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Behavior Analysis and Clustering of Consumers Towards Halal Awareness

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Abstract: Due to Indonesia's large Muslim population, the issue of halal is contentious for Indonesians, and many restaurants in Indonesia do not have halal certification. This study investigates the various factors that influence customer behavior and identifies managerially implementable consumer clusters. This study used a quantitative methodology, focusing on a sample of consumers residing in the Greater Jakarta area. Lemeshow sampling was used to gather data from 196 respondents via an online survey. The analysis technique consisted of Structural Equation Modeling (SEM)-Partial Least Square and cluster analysis using the K-means algorithm with the Waikato Environment for Knowledge Analysis (WEKA). Subjective norms, perceived behavioral control, halal awareness, and intention factors have been proven to have positive and significant effects on consumer behavior when choosing a halal restaurant. The findings on consumer clusters that have evolved provide significant managerial implications. Assistance is required from halal institutions, businesses, and consumers with a high level of halal awareness to raise their awareness of halal.

Keywords: awareness, behavior, clustering, halal restaurant

JEL Classification: D12, P46, P48

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PUBLIC INTEREST STATEMENT

Consumer behavior is limited by the knowledge and ability of consumers to process information, motivation, interest, and interest in a product. The existence of differences in the behavior of each consumer causes the application of different managerial implications for each consumer segment. Based on these conditions, there are consumers who need to be more selective about halal products that are popular in the Indonesian market. So, to increase halal awareness for each consumer segment, managerial implications are needed based on the characteristics of consumer behavior for each segment. At the same time, this research wants to show the use of machine learning for consumer behavior.



1. Introduction

Indonesia is an Asian country in which the majority of the population embraces Islam. By the end of 2020, 87.2% of Indonesia's population are Muslim (World Population Review, 2023). The presence of Muslims in Indonesia makes halal issues more sensitive to Indonesians (Setyaningsih, 2021). According to Sharia, halal requires a guarantee of the entire supply chain network, including the supply of raw materials, processing, storage, packaging, distribution, sales, and presentation of products under established standards. Thus, to guarantee the halalness of a product, the government provides halal certification for products that comply with Islamic Sharia requirements. Halal certification proves that products distributed by manufacturers have implemented Halal Product Assurance System requirements (Hasan et al., 2020).

Java Island has the largest Muslim population, 148.19 million (Kusnandar, 2022), or approximately 96.02% of the population, especially in large cities such as Jakarta. The sizeable Muslim population in the Greater Jakarta area makes the halal issue an intriguing topic of discussion for various reasons, particularly because this region is Indonesia's economic and population hub. According to data from the Ministry of Religion Republic of Indonesia, 1,828 out of 8,042 restaurants in Indonesia have obtained halal certification. The proportion of restaurants with halal certifications in 2020 was only 22.7%. Since 2015, typical barbeque and all-you-can-eat Japanese restaurants have become popular in Indonesia, and restaurant branches keep popping up everywhere. However, many Muslim consumers lack awareness about halal restaurants. They are still determining whether the restaurant is halal because they lack knowledge and understanding of the halal principle (Kamarulzaman et al., 2020). Awareness can affect a person's behavior (Solomon, 2009). Unlike thoughts or emotions, behavior is a measurable and observable phenomenon that can be studied (Morgan, 1986). Behavior can be explained by the Theory of Planned Behavior (TPB) (Ajzen, 1991) through variables such as attitudes toward behavior, subjective norms, and perceived behavioral control. Only 22.7% of the total number of restaurants in Indonesia possess halal certifications, which consistent results regarding consumer halal awareness must follow; therefore, conducting in-depth research on this issue is necessary. Halal awareness refers to an individual's conscientiousness about the halal status of their food (Fachrurrozie et al., 2023).

Several previous studies (Alam & Sayuti, 2011; Djunaidi et al., 2021; Setyaningsih & Marwansyah, 2019) have examined the decision to purchase halal products by considering variables such as halal awareness, religiosity, brand image, halal certification, and product prices. An in-depth review of studies on the intention to purchase halal products employing the Theory of Planned Behavior (TPB) alongside several supplementary variables revealed that factors such as attitude, subjective norms, perceived behavioral control, halal certification, and halal awareness exert a considerable influence on the intention to purchase halal items (Fatmi et al., 2020). In addition, Vizano et al. (2021) have concluded that subjective norms, an individual's inclination to conform to specific societal norms, and perceptions of behavioral control positively affect the intention to buy halal products. Purchase intention positively affects purchasing behavior, and this study proves that halal awareness can influence purchase intention towards halal food products.

There is limited research on halal-awareness behavior. Instead, most existing studies examine halal purchasing intentions with managerial significance that is limited to a general sense. A consumer behavior segmentation cluster analysis can suggest more specific managerial implications because each consumer cluster exhibits unique behavioral characteristics (Andini & Famiola, 2019). Hence, each cluster's approach

to increasing halal awareness was distinct. Furthermore, a robust correlation exists between several sociodemographic factors, such as age, level of education, revenue, and jobs, and the extent of individuals' awareness regarding the consumption of food at establishments that possess halal certification (Kamarulzaman et al., 2020). This can serve as a foundation for using sociodemographic factors to examine the characteristics of consumers.

Therefore, this study aims to explore the factors influencing consumer behavior toward halal awareness and analyze their behaviors through consumer segmentation. The results are expected to provide a better understanding of consumer behavior and offer a specific approach to consumer segmentation regarding their behavior toward halal awareness.

2. Literature Review

2.1 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) (Ajzen, 1991) is based on and extends The Theory of Reasoned Action (TRA). According to the TRA, an individual's beliefs can shape their subjective attitudes and norms, ultimately influencing their behavioral intentions. The key tenet of this theory is that intention plays a crucial role in determining whether an activity will be enacted. According to Ajzen, the theory revealed that people are more likely to behave properly because they think about the consequences and risks of their actions. Thus, TPB behavioral intention is influenced by attitudes toward behavior, subjective norms, and perceived behavioral control.

The concept of attitude toward behavior refers to an individual's affective evaluation characterized by either good or negative sentiments about engagement in a certain behavior or action. Determination is made by assessing an individual's views of the outcomes resulting from their actions and evaluating the consequences associated with their aspirations (Elseidi, 2018). Attitude refers to the manifestation of customer sentiments towards an object, encompassing positive and negative evaluations. Additionally, attitudes can encompass consumer trust and belief in the diverse features and advantages associated with the object (Nora & Sriminarti, 2023). Based on prior research concerning bubble tea restaurants, it was discovered that consumers have a positive attitude toward visiting bubble tea restaurants, resulting in a strong intent to return (Koay & Cheah, 2023).

Subjective norms are established through the influence of normative beliefs and an individual's inclination to conform to them. Normative views pertain to the expectations individuals acquire from prominent figures or groups in their social circle, including parents, close friends, co-workers, or other relevant parties, depending on the specific behavior under consideration. Social pressure may emanate from individuals holding significant positions of authority, thus exerting influence over their conduct by instilling a sense of motivation to comply (Widyanto & Sitohang, 2022). Consequently, subjective norms arise from individuals' interpretations of prevailing societal influences that encourage or discourage certain behaviors (Iranmanesh et al., 2020; Vizano et al., 2021).

The concept of perceived behavior refers to an observer's subjective interpretation and understanding of an individual's actions or conduct. It involves control that can be characterized as an individual's perception of the existence or nonexistence of elements that either facilitate or impede their conduct. The degree to which an individual perceives numerous facilitating elements and limited limiting factors in

executing an activity directly corresponds to their perceived level of control over conduct (Vizano et al., 2021). The strength of an individual's Intention to engage in a specific action, such as purchasing halal food goods, is positively associated with the Perceived Behavioral Control (PBC) (Iranmanesh et al., 2020).

2.2 Halal Awareness

Halal awareness refers to the level of understanding a Muslim possesses regarding the principles and practices associated with halal, encompassing the halal certification process and the significance of consuming halal food as an imperative aspect of their religious beliefs. The level of awareness of halal practices among the Indonesian Muslim population has increased. Indonesian Ulema Council data show a significant increase in halal-certified items (Vizano et al., 2021). As individuals become increasingly aware of the significance of incorporating halal foods into their dietary choices, a consequential outcome is a heightened inclination toward procuring halal items. The correlation between Muslims' comprehension of halal and their subsequent attitudes and actions towards halal-related matters is directly proportional. Juliana et al. (2022) identified halal awareness indicators encompassing several dimensions. These dimensions include information pertaining to halal, the level of halal awareness, prioritization of purchasing halal products, adherence to product cleanliness standards, and assurance of product safety.

2.3 Cluster Analysis

Cluster analysis is an analytical technique that explores datasets to assess whether data can be meaningfully summarized into smaller groups with relatively homogeneous data (Everitt et al., 2011). Several typical cluster analyses are frequently used, one of which is k-means (Prianto & Bunyamin, 2020; Sharda et al., 2018). The K-means algorithm is classified as a commonly employed partitioning algorithm (Ghazal et al., 2021). The proposed methodology partitions each individual object into a distinct cluster, ensuring that no object is assigned to more than a single cluster. Cluster analysis is used to segment consumers for various purposes, including categorizing their behavior (Abdi & Abolmakarem, 2019; Andini & Famiola, 2019; Tabianan et al., 2022).

3. Conceptual Framework

The existing literature review suggests a hypothesis positing that attitudes toward behavior, subjective norms, and perceived behavioral control directly affect intention. Moreover, halal awareness has the potential to affect intentions and consumer behavior. Figure 1 presents the conceptual framework of this study.

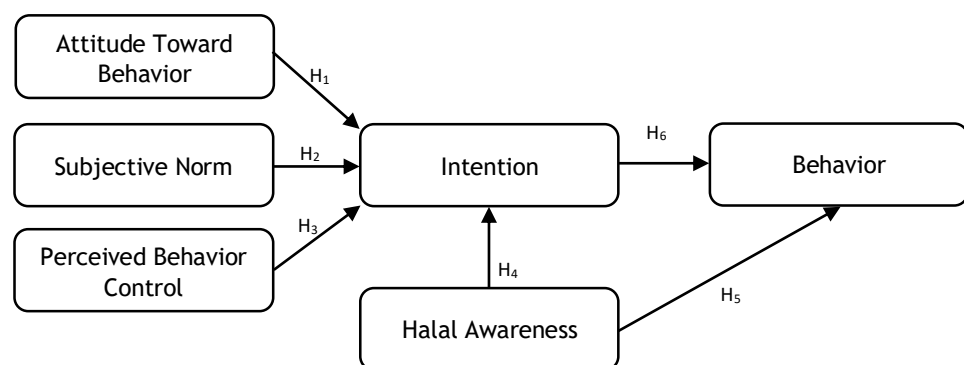


Figure. 1 Conceptual framework

Based on the Figure 1, the formulated hypothesis is as follows:

- H1: Attitude toward behavior affect significantly on intention
- H2: Subjective norms significantly affect the intention
- H3: Perceived behavior control affect significantly on Intention
- H4: Halal awareness affect significantly on intention
- H5: Halal awareness affect significantly on behavior
- H6: Intention affect significantly on behavior

4. Methods

4.1 Participant

This study used a cross-sectional survey design, which is a valuable approach for examining quantitative patterns, attitudes, and opinions within a population. This method involves gathering data from a representative sample of a target group to provide insights into a broader population (Pacho, 2023). This study employed a quantitative methodology to evaluate a specific population or sample to test a pre-established hypothesis. The sampling technique employed was non-probability sampling, specifically purposive sampling, which disregards the principles of chance or probability. Purposive sampling involves deliberate selection for certain reasons (Sugiyono, 2019).

This research collected data from May to June 2023 using Google Forms to distribute questionnaires covering Jakarta, Bogor, Depok, Tangerang, and Bekasi. The population estimate was uncertain; therefore, the Lemeshow formula was used to determine a sample size of 196 respondents. The study sampled Muslim consumers between the ages of 15 and 64 who had purchased food or beverages from a restaurant were included in the study's sample. The questionnaires included the required statements as prerequisites, such as domicile, age range, Muslim, and purchased food/beverages from a restaurant to the mandatory questionnaire list so that respondents who meet specific criteria will be obtained.

4.2 Measurement

The questionnaire questions were based on prior research and secondary data analyses from journals, books, and other pertinent data sources. This study employed a weighting technique on a Likert scale for data acquisition, ranging from 1 (strongly disagree) to 5 (strongly agree) (Table 1). This study consisted of six variables with 22 indicators. Attitudes toward behavior consisted of behavioral belief strength and outcome evaluation (Ajzen, 2005). Subjective norms consist of normative beliefs and the motivation to comply (Ajzen, 2005). Perceived behavioral control consists of control beliefs and perceived power. Halal awareness consists of knowledge of halal and halal awareness, priority in buying halal products, product hygiene, and product safety (Kurniawati & Savitri, 2020). Intention refers to Gerungan and Karina (2019), and behavior refers to Peña-García et al. (2020).

Table 1. Research instrument

Variables	Dimensions	Indicators	Items	
Attitude toward behavior	Behavioral belief strength	Confidence in visiting halal-certified restaurants.	AT1	
	Outcome evaluation	Response after visiting a halal-certified restaurant.	AT2	
Subjective norm	Normative beliefs	Family factors determine the decision to visit a halal-certified restaurant.	SN1	
		The friend factor determines the decision to visit a halal-certified restaurant.	SN2	
	Motivation to comply	Family factors affect the consideration in visiting a halal-certified restaurant.	SN3	
		The friend factor influences the consideration in visiting a halal-certified restaurant.	SN4	
Perceived behavior control	Control beliefs	Someone's belief is that the restaurant visited is a halal-certified restaurant.	PB1	
		Ability to select halal-certified restaurants.	PB2	
	Perceived power	Have the ability to find information about halal-certified restaurants.	PB3	
		Have the ability to buy food or drinks at halal-certified restaurants.	PB4	
Halal awareness	Halal knowledge	General knowledge about halal.	HA1	
		Have knowledge of what materials may not be used so that the product remains halal.	HA2	
		Know what materials may not be used so that the product remains halal.	HA3	
	Aware of halal	Have knowledge about the length of validity of the halal certificate.	HA4	
		Have an awareness of the importance of halal certificates.	HA5	
		Priority to buy halal products	Pay attention to the halal product before consuming it.	HA6
		Product Safety	Having confidence that restaurants that are halal certified have product safety that is maintained.	HA7
Intention		Will ensure the restaurant visited already has a halal certificate.	I1	
		Pay attention to the validity period of the halal certificate visited.	I2	
		Desire to buy food or drinks at halal-certified restaurants.	I3	
		Will recommend the closest people to buy food or drinks at restaurants that are halal certified.	I4	
Behavior		Always ensure that the restaurant you visit already has a halal certificate.	B1	

4.4 Analysis

Two tools were used to process the research data. First, the model was evaluated using SEM-PLS with SmartPLS software. Second, the cluster analysis determines the formed consumer segmentation. Consumer segmentation used the k-means algorithm with the Waikato Environment for Knowledge Analysis (WEKA) software. The SEM-PLS methodology involves a two-stage evaluation process consisting of outer and inner model assessments (Hamid & Anwar, 2019). This approach was used to evaluate the validity and reliability of the model. Table 2 presents the Rule of Thumb Outer Model, which was used to assess the outer model using the approved reflective indicator construct.

Table 2. Rule of thumb outer model of structural equation modeling

Validity and reliability	Parameter	Rule of thumb
Convergent validity	Loading factor	>0.7 for confirmatory research > 0.6 for exploratory research
	Average Variance Extracted (AVE)	>0.5 for confirmatory and exploratory research
Discriminant validity	Cross loading	> 0.7 for all variables
Reliability	Cronbach's alpha	> 0.7 for confirmatory research > 0.6 is still acceptable for exploratory research
	Composite reliability	> 0.70 for confirmatory research 0.6 - 0.7 is still acceptable for exploratory research

This study employed a confirmatory research design, necessitating the loading factor, Cronbach's alpha, and composite reliability exceeding 0.7. The inner evaluation model predicts causation between the latent and non-measurable variables. R-square measures the proportion of the variation explained by the inner model.

The most referenced grouping algorithm was the k-means algorithm. The k-means algorithm assigned each data point to the nearest central cluster. This algorithm is simple, flexible, and easy to understand, making it suitable for solving various problems (Prianto & Bunyamin, 2020). The steps in the k-means algorithm are as follows (Sharda et al., 2018): 1) k is determined as the number of clusters. The optimal number of clusters k was determined using theoretical and conceptual considerations; 2) Find the centroid or nearest cluster center for each k. The starting centroid can be chosen randomly from the available objects; 3) the object distances to the cluster centroids are calculated; and 4) Repeat steps two and three until the centroid stabilizes.

5. Findings

5.1 Respondent Characteristic

According to Table 3, most respondents reported a monthly income greater than IDR 6,000,000, indicating that a bachelor's degree improves employment opportunities (Wibowo et al., 2022). The high income may also be attributed to domicile since the sample resides in an Indonesian metropolis with a high minimum wage. Families and friends are frequently invited to restaurants because of the social nature of the metropolitan areas. Typically, these trips were less than IDR 1,000,000.

Table 3. Characteristics of respondents

Characteristic	Category	n	%
Domicile	Jakarta	57	29
	Bogor	82	42
	Depok	21	11
	Tangerang	16	8
	Bekasi	20	10
Age	15 - 24 yo	36	18
	25 - 34 yo	123	63
	35 - 44 yo	29	15
	45 - 54 yo	6	3
	55 - 65 yo	2	1
Educational status	Senior High School	24	12
	Diploma (D3)	11	6
	Bachelor (S1)	135	69
	Master (S2)	25	13
	Doctor (S3)	1	1
Income (in thousands)	< IDR 2,600	22	11
	IDR 2,600 < IDR 6,000	66	34
	> IDR 6,000	108	55
The average monthly cost of dining at a restaurant	< IDR 1,000	118	60
	IDR 1,000 - IDR 3,000	65	33
	> IDR 3,000	13	7
Frequently invited colleagues	Alone	8	4
	Friend	97	49
	Family	91	46

5.2 Evaluation Model

SEM-PLS was used to evaluate the models. The average variance extracted and loading factors were used to assess the convergent validity. In this study, the loading factor exceeds 0.7 in this study using confirmatory research. Thus, HA4 was deleted.

All indicators had loading factors above 0.7, satisfying the initial criteria. According to the findings presented in Table 4, it is evident that the aggregate Average Variance Extracted (AVE) for the latent variables exceeds 0.5, indicating that all variables can be deemed genuine. Consequently, the assessment of convergent validity met the overall criterion, indicating that collective latent variables may account for over 50% of the average indicator variations (Ghozali, 2021).

Acceptance of the cross-loading value occurs when the correlation between the indicators of a construct exceeds that of other constructs. The cross-loading values indicate the degree of correlation between each indicator and its corresponding construct relative to the constructs in the other columns. Reliability evaluation is frequently performed using Cronbach's alpha and Composite Reliability (CR) metrics. Cronbach's alpha and composite reliability coefficients for each variable were above the threshold of 0.7, suggesting that the measurement instrument demonstrated high reliability and consistency in evaluating the intended constructs. Based on the outcomes of the convergent, discriminant, and reliability tests conducted on the outer model, it can be concluded that the constructed model is characterized by measurement findings that are both valid and reliable.

Table 4. Outer loading of the measurement items, cronbach alpha, CR, and AVE

Variables and indicators	Outer loading	Cronbach's alpha	CR	AVE
Attitude toward behavior		0.851	0.854	0.871
AT1	0.928			
AT2	0.938			
Subjective norm		0.832	0.833	0.666
SN1	0.767			
SN2	0.846			
SN3	0.796			
SN4	0.852			
Perceived behavior control		0.839	0.846	0.676
PB1	0.830			
PB2	0.873			
PB3	0.818			
PB4	0.763			
Halal awareness		0.872	0.897	0.602
HA1	0.768			
HA2	0.739			
HA3	0.708			
HA5	0.791			
HA6	0.820			
HA7	0.825			
Intention		0.875	0.893	0.730
I1	0.911			
I2	0.739			
I3	0.890			
I4	0.867			
Behavior				
B1	1.000			

Based on the findings shown in Table 5, the R-squared coefficient indicates that the constructed variable accounts for 70.2% of the variance in the intention variable, whereas the remaining 29.8% is attributed to external factors not included in the study model. The behavior variable has a value of 0.68, indicating that 68% of the variability in the behavior variable data can be accounted for, whereas the remaining 32% is attributable to factors beyond the scope of the study model.

Table 5. R-square of structural equation modeling

Latent variable	R-square
Intention	0.701
Behavior	0.680

This hypothesis can also be tested by bootstrapping the path coefficient findings using SmartPLS. The hypothesis was considered statistically significant if the p-value was less than 0.05. The path coefficients are listed in Table 6. The influence of attitude toward behavior on Intention had a positive value compared with the beta of 0.109. However, the study results indicate that the t-value is less than the p-value of 1.568.

At the same time, to be accepted, hypothesis p-values must be greater than 1.96 so that they are rejected. Based on the questionnaire results, respondents' attitudes differed from their intentions to choose halal restaurants. The positive attitude shown by the majority of respondents toward halal restaurants agrees and strongly agrees.

However, their attitude was not directly proportional to their intention to ensure that the restaurants they visited were halal.

Table 6. Path coefficient value of structural equation modeling

Path	Beta	t-value	P-value	Conclusion
Attitude toward behavior → Intention	0.109	1.568	0.117	Rejected
subjective norm → Intention	0.222	3.323	0.001	Accepted
perceived behavior control → Intention	0.291	4.396	0.000	Accepted
Halal awareness → Intention	0.625	7.729	0.000	Accepted
halal awareness → Behavior	0.239	2.889	0.004	Accepted
intention → Behavior	0.332	4.140	0.000	Accepted

Respondents knew that visiting halal restaurants can benefit the body, and they felt comfortable visiting halal restaurants. However, the respondents were always reluctant to check whether the restaurant they were going to visit was already certified halal. Due to the stigmatization of respondents, it is assumed that the majority of food distributed is halal, simply by virtue of being in a country with a Muslim majority. This reduces the incentive to verify halal certification before visiting a restaurant, particularly in well-known Indonesian establishments.

The influence of subjective norm on intention is positively significant for the beta of 0.221, and the significance of the study is $3.323 > 1.96$. Subjective norms and intentions had a substantial positive effect. The relationships that occur for each individual are both vertical and horizontal. Vertical relationships can exist among superiors-subordinates, professors-students, and parent-children. Horizontal relationships can exist between individuals and others.

The influence of perceived behavior control on intention has a positive value for the beta of 0.320, and the significance of the study of $4.396 > 1.96$. This finding provides evidence supporting the existence of a strong and statistically significant relationship between perceived behavioral control and intention. Perceived behavioral control refers to an individual's subjective perception of the level of ease or difficulty associated with the execution of a particular action. Most respondents believed in choosing halal restaurants by assessing respondents who believed that the restaurants they came to were halal-certified. They also chose halal-certified restaurants over non-halal-certified ones. Respondents chose halal restaurants rather than restaurants that did not have halal certificates because one of the easiest ways to convince consumers that the restaurant to be visited is halal is by paying attention to the halal label when visiting the restaurant.

In addition to beliefs, competency in identifying a halal restaurant by looking at the restaurant's halal label shows that respondents have high control beliefs. In addition to the necessary belief in control, the perceived power indicator is a supporting indicator that plays a role in perceived behavior control. Perceived power is often described as one's perception of one's ability to adopt a behavior by considering the difficulties, risks, and challenges that come with it. Quickly, the difficulty of the risk or challenge is the ability of consumers to buy food at halal restaurants. The study's findings indicate that respondents can buy food from halal restaurants financially because of the prices offered by affordable halal-certified restaurants. Another supporting factor was respondents' ability to find information about halal restaurants.

The search for information can be done by asking whether the restaurant is halal on the server or by ensuring that the restaurant to be visited is certified halal via a smartphone.

The influence of halal awareness on intention has a positive value on the beta of 0.625, and the significance of the study of $7.729 > 1.96$. This finding supports a strong and statistically significant relationship between halal awareness and intention. The halal awareness variable shows that restaurant consumers to restaurants that will be visited are halal-certified or have not influenced consumers' Intention to visit halal restaurants. The dimension of halal knowledge is measured through consumers' understanding of halal, their knowledge of materials that should not be used, and what processes should not be performed so that food remains halal. Meanwhile, knowledge about the length of time the halal certificate is valid in Indonesia is not valid for evaluating the inner model. This is allegedly because consumers do not need to know the validity period of the halal certificates circulated in Indonesia. As long as the restaurant has a halal certificate, it means that it is still guaranteed that consumers do not need to pay too much attention to it.

In addition to knowledge of halal, the dimension of awareness of halal, which is measured through consumer awareness of halal certificates, is the best benchmark in choosing a restaurant because it is guaranteed that halal means that consumers' awareness of halal restaurants affects the variable of halal awareness of consumer intention. When consumer awareness of halal is high, consumers are increasingly careful in choosing the restaurant they will visit. Another dimension, the priority of buying halal products, was measured by respondents' responses to prioritizing buying food in halal-certified restaurants compared to non-halal-certified restaurants. Various kinds of restaurants offer attractive choices for consumers, but not all restaurants frequently visited by most consumers already have halal certificates. This indicator affects halal awareness, and when consumers prioritize choosing halal restaurants, it means that respondents prefer to visit restaurants that already have halal certificates compared to restaurants that do not have halal certificates even though the majority of consumers visit a restaurant, the restaurant does not have a halal certificate, consumers prefer not to visit it first. Finally, product safety was measured through respondents' belief that halal-certified restaurants have maintained product safety, which affects the indicators of halal awareness variables.

The influence of halal awareness on behavior had a positive value for the beta of 0.239, and the significance of the study was $2.889 > 1.96$. This demonstrates that halal awareness has a positive and significant effect on behavior. According to the results, halal awareness affects a person's behavior. When a person has low halal awareness, the behavior aimed at visiting halal restaurants is low.

This study found a positive and substantial influence of Intention on Behavior, as evidenced by the beta's value of 0.332 and the study's significance level of 4.410, which is above the critical value of 1.96. The findings of the investigation indicate that intention affects behavior: respondents' intention to go to a halal restaurant was measured through consumer intentions to ensure that the restaurant had already visited a halal certificate, intention to pay attention to the validity period of the halal certificate of each restaurant to be visited, intention to buy food and drinks in restaurants that have halal certification, and intention to recommend people nearby to buy food and drinks in restaurants that have halal certificates. This shows that consumers' intention to visit a halal restaurant positively affects their behavior.

5.3 Cluster Analysis

Based on the clustering results using K-means with a K value of 3, which was assisted by the WEKA software. Table 7 presents the clustering analysis based on the variables of each cluster. Based on the cluster analysis results, there was a shift in the consumer cluster formed from the initial research assumptions.

Table 7. Cluster analysis for each research variable

Variables	Cluster 1	Cluster 2	Cluster 3
Respondent characteristic	The sample population comprises 38 (19%) participants residing in Jakarta. The mean expense for dining at a restaurant within this particular group was IDR 1,281,579, and the most frequently invited guests were friends. However, the data for age and gender are consistent within the three clusters.	The sample population comprises 93 (47%) participants residing in Bogor. The mean expense for dining at a restaurant within this particular group was IDR 938,710, and the most frequently invited guests were friends. However, the data for age and gender are consistent within the three clusters.	The sample population comprises 65 (33%) participants residing in Bogor. The mean expense for dining at a restaurant within this group was IDR 862,154, and family members were the most frequently invited guests. However, the data for age and gender are consistent within the three clusters.
Attitude toward behavior	The majority of consumers are neutral on their belief that eating and drinking from halal restaurants benefits their bodies, but they agree that visiting halal restaurants makes them feel comfortable.	Most consumers agree with their belief that eating and drinking from halal restaurants benefits their bodies and that visiting halal restaurants makes them feel comfortable.	Most consumers strongly agree with their belief that consuming food and drinks from halal restaurants benefits their bodies, and they agree that visiting a halal restaurant makes them feel comfortable.
Subjective norm	Family and friends have less influence on consumers in choosing halal-certified restaurants.	There are influences from family and friends to influence consumers in choosing halal-certified restaurants. Especially the family factor that dominates in choosing halal restaurants.	Family and friends have a very large influence on the motivation of consumers, which causes respondents to be affected to visit restaurants that have halal certificates.
Perceived behavior control	The majority of consumers do not agree with their beliefs and abilities when visiting a restaurant, whether the restaurant has a halal certificate or not.	The majority of consumers agree with their beliefs and abilities when visiting a restaurant, whether the restaurant has a halal certificate or not.	The majority of consumers strongly agree with their beliefs and abilities when visiting a restaurant, whether the restaurant has a halal certificate or not.
Halal awareness	The majority of consumers have knowledge about halal, but awareness of halal and their priority to buy halal	The majority of consumers have knowledge about halal, are aware of halal, have a priority to buy food in halal-certified	The majority of consumers have a very high level of halal awareness, both from knowledge, awareness, and priority to buy

Variables	Cluster 1	Cluster 2	Cluster 3
	products with neutral tend to be negative.	restaurants, and believe that halal restaurants have product safety maintained.	food in halal restaurants, believe that halal restaurants have product safety maintained, and the majority of consumers know how long the halal certificate in Indonesia is valid.
Intention	Consumer intentions to visit halal restaurants tend to be neutral, but they tend to be negative if you have to make sure a restaurant has a halal certificate. However, consumers' intention to visit halal restaurants tends to be positively neutral.	Consumers' intentions to visit halal restaurants, buy food at halal restaurants, and recommend halal restaurants have an affirmative response; meanwhile, to pay attention to the validity period of halal certificates when visiting restaurants, consumers are neutral to this statement.	Consumers' intentions to visit halal restaurants, buy food at halal restaurants, recommend halal restaurants, and pay attention to the validity period of halal certificates when visiting restaurants strongly agree with this statement.
Behavior	Consumers pay less attention to whether the restaurants visited already have a halal certificate or not. This means that awareness of halal is still lacking.	Consumers pay attention to whether the restaurant visited already has a halal certificate or not. This means they have an awareness of halal.	Consumers are very concerned that the restaurant visited already has a halal certificate. This means having a very high awareness of halal.

The results show that there is no segmentation of most consumers with no intention or behavior toward halal awareness. However, Cluster 1 is a respondent with less intention towards halal restaurants and needs more awareness of halal restaurants. Cluster 2 is a cluster where most consumers have intentions and are aware of halal restaurants. Cluster 3 is a cluster where most consumers have very high intentions and are highly aware of halal restaurants.

The research findings indicated that the three clusters exhibited distinct behavioral patterns. Disparities in these three attributes are crucial factors that influence the various strategies employed to enhance halal awareness. Most Cluster 1 customers are residents of Jakarta; hence, the municipal government of Jakarta must play a part in educating restaurant operators about the requirement for a halal certificate by 2024. While most customers are not apathetic toward halal, they are less likely to focus on a restaurant's halal certification. Businesses must begin caring for the veins necessary for halal institution certification through Indonesian rules (PP number 39 of 2021) to establish the halal product guarantee area. The Indonesian Halal Institution must take decisive action against eateries without halal certification. This action must be followed by rules pertaining to eateries without halal certification registered with the government. The restaurant's branding clearly indicated that it was not a halal eatery. Consumers have the right to provide information about eateries requesting halal certifications. For instance, using a logo to indicate that a restaurant is still undergoing certification makes customers more conscious of it.

6. Discussion

The first hypothesis indicated that the influence of attitude toward behavior on intention had a positive value. However, the value of t-value was less than that of p-values, so the hypothesis was rejected. Attitude toward behavior is considered a significant determinant of an individual's intention (Alam & Sayuti, 2011). Individuals' attitudes influence the selection of halal food products, which subsequently affect their intentions (Vanany et al., 2020). Nevertheless, this study demonstrates that opinions do not substantially impact consumers' purchasing intentions toward halal restaurants. Empirical evidence suggests that attitudes do not influence individuals' intentions (Destiana & Tairas, 2021; Hasyim & Purnasari, 2021). Muslim consumers' sentiments in Greater Jakarta fail to reflect their intention to dine at halal restaurants.

The hypothesis resulted in a finding indicating that subjective norms have a positive and significant effect on intention. Subjective norms influence restaurant intention (Aziz et al., 2019). This study demonstrates that subjective norms are consistent with previous findings, indicating that both horizontal and vertical factors influence consumer intentions (Alam & Sayuti, 2011; Widyanto & Sitohang, 2022). The influence of subjective norms on Muslim consumers visiting halal restaurants in Greater Jakarta is particularly evident in the vertical component, particularly in connection to family bonds.

The third hypothesis indicates that perceived behavioral control positively and significantly affects intention. The influence of perceived behavioral control on Muslim consumers' intention to choose halal restaurants was significant. Perceived behavioral control significantly impacts intention, indicating that higher levels of perceived behavioral control correspond to increased consumer intentions (Sahir et al., 2021). This relates to control beliefs and Muslim consumers' perceived power regarding their intentions in Greater Jakarta.

The fourth and fifth hypotheses indicate that halal awareness positively and significantly affects intention and behavior. Halal awareness substantially impacts Muslim consumers' intentions and behavior regarding food consumption at halal restaurants. Consumers who know about halal and the significance of consuming halal products tend to intend to visit halal restaurants. Similarly, consumers are more aware of the significance of consuming halal products. Before making a purchase, more consumers verify whether a restaurant has a halal certification. Nurlatifah and Imam (2021) demonstrated the positive influence of halal awareness on intentions, which is consistent with the findings of this study. Vizano et al. (2021) demonstrated the influence of halal awareness and purchase behavior; the higher the awareness of halal, the more the relationship between buying interest and buying behavior of halal food will increase. Therefore, Muslim consumers' halal knowledge in Greater Jakarta indicates their intentions and behavior when dining in restaurants.

The hypothesis resulted in a finding indicating that intention positively and significantly affects behavior. The influence of intention on conduct is substantial. Consumers' intentions toward a halal restaurant significantly impact their subsequent behavior, leading them to choose a halal restaurant of greater quality. According to a prior study, it has been established that purchase intents and habits have the capacity to have separate influences on individuals' purchasing behavior (Amalia et al., 2020). Hence, the behavioral patterns exhibited by Muslim consumers in the Greater Jakarta region indicate their underlying intentions to choose restaurants.

The cluster analysis resulted in managerial implications, making it simpler to make specific decisions. Indonesia, which has a predominantly Muslim population, considers it normal for food to be labeled halal without a halal logo, as it believes that all available food is in accordance with Islamic law. This study demonstrates that the managerial recommendations made to the Indonesian government are intended to increase the purchasing power of halal cuisine (Amalia et al., 2020). Because not all Muslim communities in Indonesia exhibit identical behavior, cluster analysis research makes it simpler to draw more specific managerial conclusions. The results indicate that consumers in Cluster 1 require assistance from the government, as represented by the Halal Institution, and those who do not possess halal certificates. Cluster 2 required assistance from a BPOM-collaborating Halal institution. Cluster 3 requires businesses with halal certifications for their products and Cluster 3 consumers. Additionally, it is noteworthy to mention that familial factors significantly impact an individual's halal awareness. The influence of the family on the development of a child's character accounts for this. Children acquire societal ideals, values, and patterns of behavior, beliefs, and attitudes through familial and social interactions, which play a role in forming their personalities (Latifah, 2020).

This study is subject to certain limitations, including its exclusive focus on customer behavior within the context of halal restaurant visits. Moreover, it should be noted that the data distribution was limited to the Greater Jakarta area. Furthermore, the sample range, particularly in the domicile region, exhibited unevenness among different regions.

7. Conclusion

Subjective norms, perceived behavioral control, halal awareness, and intention positively and significantly affect consumer behavior when choosing a halal-certified restaurant. Vertical and horizontal relationship factors influenced subjective norms. Perceived behavioral control is influenced by their beliefs and abilities when visiting halal restaurants. Halal awareness is influenced by halal knowledge, awareness of halal, product safety, and prioritization of purchasing halal products. At the same time, the attitude toward behavior factor has no significant effect because, due to the stigmatization of respondents, it is assumed that the majority of food distributed is halal simply in a country with a Muslim majority.

Based on the results of this study, there was a shift in the consumer cluster formed from the initial assumptions of the research. Most consumers are not segmented, with no intention or behavior toward halal awareness. Cluster 1 comprised consumers with less intention towards halal restaurants and less awareness of them. Cluster 2 is a cluster in which most consumers have intentions towards halal restaurants and are aware of them; Cluster 3 is a cluster in which the majority of consumers have intentions towards halal restaurants and have a high awareness of halal restaurants.

8. Recommendation

Based on the findings of this study related to consumer behavior in choosing a halal restaurant, it is recommended that Halal Institutions collaborate with the Indonesian Food and Drug Authority (BPOM) to establish guidelines for the introduction of new labels for non-halal products and products undergoing halal certification. In addition, families can contribute by fostering awareness of halal practices within the household by providing illustrative instances or engaging in regular dialogues regarding the concept of halal. Additionally, efforts should be made to raise awareness among restaurant businesses, particularly in the Greater Jakarta Area, about the forthcoming

requirement for mandatory halal certificates by 2024. In addition, it is imperative for business entities that have not yet registered their operations to initiate the necessary steps to obtain halal certification. Furthermore, it is imperative that commercial entities that have obtained halal certification adhere to prescribed regulations to uphold halal practices.

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