men, single women, and families.

The in-depth interviews, which were conducted from July 2019 to February 2020, were then analysed using narrative technique analysis. Narrative technique analysis has several beneficial characteristics (Riessman, 1993; McCormack, 2004). It is straightforward and easy to interpret, and it allows the respondents to tell their own stories in their own words, which enables researchers to gather more honest opinions

from the respondents. Furthermore, it is useful because it seeks to discover what kinds of things are happening rather than to determine the frequency of predetermined issues. These characteristics were deemed ideal for this study, which relies on the analysis of frequency via a quantitative approach but which requires a qualitative approach to assess respondents' authentic opinions.

The in-depth interviews were characterised by freely flowing conversation that began when the interviewer asked respondents to identify their country of origin, the places they had visited or planned to visit while in Japan, and their favourite food in Japan. Next, Muslim travellers were asked to respond to the following key questions:

- 1) What do you think about halal- or Muslim-friendly products or services in Japan in general?
- 2) Where do you find halal- or Muslim-friendly information in Japan?
- 3) What is your priority when you wish to dine out and enjoy your favourite food in Japan?
- 4) What is your priority when you visit a shopping mall in Japan?
- 5) Do you have any suggestions to make Japan a more Muslim-friendly country?

Several additional questions assessed the respondents' WTP via the ICERANGE procedure. Throughout the in-depth interviews, which averaged 47 min, the respondents openly discussed their travel experiences and shared their concerns, suggestions, and opinions about their preferences regarding food in Japan.

3. Results and discussion

3.1. Respondents' demographic characteristics

After distributing the questionnaire survey, 393 responses were captured. However, seven respondents were excluded (for a total of 386 valid respondents) after data validation screening (Kish, 1965). The respondents' demographic characteristics are summarised in Table 3. Most respondents were female (68.1%) and from Southeast Asia (85%), and most respondents (82.4%) also had a higher education degree. This profile matches previous findings, including those from Gomes and Montenegro (2016), who emphasised the increasing significance of women in the global travel market. CrescentRating (2019) reported that, globally, 63 million Muslim women travellers spent an estimated 80 billion USD in 2018. In general, these women are young, highly educated, and self-employed. In terms of age, 79.3% of the respondents were under 40 years old. Meanwhile, 40.4% of the respondents were single, 22% were married, and 37.6% were married with child(ren). Professionally, more than half of respondents (59.1%) were employed, and one third of the respondents (31.9%) were earning between 1,000 and 2,000 USD each month. Unsurprisingly, most of the respondents' destinations were concentrated in Japan's largest cities, especially the Greater Tokyo (36.5%) and Greater Osaka (33.5%) areas.

3.2. Muslim travellers' preference factors

3.2.1. Food preferences with ramen restaurants as a sample case

This study used ramen restaurants and shopping mall areas as sample cases to conduct the DCCA and ensure that the respondents were consistent in their preferences. A summary of the DCCA using the ramen sample case is shown in Table 4, while Figure 2 presents the average importance of attributes for that case. The adjusted R-squared of the model evaluation is 0.7491, which indicates that the attributes in this study can explain approximately 75% of the variability in the response data around the mean. As Table 4 and Figure 2 demonstrate, the most influential factor affecting Muslim travellers' food preferences among ramen restaurants is prayer room availability (31.05%), followed by halal labelling (28.88%), WoM (21.85%), and price (18.22%). These

Table 3. Respondents' sociodemographic characteristics (n = 386).

Sociodemographic characteristics		%	Sociodemographic characteristics		%
Gender	Female	68.1%	Marital status	Single	40.4%
	Male	31.9%		Married	22.0%
Nationality	Indonesian	44.0%	Education	Married with 1 child	19.7%
	Malaysian	32.9%		Married with 2 children	12.2%
	Singaporean	8.0%		Married with 3 children	3.9%
	Pakistani	3.4%		Married with more than 3 children	1.8%
	Other	11.7%		Less than high school	7.3%
Age	10 to 19	1.0%	Occupation	High school	10.4%
	20 to 29	33.7%		Higher	82.4%
	30 to 39	44.6%		Employee	59.1%
	40 to 49	16.3%		Self-employed	16.3%
	50 to 59	3.4%		Student	7.0%
	Over 60	1.0%		Homemaker	16.6%
Monthly income (USD)	Under 500	11.7%	Travel destination	Retired	1.0%
	501 to 1,000	21.8%		Greater Tokyo	36.5%
	1,001 to 2,000	31.9%		Greater Osaka	33.5%
	2,001 to 3,500	18.4%		Hokkaido	7.6%
	3,501 to 5,000	8.0%		Fukuoka	5.8%
	5,001 to 7,500	3.9%		Hiroshima	5.1%
	7,501 to 10,000	2.8%		Aichi	4.4%
	Over 10,001	1.6%		Others	7.2%

Table 4. Summary of the DCCA using ramen restaurants as a sample case.

Attributes	Estimate	Std. Error	t-value	Pr (> t)	α
(Intercept)	45.8593	0.7522	60.97	<2e-16	***
Halal labelled	30.8884	0.8625	-9.146	<2e-16	***
Price 7 USD	-15.979	1.3497	22.952	<2e-16	***
Price 8 USD	-13.6849	1.1701	-11.696	<2e-16	***
Price 13 USD	16.4784	1.6616	12.926	<2e-16	***
Prayer room available	35.6358	0.9618	-21.456	<2e-16	***
Positive WoM	19.7255	1.0848	-13.575	<2e-16	***

Significance codes: *** <0.001.

Residual standard error: 45.24; multiple R-squared: 0.7699; adjusted R-squared: 0.7491; p-value: < 2.2e-16.

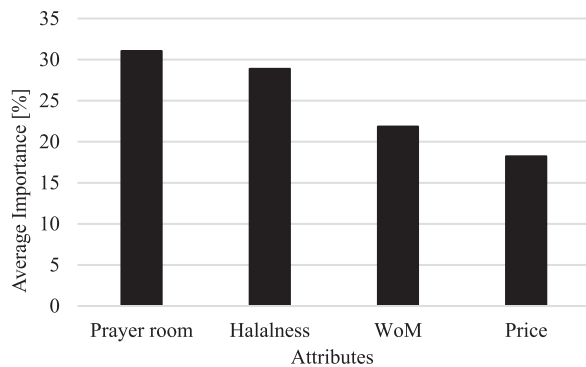


Figure 2. Average importance of attributes using ramen sample case.

findings indicate that Muslim travellers in Japan tend to choose ramen restaurants by considering the availability of a prayer room and halalness as their first and second priorities, respectively. The result might be related to previous studies of Muslim consumers' behaviour in other contexts. For example, Muslims in Malaysia tend to be more satisfied with a restaurant when a prayer room is available (Ismail, 2012). Even

the wide availability of mosques and prayer rooms in Malaysia, a Muslim-majority country, does not diminish the degree of satisfaction Muslims living in Malaysia derive from dining out at establishments that have prayer rooms available.

The following interview response from an Indonesian Muslim tourist in his 30s who travelled to Tokyo with his wife and child further highlights the attributes influencing food preferences:

Having a prayer room makes it easy for us to pray rather than looking around for places to pray. So while eating, we can do prayer too. Even though it is not [halal-]labelled yet [i.e., it is Muslim friendly], but the owner must be thoughtful of his or her Muslim customers by providing prayer room. Of course, halal labelled is also my next priority when choosing food. It is perfect when there is a prayer room, and the food served is halal labelled. [The restaurant] having a positive reputation is an added bonus. At first, the price seems to be a bit high but to eat halal ramen once in a while and to have other services [the prayer room, etc.], the price is completely tolerable.

The response above exemplifies the DCCA result. In particular, Muslim travellers prioritise prayer room availability first because this access enables them to complete their prayer obligation while enjoying typical Japanese food. Meanwhile, their second priority is halal-labelled food. Considering the recent halal boom, the halal label's position as second among Muslim travellers' priorities is unsurprising. Perhaps more surprising, however, is the finding that Muslim travellers tend not to

consider price when selecting their preferred establishments. Nevertheless, this finding may be explained by the respondents' relatively higher level of education. Among the respondents, 82.4% had completed higher education, which is generally known to increase income (Tinbergen, 1972; Park, 1996; Carnoy, 2011). This explanation seems likely among Indonesian and Malaysian respondents, who comprise 44% and 32.9% of the present study's respondents, respectively. Previous studies have shown that consumers of both ethnicities tend to disregard food prices as their income increases (Lee and Tan, 2006; Saville et al., 2020). Further discussions of price (WTP) are offered in Section 3.3. Taken together, these findings suggest that rather than pursuing halal certification, business owners and managers should prioritise efforts to provide prayer rooms for Muslim travellers in Japan.

3.2.2. Food preferences with shopping malls as a sample case

Table 5 summarises the DCCA using shopping malls as a sample case, and Figure 3 presents the average importance of attributes. The adjusted R-squared of the model evaluation is 0.7389, which indicates that the attributes in this study can explain approximately 74% of the variability in the response data around the mean. Figure 3 clearly indicates prayer room availability as the most influential factor for Muslim travellers choosing shopping malls to visit in Japan (37.35%). Travellers' second and third priorities are halalness (32.35%) and easy access (30.3%), respectively. This result is similar to those of the previous ramen sample case, where prayer room availability was the first priority of Muslim travellers in Japan, and it underscores the importance Muslim travellers ascribe to their prayer obligations, which may distinguish Muslim travellers from travellers of other faiths. Cetin and Dencer (2016) found that compared to travellers of other religions and travellers who are atheists, Muslim travellers require additional facilities and services for praying. Thus, it is unsurprising that prayer room availability significantly affects Muslim travellers' choice of establishment to patronise in Japan. El-Adly and Eid (2017) found that Muslim consumers frequently leave shopping malls, shorten the duration of their shopping trips, or opt for more Muslim-friendly establishments to ensure that they can meet their prayer obligations, and Jeaheng et al. (2019) revealed that the provision of halal-friendly facilities contributes to high Muslim visitor satisfaction. Thus, malls with prayer facilities appear to add value for the Muslim consumer.

The following response from an interview with a Malaysian Muslim traveller in her 20s who travelled to Osaka with her friends complements the image of Muslim travellers' shopping mall preferences:

You typically spend a lot of time in a shopping mall to eat, buy some souvenirs and shopping, so you will definitely need a prayer room, which is very important. It would be so helpful for Muslims when prayer time is coming. It is perfect if we also have [halal-]labelled food in the mall, but as we know, since it is not Muslim-majority country, it is quite difficult to find the [halal-]labelled one. The option here is to find a restaurant that explicitly states Muslim-friendly food. [As a] last option, we can still order veggies/fruit salad or fish [from the] menu in the mall. Easy access is also the chosen one, especially when you are in a group like families or us maybe. Having easy access is good because most travellers like us don't have cars and depend on public transportation like train[s] and bus[es], so easy access is more favourable.

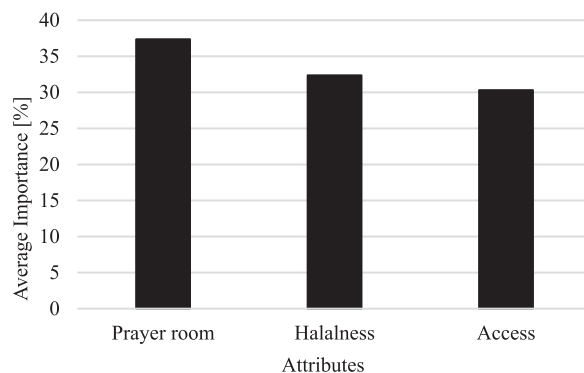


Figure 3. Average importance of attributes using the shopping mall sample case.

The response above exemplifies the DCCA result using shopping malls as a sample case. Muslim travellers prioritise prayer room availability first because they can complete their prayer obligations while having a meal and participating in other activities. The interview response also indicates that Muslim travellers typically spend a significant amount of time in shopping malls because these establishments offer a one-stop place to shop, eat, and complete other activities. This finding aligns with a recent report from Yokoyama (2021), who stated that Muslims in Japan typically desire to spend hours in shopping malls. Thus, shopping mall owners might find it beneficial to accommodate these travellers' prayer room needs because in doing so, they encourage travellers to spend more time – and likely spend more money – at their establishments. Moreover, the interviewee's response above and the DCCA results underscore the secondary importance of halalness for Muslim travellers. While the halalness of food is an important factor among Muslim travellers, they may relegate it to a secondary position because many exhibit flexibility by consuming Muslim-friendly food or choosing vegetable-, fruit-, and fish-based foods.

Together, the results of the DCCA for both sample cases confirm the consistency of respondents' preferences: in choosing both ramen restaurants and shopping malls, Muslim travellers in Japan tend to consider prayer room availability as their first priority. Despite the recent boom in halal certification among Japanese establishments, the availability of halal-labelled food is secondary. After considering prayer room availability and halalness, the respondents also consider other factors, such as WoM, price, and access. Therefore, business owners and managers who seek to attract Muslim travellers in Japan must first ensure that a prayer room is available and then consider offering halal-labelled food. If, for example, a restaurant or retail establishment wishes to target Muslim travellers and the owners have already reviewed the ingredients of the products offered to ensure they meet the demands of Muslim travellers (i.e., to ensure that they are at least Muslim-friendly), the business would do well to provide a prayer room instead of obtaining halal certification.

Table 5. Summary of the DCCA using shopping malls as a sample case.

Attributes	Estimate	Std. Error	t-value	Pr(> t)	α
(Intercept)	35.3958	0.7522	50.872	<2e-16	***
Muslim friendly	32.7864	1.2386	9.852	<2e-16	***
Prayer room available	45.5738	0.8701	-22.584	<2e-16	***
Easy access	31.6358	0.9727	-14.473	<2e-16	***

Significance codes: *** <0.001.

Residual standard error: 44.32; multiple R-squared: 0.7418; adjusted R-squared: 0.7389; p-value: < 2.2e-16.

3.3. Willingness to pay

In the questionnaire survey and in-depth interviews, the respondents were required to answer several questions to measure their WTP for food in Japan. As explained in the method section, this study again used ramen restaurants as a sample case to identify WTP for food. After gathering responses via the ICERANGE procedure, the average WTP interval range at the 95% confidence interval was computed.

The results reveal that the respondents were willing to pay more than the average price of food when Japanese establishments offered religion-related services. Specifically, they were willing to pay 11.56 to 14.22 USD for one serving of halal-labelled ramen at an establishment that also offered a prayer room facility. According to a survey conducted by J-cast (2018), the average price of a single serving of ramen in Japan is 8 USD. This means that the respondents were willing to pay 1.4 to 1.7 times more than the average price when additional conditions were met, that is, when the ramen was halal labelled and the restaurant provided a prayer room facility. This finding supports previous study conducted by Verbeke et al. (2013) who stated that Muslim consumers are willing to pay higher prices for halal-certified products. This study's analysis of WTP also aligns with the DCCA results of the ramen sample case in the previous section, which indicate that the respondents tend not to care about price as long as they also obtain desired religion-related services. Like the previous findings, this result can inform business owners' efforts to target Muslim travellers in Japan by setting appropriate food prices.

3.4. Muslim travellers' segmentation

To segment the market of Muslim travellers in Japan and offer further insights for business owners, the study conducted hierarchical clustering with the agglomerative approach (Rokach and Maimon, 2005). Cluster analysis identified three groups of Muslim travellers with different preference patterns. Tables 6 and 7 summarise the average importance and utility estimate values for each Muslim traveller cluster in the ramen sample case and the shopping mall sample case, respectively.

As indicated in Table 6, Cluster 1 for the ramen sample case included 259 Muslim travellers (most, or 67.1%, of the total respondents) This cluster considered prayer room availability their first priority (with an average importance of 43.36%), followed by halalness and WoM; however, they did not consider price when determining their food preferences. Likely facilitating this cluster's decisions were mobile applications focused on halal food and restaurants, such as Halal Navi, which offer customer reviews and are popular in Japan (Samori et al., 2016). Meanwhile, information remains limited regarding the accessibility of

prayer facilities. Halalness was the most important attribute (42.34%) in Cluster 2, which included 91 Muslim travellers (23.58% of the total respondents), 70% of whom were older than 40 years. Cluster 2 was similar to Cluster 1 in that Muslim travellers in both clusters relegated price to the lowest level of priority. The only difference was in the order of their first and second priorities, namely halalness and prayer room availability.

In contrast to Clusters 1 and 2, price (30.29%) was the top priority for Cluster 3, which included the fewest respondents (9.32% of the total). Yet the importance of price among respondents in Cluster 3 – all of whom were younger than 25 years – is unsurprising because younger individuals also tend to exhibit lower annual income levels (t -value = 5.2924, p -value = 2.472e-06) than other respondents. For this reason, the respondents in Cluster 3 may also have opted for low-budget travel packages among several available from Indonesia (e.g., Tour Japan, 2019a) and Malaysia (e.g., Let's Go to Japan, 2019).

Table 7 summarises the segmentation of Muslim travellers' and the preferences of each cluster in the shopping mall sample case. Once again, Cluster 1 included most respondents (74.61%, or 288 Muslim travellers), and once again, these respondents ranked prayer room availability first, with an average importance of 44.75%. Next, they prioritised ease of access and, lastly, halal-labelled food availability. Halal-labelled food availability was the most important attribute (42.72%) in Cluster 2, which included 69 Muslim travellers (17.88% of the total respondents). Meanwhile, access was the top priority of the 7.51% of respondents in Cluster 3 (with an average importance of 36.37% and a utility value for recognising impeded access ['not easy access'] of 18.1834). This situation suggests that respondents included in Cluster 3 wish to secure both prayer room availability and halal-labelled food availability even as they acknowledge the impediments to accessing such shopping malls. Further examining the characteristics of respondents in Cluster 3 also revealed that their annual income was significantly higher compared to the other respondents (t -value = 7.3875, p -value = 5.621e-05). Thus, it may be that the respondents in Cluster 3 used high-end tours or chartered private cars, which allowed them to explore greater distances without worrying about access, while other respondents, who relied on public transportation, were more geographically limited. The availability of several high-end tours, such as Tour Japan (2019b) and Japan Private Tour (2019), attests to the likelihood of this explanation.

After conducting hierarchical clustering to clarify Muslim travellers' segmentation in Japan, this study identified four segments: (i) Muslim travellers who prioritise prayer room availability, (ii) Muslim travellers who prioritise halal-labelled food, (iii) Muslim travellers who prioritise low-budget products and services, and (iv) high-end Muslim travellers

Table 6. Average importance and utility estimate values obtained via cluster analysis for three Muslim traveller clusters using ramen restaurants as a sample case.

		Cluster 1	Cluster 2	Cluster 3
	<i>n</i>	259 (67.10%)	91 (23.58%)	36 (9.32%)
	R ²	0.8635	0.7871	0.7298
Average importance (%)	Halalness	27.87	42.34	18.02
	Price	6.4	10.37	30.29
	Prayer room	43.36	25.46	22.77
	WoM	22.37	21.83	28.92
	Utility estimate value	18.5214	37.9283	-7.128
	Muslim friendly	-18.5214	-37.9283	7.128
	Price 7 USD	-15.6851	-17.0262	22.9824
	Price 8 USD	-13.657	-13.6454	20.4529
	Price 11 USD	13.1274	14.9365	-20.0705
	Price 13 USD	16.2147	15.7351	-23.3648
	Prayer room availability	35.1298	14.9868	9.8264
	No prayer room	-35.1298	-14.9868	-9.8264
	Positive WoM	15.2587	11.3041	-15.0924
	Negative WoM	-15.2587	-11.3041	15.0924

Table 7. Average importance and utility estimate values obtained via cluster analysis for three Muslim traveller clusters, using shopping malls as a sample case.

		Cluster 1	Cluster 2	Cluster 3
	<i>n</i>	288 (74.61%)	69 (17.88%)	29 (7.51%)
	<i>R</i> ²	0.8773	0.7561	0.7728
Average importance (%)	Halalness	19.28	42.72	31.11
	Prayer room	44.75	20.45	32.52
	Access	35.97	36.83	36.37
Utility estimate value	Halal labelled	-15.5656	39.7313	-17.2378
	Muslim friendly	15.5656	-39.7313	17.2378
	Prayer room availability	41.0312	-13.7236	17.7175
	No prayer room	-41.0312	13.7236	-17.7175
	Easy access	30.5676	29.9757	-18.1834
	Not easy access	-30.5676	-29.9757	18.1834

who seek prayer room availability and halal-labelled food without concern for price. The first segment, which represents most of the respondents (67.1% in the ramen sample case and 74.61% in the shopping mall sample case), considered prayer room availability their first priority. As the DCCA in the previous section does, these results suggest that business owners and managers can target most Muslim travellers by accommodating their prayer room needs first.

The second segment of Muslim travellers contains the approximately one fifth of respondents (23.58% in the ramen case and 17.88% in the shopping mall case) who prioritised halal-labelled food availability. The halal certification boom of recent years suggests that business owners are currently targeting this market segment – perhaps because they remain unaware of a much larger market segment that prioritises prayer room availability over halal-labelled food. In any case, these business owners would be advised to conduct an evaluation of their business strategy. While an opportunity to target this smaller market segment certainly exists, it would be much easier to target the majority in the first segment.

The third segment contains a small number of young (below 25 years of age) and low-income Muslim travellers (9.32% in the ramen sample case) who sought low-budget products and services as their first priority. Due to this market segment's relatively small size, its members are unlikely to find many establishments targeting their priorities. Business owners who do wish to target this market segment might do well to collaborate with existing low-budget travel agencies.

Finally, another small segment of Muslim travellers (7.51% in the shopping mall sample case) exhibited high income levels and sought all the attributes studied, that is, prayer room availability, halal-labelled food, and others, without concern for price. Again, this market segment's relatively small size suggests that business owners target it via collaborations with existing high-end travel agencies.

4. Conclusion

This paper highlights the food preferences of Muslim travellers in Japan by conducting a DCCA, WTP analysis, and consumer segmentation as well as in-depth interviews. Muslim travellers in Japan tend to consider prayer room availability their first priority when deciding where to dine out. They prioritise halal-labelled food availability second and then consider other factors such as WoM, price, and access. The WTP analysis indicates that Muslim travellers in Japan are willing to pay 1.4 to 1.7 times more than the average price for the same food when they are assured of the food's halal certification and can access a prayer room in the restaurant or nearby.

This study also highlights four segments of Muslim travellers in Japan. The first segment represents most of the respondents, who consider prayer room availability their first priority. The second segment, comprising approximately one fifth of respondents, prioritises halal-labelled food availability. Both the third and fourth segments are relatively small; while the former prioritises low-budget offerings, the latter

group of higher-income respondents prioritises both prayer room and halal-labelled food availability.

In achieving its objectives, this study answers the questions Japanese business owners and managers raised in the preliminary study. Thus, its results offer useful insights and recommendations for business owners or managers who seek to target Muslim travellers. This study suggests business owners or managers should prioritise the provision of prayer rooms for Muslim travellers in Japan instead of pursuing halal label certification to target most Muslim travellers, despite the halal boom in the last several years. This study can also provide a point of reference when setting food prices when the food is offered with religion-related services.

To further develop these recommendations, future research would do well to investigate the information sources Muslim travellers use when deciding where to dine out. Additional studies might also (i) identify travel patterns among Muslim travellers in Japan, (ii) explore inconveniences afflicting Muslim travellers in Japan, and (iii) assess the economic impact of Muslim travellers in Japan, especially during and after the COVID-19 pandemic.

Declarations

Author contribution statement

Ramadhona Saville: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Akhmad Mahbubi: Analyzed and interpreted the data; Wrote the paper.

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The data that has been used is confidential.

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The authors declare no conflict of interest.

Additional information

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