

Halal MSME sustainability: The role of halal literacy, halal certification, and Muslim consumer behavior in Bengkalis Regency



Fatima Al Madina¹, Muhammad Romi^{1*}

¹*Department of Islamic Banking, Sekolah Tinggi Agama Islam Hubbulwathan Duri, Jl. Karya, Balai Makam, Mandau, Bengkalis, Riau, 28983, Indonesia*

**Corresponding author: muhammadromi258@gmail.com*

ABSTRACT

The development of the halal industry has created significant opportunities for Micro, Small, and Medium Enterprises (MSMEs). However, the sustainability of halal MSMEs is still influenced by internal capacity, institutional compliance, and changes in Muslim consumer preferences. This study aims to analyze the influence of halal literacy, halal certification, and Muslim consumer behavior on the sustainability of halal MSMEs in Bengkalis Regency, Riau Province. The study used a quantitative approach with a causal-explanatory design. The sample consisted of 97 food and beverage MSMEs in Mandau, Bathin Solapan, and Bandar Laksamana Districts, selected through purposive sampling. Data were collected using structured questionnaires, observation, and documentation, and then analyzed using multiple linear regression with a 5% significance level. The results showed that halal literacy had no significant effect on the sustainability of halal MSMEs, while halal certification had a positive and significant effect. Muslim consumer behavior had a significant negative effect, indicating that increasing consumer demands can become market pressure when MSMEs' ability to respond to these demands is still limited. Simultaneously, halal literacy, halal certification, and Muslim consumer behavior significantly influence the sustainability of halal MSMEs, although the model explains only 8.3% of the variation in sustainability. This finding underscores the importance of strengthening halal certification, paired with post-certification support, improved managerial capabilities, marketing strategies, and consumer-oriented innovations, to support the sustainability of halal MSMEs in Bengkalis Regency.

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INTRODUCTION

The halal industry has developed significantly and is no longer seen solely as a sector related to compliance with sharia principles; it has become a vital part of global economic dynamics. Increasing Muslim consumption is a key driver of halal market expansion across countries. According to the State of the Global Islamic Economy Report, global Muslim consumer spending reached approximately USD 2.60 trillion in 2024 and is projected to increase to USD 3.56 trillion by 2029 (Mare, 2026). This development indicates that the halal economy has strong growth prospects and creates significant opportunities for businesses, including Micro, Small, and Medium Enterprises (MSMEs). In the Indonesian context, these opportunities are increasingly strategic because Indonesia has a large Muslim population and a broad MSME base. Thus, the development of halal MSMEs is not only related to

meeting the needs of Muslim consumers but also has the potential to become an instrument for strengthening the competitiveness and sustainability of the national economy (Kusumadewi et al., 2025).

The enormous potential of the halal market has not yet been fully matched by the readiness of MSMEs to meet halal demands sustainably. MSMEs are one of the main foundations of the Indonesian economy, with approximately 64 million business units contributing approximately 60.5% to Gross Domestic Product (GDP) and absorbing approximately 96% of the national workforce (Wahida, 2025). This position indicates that the sustainability of MSMEs has direct implications for economic stability and public welfare. However, as halal market demand increases and halal certification obligations are strengthened, MSMEs face the need to adjust their internal capacity, business legality, production processes, and marketing strategies. The issue is not only whether MSMEs are able to obtain halal certification, but also whether halal knowledge, certification compliance, and the ability to understand changing consumer behavior can become strategic resources for maintaining and growing a business in the long term. From a Resource-Based View (RBV) perspective, business sustainability is greatly influenced by an organization's ability to manage valuable and strategic resources to create sustainable advantages (Zahrotun et al., 2024).

This urgency is further strengthened in the context of halal product assurance policies in Indonesia. Law Number 33 of 2014 concerning Halal Product Assurance, which is strengthened through Government Regulation Number 42 of 2024, confirms the direction of government policy in implementing halal product assurance (Government of Indonesia, 2014). For MSMEs, these regulatory developments have consequences in the form of the need to understand certification procedures, ensure that materials and production processes meet halal requirements, and adapt business activities to regulatory demands. The government also provides facilitation through the free halal certification program (SEHATI), with BPJPH opening a quota of up to 1.35 million halal certificates for micro and small businesses by 2026 (The Halal Product Guarantee Agency, 2026). This policy demonstrates strong institutional support, but at the same time indicates that the issue of implementing halal certification at the MSME level still requires attention, especially in terms of knowledge, procedural understanding, and business actor readiness.

Bengkalis Regency is a relevant context for examining this issue due to its characteristics as a coastal and border area directly facing the Strait of Malacca, and its significant MSME economic activity in the food and beverage sector. Data used in the study indicate that there are 253 MSMEs in the study area, spread across the sub-districts of Mandau, Bathin Solapan, and Bandar Laksamana. At the same time, the acceleration of halal certification ahead of the implementation of halal obligations in October 2026 makes the readiness of MSMEs in the region increasingly important. Field observations referenced in the proposal indicate that some MSMEs have not yet obtained halal certification due to a limited understanding of procedures and minimal socialization (Ansam, 2026). A study in Bantan Sub-district, Bengkalis Regency, also showed persistent issues with halal certification at the business level. This situation demonstrates that the challenges facing halal MSMEs in Bengkalis are not solely administrative, but also relate to the knowledge capacity of business actors in understanding halal concepts, certification procedures, and regulatory consequences for business continuity.

One important factor that has the potential to explain the sustainability of halal MSMEs is halal literacy. Halal literacy refers to the ability of business actors to understand halal-haram principles, material and production process requirements, certification procedures, and halal product assurance regulations. Wahab et al. (2024) showed that halal literacy, along with halal awareness, motivation, and religiosity, is related to MSMEs' interest in obtaining halal certification. Meanwhile, Fathoni et al. (2024) developed a measurement instrument for halal certification literacy for micro and small enterprises that includes substantive knowledge, procedural knowledge, and regulatory awareness. In the Pekanbaru context, Alfajri et al. (2025) also found that halal literacy has a positive and significant effect on MSMEs' decisions to obtain halal certification. These findings demonstrate that literacy is a cognitive foundation that can encourage business actors to understand the importance of halal more strategically. However, previous research has primarily linked halal literacy to interest or decisions to obtain certification, rather than to business sustainability after halal aspects are incorporated into long-term business strategies.

In addition to halal literacy, halal certification has strategic relevance because it can function as an institutional mechanism that builds trust between producers and consumers. Certification granted through official mechanisms signals product compliance with halal standards while reducing information asymmetries that consumers cannot resolve through direct observation alone. Nursyapa'ah et al. (2025) showed that halal certification plays a role in building consumer trust and loyalty in the halal product supply chain. Furthermore, a systematic review by Hidayat & Witta (2024) showed that halal certification has legal implications in the form of regulatory compliance and economic implications in the form of opportunities for MSME market expansion. Research on the adoption of halal certification also demonstrates the importance of institutional support, mentoring, and bureaucratic simplification in encouraging the sustainable economic empowerment of MSMEs (Wiryanto et al., 2025). Thus, halal certification can be viewed not only as an administrative obligation but also as an institutional asset that has the potential to strengthen legitimacy, market trust, and business sustainability.

The sustainability of halal MSMEs is also inseparable from the demand side, particularly Muslim consumer behavior. Increasing consumer awareness of product halalness can create market pressure that encourages businesses to maintain halal standards and adjust their business strategies. From the perspective of the Theory of Planned Behavior (TPB), consumer behavior can be understood through attitudes, subjective norms, and perceived behavioral control that shape behavioral intentions and decisions (Ajzen, 1991). In the context of halal MSMEs in Aceh, Diana et al. (2025) found that Islamic values and digital marketing play a role in shaping consumer purchasing intentions. These findings indicate that Muslim consumer decisions are influenced not only by product attributes, but also by Islamic values, the social environment, and access to information. Therefore, Muslim consumer behavior can be positioned as a demand-side factor that complements supply-side factors such as halal literacy and certification. The integration of these two sides is important because the sustainability of MSMEs ultimately depends not only on the business's internal ability to meet halal standards but also on the business's ability to respond to market preferences and expectations.

Although research on halal literacy, halal certification, and Muslim consumer behavior continues to grow, studies integrating these three factors as determinants of halal MSME sustainability are still limited. Previous research tends to examine halal literacy in relation to certification interest or decisions (Alfajri et al., 2025; Wahab et al., 2024), halal certification in relation to trust, loyalty, market access, or MSME empowerment (Hidayat & Witta, 2024; Nursyapa'ah et al., 2025; Wiryanto et al., 2025), and consumer behavior in relation to purchase intentions and halal MSME development (Diana et al., 2025). Thus, there is a research gap in the suboptimal integration between the readiness and capacity of business actors from the supply side and market pressures from the demand side in explaining the sustainability of halal MSMEs. This gap is increasingly important in the context of Bengkalis Regency as an archipelagic and border region with socio-economic characteristics that differ from urban economic centers.

Based on these gaps, this study aims to analyze the influence of halal literacy, halal certification, and Muslim consumer behavior on the sustainability of halal MSMEs in Bengkalis Regency. The novelty of this study lies in the development of an empirical model that integrates three perspectives that have been used separately, namely halal literacy theory, institutional trust theory, and the Theory of Planned Behavior, into a Resource-Based View- based business sustainability perspective. This integration allows the study to explain the sustainability of halal MSMEs more comprehensively by bringing together internal factors in the form of halal knowledge and capacity, institutional factors in the form of certification, and external factors in the form of Muslim consumer behavior. Theoretically, this study is expected to expand the study of Islamic economics and MSME sustainability by positioning halal not only as a compliance dimension, but also as a strategic resource and a mechanism for long-term value creation. Practically, the results of this study are expected to provide an empirical basis for BPJPH and local governments in designing more targeted education and certification assistance, while also helping MSMEs understand the factors that need to be strengthened to maintain business sustainability amidst increasing regulatory demands and Muslim consumer preferences.

RESEARCH METHOD

Methods

This study uses a quantitative research design with a causal and explanatory approach to empirically test the influence of halal literacy, halal certification, and Muslim consumer behavior on the sustainability of halal Micro, Small, and Medium Enterprises (MSMEs) in Bengkalis Regency, Riau Province. The causal approach was used because the study aims to examine the relationship between independent variables and the sustainability of halal MSMEs as the dependent variable. The study was conducted on food and beverage MSMEs located in Mandau, Bathin Solapan, and Bandar Laksamana Districts. The selection of these areas was based on the existence of MSME activities and their relevance to the implementation of halal certification policies.

The study population consisted of 253 food and beverage MSMEs in Bengkalis Regency, including Mandau District, Bathin Solapan District, and Bandar Laksamana District. Respondents were selected based on certain criteria, namely that the business had been actively operating for at least one year, had a halal certificate or was in the process of applying for halal certification, and that respondents were directly involved in the production and marketing activities of the business. The determination of the sample size for this study was calculated using the Slovin formula with an error tolerance of 8% (Jhantasana, 2023), so the number of samples to be taken in this study was 97 people. Furthermore, the selection of respondents was carried out using a purposive sampling technique, namely selecting respondents based on certain characteristics that are in accordance with the research objectives. This technique was used to ensure that respondents have relevant knowledge and experience regarding halal practices and the business activities carried out.

Primary research data were obtained through a structured questionnaire with closed-ended questions using a Likert scale (Hardani et al., 2020). The questionnaire was used to measure four research constructs: halal literacy, halal certification, Muslim consumer behavior, and the sustainability of halal MSMEs. Before being distributed to respondents, the questionnaire instrument was pre-tested to ensure the clarity and understandability of each question. In addition to the questionnaire, the study also utilized direct observation to obtain a picture of the actual conditions of business activities, including production processes, the use of halal materials and procedures, product labels and certifications, business premises conditions, and interactions between MSMEs and Muslim consumers. Documentation was used as supporting data in the form of MSME profiles, halal certification documents, and documentation of business activities. The use of several data collection techniques was intended to strengthen the context and credibility of the research data.

Before data analysis was carried out, the research instrument was validated through: (1) a validity test to ensure each statement item measures what should be measured using the Pearson Product Moment correlation method, and (2) a reliability test to measure the reliability of the instrument using Cronbach's Alpha coefficient with a reliability level $> 0,60$. After that, a multiple linear regression analysis was conducted aimed at determining the effect of halal literacy, halal certification, and Muslim consumer behavior on the sustainability of halal MSMEs, both partially and simultaneously. The analysis stages include: (1) classical assumption tests (normality, multicollinearity, autocorrelation, and heteroscedasticity), (2) t-tests to determine the partial effect of each independent variable, (3) F-tests to determine the simultaneous effect of the independent variables on the dependent variable, and (4) correlation and determination coefficient tests (R^2) (Rachman et al., 2024; Sugiyono, 2019).

Hypothesis:

H₁: Halal literacy has a positive and significant effect on the sustainability of halal MSMEs.

H₂: Halal certification has a positive and significant impact on the sustainability of halal MSMEs.

H₃: Muslim consumer behavior has a positive and significant influence on the sustainability of halal MSMEs.

H₄: Halal literacy, halal certification, and Muslim consumer behavior have a positive and significant influence on the sustainability of halal MSMEs.

Based on the hypotheses stated in this study, the research model is illustrated in Figure 1.

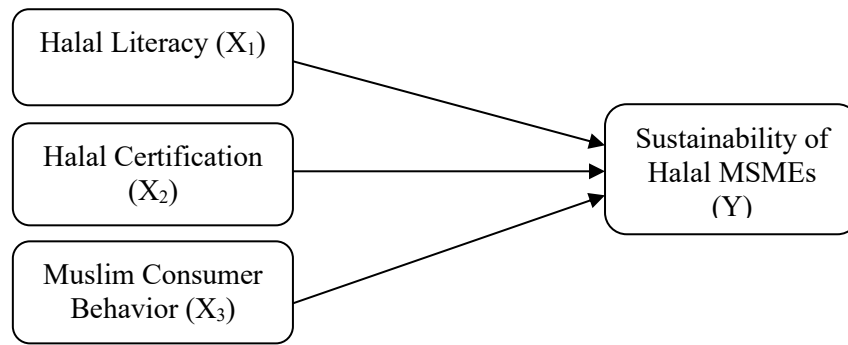


Figure 1. Research model.

RESULT AND DISCUSSION

Given the approaching halal mandatory deadline in October 2026 and the limited evidence on what sustains halal MSMEs beyond certification, the findings below provide an empirical basis for more targeted education and post-certification assistance in Bengkalis Regency. This study involved MSMEs in Bengkalis Regency as respondents. A total of 97 questionnaires were distributed directly to food and beverage MSMEs across the Mandau, Bathin Solapan, and Bandar Laksamana districts. The following provides a general overview of the respondents' profiles.

Table 1. Overview of respondents based on characteristics.

Characteristics	Amount	Percentage
Gender:		
Man	36	37%
Woman	61	63%
Age:		
18 – 25 years old	12	12%
26 – 35 years old	22	23%
36 – 45 years old	44	46%
> 45 years	19	19%
Last education:		
Elementary School/Equivalent	3	3%
Junior High School/Equivalent	2	2%
High School/Equivalent	72	74%
Diploma/Bachelor's Degree	20	21%
Type of Business/Product:		
Food	76	78%
Drink	21	22%
Business Location:		
Mandau	38	39%
Bathin Solapan	25	26%
Bandar Laksamana	34	35%
Length of Business Operation:		
< 1 year	10	10%
1 – 3 years	11	11%
3 – 5 years	22	23%
> 5 years	54	56%
Halal Certification Status:		
Not Certified Yet	41	42%
Application Process	7	7%
Already Certified	49	51%

Source: Processed data, 2026

Based on [Table 1](#), the majority of respondents in this study were female (63%), aged 36 – 45 years (46%), and had a high school education (74%). Most respondents run food businesses (78%) located in Mandau (39%), with businesses that have been running for more than 5 years (56%), and most of them already have halal certification (51%). This table shows that the study respondents are predominantly female food entrepreneurs in the middle productive age group, with a high school education, who have sufficient experience running their businesses, and the majority have met halal certification standards.

Research Instrument Testing

Before data collection, the research instruments were tested to ensure their scientific validity. This testing aimed to determine the instruments' validity and reliability, ensuring that the data obtained accurately reflected the actual conditions in the field. Valid and reliable instruments are essential requirements before conducting research. Therefore, instrument testing was conducted as the initial step in the data validation process. The results of the validity test are shown in the following [Table 2](#).

Table 2. Validity test analysis.

Latent Variable	Indicator	Corrected Item- Total Correlation	R table $\alpha=0.05$	Result
Halal Literacy	HL.1	0.609	0.198	Valid
	HL.2	0.629		
	HL.3	0.610		
	HL.4	0.891		
	HL.5	0.800		
	HL.6	0.866		
	HL.7	0.799		
	HL.8	0.813		
	HL.9	0.853		
Halal Certification	HC.1	0.948	0.198	Valid
	HC.2	0.891		
	HC.3	0.897		
	HC.4	0.821		
	HC.5	0.829		
	HC.6	0.780		
	HC.7	0.802		
Muslim Consumer Behavior	MCB.1	0.732	0.198	Valid
	MCB.2	0.671		
	MCB.3	0.698		
	MCB.4	0.745		
	MCB.5	0.695		
	MCB.6	0.786		
	MCB.7	0.793		
	MCB.8	0.774		
	MCB.9	0.748		
Sustainability of Halal MSMEs	SHM.1	0.616	0.198	Valid
	SHM.2	0.741		
	SHM.3	0.785		
	SHM.4	0.726		
	SHM.5	0.754		
	SHM.6	0.802		
	SHM.7	0.829		
	SHM.8	0.809		
	SHM.9	0.746		

Source: Processed data, 2026

*Notes: HL: Halal Literacy; HC: Halal Certification; MCB: Muslim Consumer Behavior; SHM: Sustainability of Halal MSMEs

The r-value used in this test was 0.198 (referring to the r-table). This value was then compared with the calculated r-value obtained from the "Corrected Item-Total Correlation" column in the data processing results. The table shows that all statements have a correlation value greater than the r-value in the table. Therefore, it can be concluded that all items in this variable are valid.

The next test is reliability. This test is conducted to determine whether the data collection instrument used has a good level of precision, accuracy, stability, and consistency. An instrument is considered reliable if the Cronbach's Alpha value is above 0.60. The results of the reliability test can be seen in the following [Table 3](#).

Table 3. Reliability test analysis.

Latent Variable	Cronbach's Alpha	Cronbach Alpha Minimum Limit	Result
HL	0.908	0.60	Reliable
HC	0.932	0.60	Reliable
MCB	0.895	0.60	Reliable
SHM	0.906	0.60	Reliable

Source: Processed data, 2026

*Notes: HL: Halal Literacy; HC: Halal Certification; MCB: Muslim Consumer Behavior; SHM: Sustainability of Halal MSMEs

Based on the reliability test results above, it can be seen that the variables of halal literacy, halal certification, and Muslim consumer behavior are reliable, as indicated by the total Cronbach's Alpha value for each variable being above 0.60. This indicates that the statement items used to measure the three variables have good internal consistency, so this research instrument is suitable for use to accurately measure the extent to which halal literacy, halal certification, and Muslim consumer behavior are related to each other in this study.

Classical Assumption Test

Normality Test Analysis

In a linear regression model, several assumptions must be met to obtain a BLUE (Best Linear Unbiased Estimator). This test is conducted to verify that the basic assumptions in the linear regression equation have been met, so that the equation can be used appropriately for prediction purposes. Based on the results of the normality test, it is known that the skewness ratio value is obtained from the calculation of $-0.449/0.245$, resulting in a value of -1.832 . Meanwhile, the kurtosis ratio is calculated by dividing $-0.999/0.485$, obtaining a value of -2.059 . Data can be said to be normally distributed if the skewness and kurtosis ratio values are in the range between -2 and $+2$. The calculation results show that the skewness value of -1.832 and kurtosis of -2.059 are still within that range. Thus, it can be concluded that the research data meets the assumption of normality or is normally distributed.

Multicollinearity Test Analysis

Based on the results of the multicollinearity test conducted above, the tolerance value for the variables halal literacy, halal certification, and Muslim consumer behavior was greater than 0.10, while the VIF (Variance Inflation Factor) value recorded for the variables halal literacy, halal certification, and Muslim consumer behavior was still below the limit of 10.00. Thus, it can be concluded that there is no symptom of multicollinearity between the independent variables in this regression model, considering that the tolerance value obtained exceeds 0.10 and the VIF value is below the threshold of 10.00.

Autocorrelation Test Analysis

The results of the autocorrelation test: the Durbin-Watson (DW) statistical value obtained was 1.818. By referring to the Durbin-Watson table, it is known that for the number of samples (n) = 97, the number of independent variables (k) = 3, and a significance level of 5%, the dL value = 1.592 and the dU value = 1.733 were obtained, so that the 4-dU value of 2.267 could be determined. Therefore, these

results indicate that the DW value (1.818) is greater than the dU value and smaller than the 4-dU value ($1.733 < 1.818 < 2.267$), meaning the DW result is between the dU and 4-dU values. Thus, it can be concluded that there is no autocorrelation in the model.

Heteroscedasticity Test Analysis

Based on the results of the heteroscedasticity test, the significance value for the halal literacy variable was 0.480, halal certification was 0.660, and Muslim consumer behavior was 0.809. This indicates that the values of the halal literacy, halal certification, and Muslim consumer behavior variables are greater than 0.05, thus concluding that there are no symptoms of heteroscedasticity in the regression model.

Hypothesis Testing

The hypotheses tested in this study aimed to determine whether there was a significant influence between the variables studied. The first test conducted was a multiple linear regression analysis. This analysis aimed to examine the data regarding the influence of the independent variables, namely service quality and satisfaction, on the dependent variable, namely the trust of the zakat payers. The results of the multiple linear regression analysis are shown in the following [Table 4](#).

Table 4. Multiple linear regression analysis.

Model	Unstandardized Coefficients	
	B	Std. Error
(Constant)	47.392	6.722
1 HL	.171	.177
HC	.348	.164
MCB	-.622	.239

Source: Processed data, 2026

*Notes: HL: Halal Literacy; HC: Halal Certification; MCB: Muslim Consumer Behavior; SHM: Sustainability of Halal MSMEs

Based on [Table 4](#) and the multiple linear regression equation analysis above, it can be explained that the constant value (a) has a positive value of 47.392. A positive sign indicates a unidirectional influence between the independent variable and the dependent variable. This indicates that if all independent variables, including halal literacy, halal certification, and Muslim consumer behavior, are valued at 0 percent or do not experience any change, then the sustainability value of halal MSMEs is 47,392. Furthermore, the regression coefficient value for the halal literacy variable has a positive value of 0.171. This indicates that if halal literacy increases by 1%, then the sustainability of halal MSMEs will increase by 0.171, assuming that other independent variables are held constant. A positive sign indicates a unidirectional influence between the independent variable and the dependent variable. Then, the regression coefficient value for the halal certification variable has a positive value of 0.348. This indicates that if halal certification increases by 1%, then the sustainability of halal MSMEs will increase by 0.348, assuming that other independent variables are held constant. A positive sign indicates a unidirectional influence between the independent and dependent variables. Meanwhile, the regression coefficient for the Muslim consumer behavior variable is -0.622. This value indicates a negative (opposite direction) influence between the Muslim consumer behavior variable and the sustainability of halal MSMEs. This means that if the Muslim consumer behavior variable increases by 1%, the sustainability variable for halal MSMEs will decrease by -0.622, assuming that all other variables remain constant.

After conducting multiple linear regression analysis, the next step is to test the significance of each parameter (partial test) and simultaneously test the significance of all parameters. The results of this hypothesis testing can be seen in the following [Table 5](#).

Table 5. Hypothesis test analysis.

Hypothesis	Variable	Statistics	Significance	Decision
H1	Halal Literacy > Sustainability of Halal MSMEs	0.970	.335	Not Accepted
H2	Halal Certification > Sustainability of Halal MSMEs	2.119	.037	Accepted
H3	Muslim Consumer Behavior > Sustainability of Halal MSMEs	-2.604	.011	Accepted
H4	Halal Literacy, Halal Certification, and Muslim Consumer Behavior > Sustainability of Halal MSMEs	2.824	.043	Accepted

Source: Processed data, 2026

To determine the results of the individual parameter significance test (t-test), the test provisions were used with a t-table value at 93 degrees of freedom (df) and a significance level of 5% ($\alpha = 0.05$), resulting in a t-table value of 1.986. The results of the hypothesis test indicate that the halal literacy variable has a calculated t-value smaller than the t-table value ($0.970 < 1.986$), and a significance value of $0.335 > 0.05$. This indicates that the first hypothesis in this study, namely halal literacy, does not have a significant effect on the sustainability of halal MSMEs. Thus, the first hypothesis in this study is not accepted. Conversely, the results of the hypothesis test on the halal certification variable show that the calculated t-value is greater than the t-table value ($2.119 > 1.986$), and the significance value of $0.037 < 0.05$. These findings indicate that the second hypothesis, namely halal certification, has a positive and significant effect on the sustainability of halal MSMEs. Thus, the second hypothesis in this study is accepted. Furthermore, the results of the hypothesis testing on the variable of Muslim consumer behavior towards the sustainability of halal MSMEs also showed an absolute t-value greater than the t-table value ($-2.604 > 1.986$), with a significance value of $0.011 < 0.05$. These findings indicate that the third hypothesis, namely Muslim consumer behavior, has a positive and significant effect on the sustainability of halal MSMEs. Thus, the third hypothesis in this study is accepted.

The simultaneous significance test was conducted with a significance level of 5% ($\alpha = 0.05$), resulting in an F-table value of 2.70. Based on the table of hypothesis testing results, it can be seen that the service quality and satisfaction variables together have a calculated F-value that is much greater than the F-table value, namely $2.824 > 2.70$, with a significance value of $0.043 < 0.05$. These results prove that the fourth hypothesis, namely halal literacy, halal certification, and Muslim consumer behavior simultaneously have a positive and significant effect on the sustainability of halal MSMEs. Thus, the fourth hypothesis in this study is accepted.

Correlation Coefficient and Determination

The correlation coefficient is used to assess the strength of the relationship between the variables studied. Meanwhile, to determine the contribution of halal literacy, halal certification, and Muslim consumer behavior to the sustainability of halal MSMEs, the coefficient of determination is used, which is the square of the correlation coefficient multiplied by 100%, or better known as R-square. The test results show that the correlation coefficient between halal literacy, halal certification, and Muslim consumer behavior towards the sustainability of halal MSMEs is 0.289. This value is in the range of 0.20 to 0.399, which means that halal literacy, halal certification, and Muslim consumer behavior have a low relationship with the sustainability of halal MSMEs. Meanwhile, the results of the determination coefficient test show an R Square value of 0.083 or 8.3%. This figure indicates that the variables of halal literacy, halal certification, and Muslim consumer behavior together are able to influence the sustainability of halal MSMEs by 8.3%, while the remaining 91.7% is influenced by other variables outside the model used in this study.

Halal Literacy Does Not Significantly Impact the Sustainability of Halal MSMEs

The results of the study indicate that halal literacy does not significantly influence the sustainability of halal MSMEs; thus, the first hypothesis is not supported. This finding indicates that business actors' understanding of halal concepts, materials, processes, and regulations does not automatically improve the ability of MSMEs to sustain their businesses. Literacy functions more as basic knowledge that requires managerial and implementation support to generate business benefits. This finding differs from [Wahab et al. \(2024\)](#), who showed that halal literacy plays a role in increasing MSME interest in obtaining halal certification. This difference may occur because previous research focused on certification decisions, while this study measures business sustainability, which has a broader scope. This finding is also in line with [Fathoni et al. \(2024\)](#), who emphasized that halal certification literacy encompasses aspects of knowledge, procedures, resources, and the ability to overcome implementation obstacles. This finding is further supported by [Muhibbin et al. \(2026\)](#), who applied the Technology-Organization-Environment framework to halal MSMEs in Indonesia and found that organizational and external environmental factors had a much more substantial influence on the sustainability of halal adoption than technical knowledge alone, thus confirming that new literacy has a real impact when accompanied by organizational readiness and institutional support. In line with this, [Yang et al. \(2022\)](#), in a study of halal MSMEs, showed that the economic sustainability of halal MSMEs is determined more by strategic orientation and competitive advantages built from organizational capabilities than by mere knowledge acquisition, thus strengthening the argument that literacy requires conversion into tangible capabilities to impact business sustainability. Theoretically, these results reinforce the RBV perspective that new knowledge becomes a strategic resource when it can be converted into valuable capabilities. Practically, halal education for MSMEs needs to be directed at the application of knowledge in production, documentation, marketing, and business management.

Halal Certification Has a Positive and Significant Impact on the Sustainability of Halal MSMEs

Halal certification has a positive and significant effect on the sustainability of halal MSMEs, thus supporting the second hypothesis. This finding indicates that certification not only serves as a form of compliance with halal regulations but also provides business legitimacy and can increase consumer trust. This finding aligns with [Azizah et al. \(2025\)](#), who found that halal certification positively impacts the operational and financial performance of MSMEs in Indonesia. This study indicates that certification can provide economic value if accompanied by improved business performance. Theoretically, halal certification can be viewed as an institutional resource that complements the internal resources of MSMEs. This finding is also supported by [Apriliyanto \(2023\)](#), who found that halal certification and entrepreneurial orientation have a positive and significant effect on competitive advantage and business sustainability of MSMEs in the food and beverage sector, where competitive advantage plays a mediating role in the effect of halal certification on business sustainability. This is in line with [Yang et al. \(2022\)](#) and [Fathorrazi et al. \(2025\)](#), who showed that competitive advantage strengthens the influence of strategic orientation on the economic sustainability of halal MSMEs, thus confirming that halal certification contributes to business sustainability not directly, but through strengthening the competitive position and organizational capabilities. In practice, the government and supporting institutions need to provide post-certification support in the form of halal brand development, product innovation, digital marketing, market expansion, and management strengthening so that certification can provide sustainable benefits.

Muslim Consumer Behavior Has a Positive and Significant Influence on the Sustainability of Halal MSMEs

Muslim consumer behavior has been shown to have a positive and significant influence on the sustainability of halal MSMEs, thus supporting the third hypothesis. However, the negative regression coefficient indicates that the influence is negative. This means that increasing demands or behavioral characteristics of Muslim consumers in the research model are actually associated with declining MSME sustainability when other variables are controlled. This finding can be understood as a form of market pressure, as consumers become increasingly selective regarding halal certification, quality, price, transparency, and other product attributes, while MSMEs' ability to meet these demands remains

limited. This complements [Deti \(2025\)](#) and [Alimusa et al. \(2026\)](#) findings that halal consumption behavior is influenced by religiosity, halal awareness, socio-cultural factors, and consumer characteristics. This interpretation of market pressure is also supported by [Muhibbin et al. \(2026\)](#), who found that competitive pressure and market demand are external environmental factors that significantly influence the sustainability of MSME halal adoption, even though the internal readiness of businesses is not yet fully adequate to respond to them. This condition is also relevant to operational risks in halal MSMEs, as limited capacity to manage risks across the supply chain can weaken their ability to meet consumer expectations consistently ([Rohmatussholihah et al., 2026](#)). Therefore, risk mitigation in the supply chain becomes an important part of ensuring that market demands can be met without undermining business sustainability. This condition strengthens the argument that increasing Muslim consumer expectations can be a source of pressure as well as an opportunity, depending on the capacity of MSMEs to respond. Thus, theoretically, consumer behavior can be positioned as an external factor that exerts adaptive pressure on MSMEs. Practically, MSMEs need to understand consumer preferences more specifically and integrate them with quality, pricing, service, and marketing strategies so that market demands become opportunities, not pressures on sustainability.

Halal Literacy, Halal Certification, and Muslim Consumer Behavior Simultaneously Have a Positive and Significant Impact on the Sustainability of Halal MSMEs

The simultaneous test results indicate that halal literacy, halal certification, and Muslim consumer behavior collectively have a positive and significant effect on the sustainability of halal MSMEs, thus supporting the fourth hypothesis. This finding suggests that the sustainability of halal MSMEs is more appropriately understood as the result of the interaction between internal knowledge capacity, institutional legitimacy, and market pressure. Although halal literacy and halal certification are not individually significant, both still contribute when considered together with consumer behavior. This perspective aligns with the research of [Azizah et al. \(2025\)](#) and [Novari et al. \(2024\)](#), who placed halal certification within the RBV framework and demonstrated its relationship to MSME performance. However, the low explanatory power of the model indicates that MSME sustainability is not solely determined by these three variables ([Widiantari et al., 2024](#)). Factors such as innovation, access to financing, managerial capability, digitalization, product quality, and marketing strategy need to be considered in future research ([Umami et al., 2024](#)). Practically, the government and supporting institutions need to develop an ecosystem that integrates literacy, certification, post-certification assistance, and an understanding of consumer behavior, rather than solely focusing on increasing the number of halal certificates.

CONCLUSION

This study addresses the proposed objectives by demonstrating that, of the three determinants tested, halal certification and Muslim consumer behavior significantly influence the sustainability of halal MSMEs in Bengkalis Regency, while halal literacy has no significant effect on the institution. However, all three factors simultaneously contribute to business sustainability. This key finding confirms that the sustainability of halal MSMEs is determined more by institutional legitimacy gained through certification and by adaptive pressures from Muslim consumer demand, rather than by halal knowledge alone that has not been converted into business capabilities. Theoretically, these results enrich the Resource-Based View perspective by demonstrating that institutional resources (certification) and external market factors (consumer behavior) have stronger explanatory power than literacy as cognitive capital alone, while complementing previous studies that primarily link halal literacy and certification to certification intentions or decisions rather than long-term business sustainability. Practically, these findings imply the need for BPJPH and local governments to shift their focus from simply increasing the number of halal certificates to post-certification assistance that integrates strengthening managerial capabilities, marketing, and consumer literacy so that MSMEs can respond to market pressures as opportunities. This study has limitations in the form of sample coverage limited to food and beverage MSMEs in three sub-districts, with a relatively low coefficient of determination value, so most of the variance in the sustainability of halal MSMEs is still explained by other factors outside the model. Therefore, further research is recommended to expand the coverage of

regions and business sectors, increase the sample size, and add other variables such as innovation, access to financing, managerial capabilities, and digitalization to obtain a more comprehensive model in explaining the sustainability of halal MSMEs.

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