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Halal food literacy: Conceptual framework, dimension, and scale development

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Abstract

Purpose – This study aims to develop the Halal Food Literacy (HFL) scale, concept, and measurement in Indonesia.

Methodology – This study used a mix of qualitative and quantitative methods. The concept of HFL in this study is based on the concept of literacy for consumers. In this case, the SDGs are the theoretical basis for building the HFL concept. Cognitive aspects related to Bloom's concept of Taxonomy were used as the basis for compiling this concept. The study includes four stages: developing, compiling, and describing the concept of Halal Food Literacy based on literature studies, interviews, discussions with experts and scholars, drafting items, testing the validity of the contents, data testing with exploratory factor analysis, and lastly, analysis model.

Findings – The scale test results revealed four HFL factors: halal awareness, halal knowledge, behavioral beliefs, and halal-related label beliefs/halal trust.

Originality – The research adds value to validate literacy measurements of halal food products, specifically on halal food products using measurements and scale development carried out by exploratory factor analysis.

Practical implications – HFL is needed to determine public awareness and understanding of halal food products. Understanding halal products and industries usually influence the decision to buy or use a product. HFL is expected to be a perspective in marketing to determine how necessary and important halal certification of food products is for consumers, especially in Muslim countries, so that it can become a reference for producers in marketing their products.

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Introduction

The concept of literacy is widely used in the financial sector and Islamic finance. Research on the level of literacy in the halal industry sector so far has only focused on the Islamic financial sector using Islamic financial literacy. Research on halal literacy related to the halal industry, such as food, cosmetics, and medicines, is still rarely carried out and tends to be general. In general, according to the Global Islamic Economy Report (GIEI), the halal industry is divided into 6 sectors: halal food,

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Islamic finance, halal travel, modest fashion, halal media and recreation, and halal pharmaceuticals and cosmetics (Reuters & Standard, 2019).

The concept of literacy has often been used in various studies related to consumer behavior. Such as the concept of Islamic financial literacy, which has been widely used in research on financial perceptions and behavior (Rahim et al., 2016; Mehmood et al., 2017; Muslichah & Sanusi, 2019; Afriani & Asandimitra, 2020; Rozikin & Sholekhah, 2020; Ilfita & Canggih, 2021). Several studies state that halal literacy has an effect on purchasing decisions on halal industrial products, both in halal food and cosmetic products (Pratama & Hartati, 2020; Khan et al., 2020; Setyowati & Anwar, 2022).

The indicators on the halal literacy variable used from these various studies are different. Khan et al. (2020) examined the effect of halal literacy on buying behavior of food products using indicators of halal literacy as measured by Salehudin (2010), while others focused more on indicators related to knowledge and understanding of halal.

Many measurements of the concept of Islamic financial literacy have been carried out (Hidajat & Hamdani, 2017; Nawi et al., 2018; Setiawati et al., 2018; Dinc et al., 2021). However, only a few measurements related to halal literacy have been carried out, among others, by Salehudin (2010), stating that Muslim consumers' compliance with strict orders in Islamic sharia guides Muslim consumption behavior. However, individual Muslims may have varying adherences to commands in Islam. Salehudin (2010) describes variables in halal literacy without referring specifically to halal food products. Meanwhile, research related to literacy in halal cosmetic products was developed by Ambo and Sapir (2020), who conducted research on halal cosmetic literacy based on OECD's financial literacy framework.

However, no research specifically measures halal food literacy (HFL). Therefore, this research aims to define and develop a concept and measure the dimensions and indicators scale of halal food literacy with exploratory factor analysis. The first thing to do is to determine the definition of the concept discussed, the relevant dimensions, the items to be scaled, and the scales to be used. Stages in more detail are described in the research methods.

Literature Review

Several studies related to halal literacy have been carried out, among others (Salehudin, 2010). The study measured halal literacy through two methods, namely measuring 6 halal literacy components with five Likert scale points and 15 halal literacy attribute questions in true and false form using factor confirmation analysis. Salehudin (2010) describes variables in halal literacy without referring specifically to halal food products. Therefore, this research seeks to validate literacy measurements of halal products, specifically halal food products.

Research conducted by Cahyaningtyas (2019) on "Quality of Halal Literacy in Young Indonesian Adults Using the Halal Literacy Index (HLI)" was conducted by measuring literacy in two indicators of perception level. HLI is measured from the difference between the level of approval and the level of importance to be practiced in each attribute of halal literacy based on the perceptions of young Indonesian adult respondents. This study did not validate the measurements. Like research Salehudin (2010), halal, in this case, is generally related to food, beverages, medicines, and cosmetics.

Salahuddin et al. (2017) measured halal literacy through 15 attributes of halal literacy with true-false tests and open questions about the definition, category, and exclusivity of halal. Meanwhile, Ismail and Ibrahim (2011) measures halal literacy in 4 dimensions knowledge of laws and regulations, certification processes, product scope (including materials and processes), and services.

Antara et al. (2016) research is related to assessing the level of Islamic financial literacy and halal literacy in the halal industry. This study aims to find a link between the level of Islamic financial literacy and the level of halal literacy in influencing the financial attitudes and behaviors of business owners and the halal industry, whether to prefer Islamic financing or conventional financing. In this study, halal literacy was measured using 23 halal literacy attributes formulated

from the book "The Lawful and the Prohibited in Islam (Al-Halal Wal Haram Fil Islam) chapter on Food and Drink" by Yusuf Qardhawi (2001).

Halal food literacy in this study is built on the basis of cognitive domains based on six levels in Bloom's Taxonomy based on halal knowledge, halal awareness, and halal beliefs related to food products based on the al-qur'an, al-hadith, and fatwa of the National Sharia Council of the Indonesian Ulema Council (DSN-MUI).

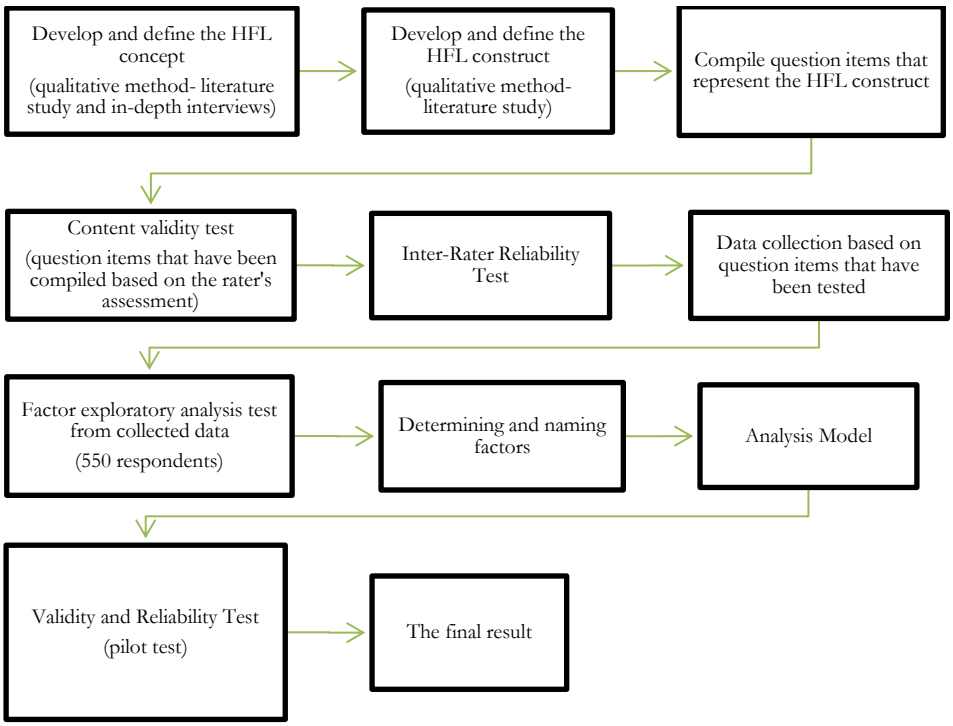
Research Methods

This study used a mix of qualitative and quantitative methods. The research method adopts the scale development procedure from MacKenzie et al. (2011) and Azwar (2019). The stages carried out in this study are (1) the development of the HFL concept, (2) the development of HFL constructs, and (3) the development of the instrument and the scale for HFL. Qualitative methods were used to develop the HFL concept and HFL construct. In developing the HFL concept, the first thing to do was conduct a literature study related to literacy and halal-haram in Islam. Then, in-depth interviews were conducted with 3 informants: a hadith expert scholar, the head of the UGM halal center, and a scholar from the Muhammadiyah Tabligh assembly. After a brief description of the research project, the interviewee was asked about the following issues:

1) What is meant by halal literacy?
2) What and how do you think this issue is related to halal food literacy?
3) How important is it to develop halal food literacy, especially in Indonesia?
4) What about question items that fall into the *khilafiyah/ijtihadiyah* problems to protect consumers?

Furthermore, the information obtained was analyzed by coding. Coding the data makes the analysis process easier and the interpretation more accurate (Creswell & Poth, 2016).

The next stage (2) was developing the HFL construct. This stage was carried out using a literature study to obtain the initial dimensions of the constructed HFL. Then (3) the preparation and development of the measurement scale are carried out by quantitative methods. Question items and validity tests were prepared in this stage, leading to reliability tests, factor analysis, and model analysis. The research framework is presented in the following figure 1.



Source: MacKenzie et al. (2011), and Azwar (2019).

Figure 1. Research Framework

Results and Discussion

The results of the research and analysis of the results are presented in this chapter:

Development of Halal Food Literacy Concept

The codification of interviews and discussions is presented in Table 1.

Table 1. Results of Interviews and Discussions with 3 Expert Scholars

Information	Answer 1	Answer 2	Answer 3
Definition	Halal food literacy is the ability to process and understand information about halal food, whether obtained from reading, hearing or seeing for later response or decisions.	Knowledge of halal based on valid and scientific sources, the Quran and Hadith	Consumer competencies distinguish between halal and non-(haram) food in accordance with Islamic law. With literacy, we can distinguish cognitively, not only religious emotions (beliefs alone), which foods are halal and which are not.
Sources of information	Considering the egregious number of hoaxes, it must be clear where the information was obtained from.	Valid and scientific (a lot of hoax information).	Official information, e.g., from the Ministry of Religion, BPPJH, LPPOM MUI, etc.
Mahzab differences	No problem	The difference is acceptable. However, only one *mazhab* can be followed.	There is no problem. Especially for Indonesia, we can refer to LPPOM MUI.

Based on the results of interviews and discussions with three scholars, HFL is defined as knowledge, the ability to cognitively distinguish, process, and understand information about halal food based on valid sources, namely the al-quran and al hadith.

Development of Halal Food Literacy Construct

Based on literature studies, HFL constructs are built based on 3 dimensions, namely halal knowledge, halal awareness, and halal beliefs, which are explained as follows.

1) *Halal Knowledge*. Consumer knowledge can be distinguished as objective knowledge, i.e., accurate information about products stored in the consumer's long-term memory, and subjective knowledge, i.e., people's perception of what or how much they know about a product based on their subjective interpretation (Brucks, 1985; Mowen & Minor, 2002). Meanwhile, Muhamad et al. (2016) stated that objective knowledge is defined as accurate information that consumers have about a product (Muhamad et al., 2016). The halal knowledge indicators in this study are compiled on the basis of objective knowledge, namely how much a person can remember the rules about halal and haram because the rules of halal and haram have been written in the quran and hadith based on the beliefs of a Muslim. Halal and haram are certain, firm, and cannot be changed. Therefore, knowledge of what is halal and haram should be taken from the qur'an and hadith.
2) *Halal Awareness*. Awareness is the ability to feel and be aware of events and objects. It implies an understanding and perception of an event or subject (Aziz & Chok, 2013). Awareness is considered important in determining intentions in purchasing behavior (Widyaningrum, 2019). Awareness is understanding, feeling, and becoming aware of an event or object. Awareness in a general context literally means having experience with something and/or knowing well about what is happening now in food, beverages, and other halal products. Therefore, awareness in the context of halal can be conceptualized as providing information to increase awareness about what a Muslim consumes and uses (Ambali & Bakar, 2014a). According to (Ambali & Bakar, 2014b), halal awareness can be defined as having a special interest or experience or

having sufficient information about something halal food, beverage, or product. In this research, halal awareness is defined as a Muslim's perception and cognitive reaction in knowing, understanding, feeling, and choosing halal products, whether food, drinks, or other products that are consumed and used based on information and knowledge about halal obtained by a Muslim consciously.

3) *Halal Belief.* Belief is a picture of a person's thoughts about something (Kotler & Keller, 2018). Belief connotes one's in-depth attitude toward an object (Leder & Forgasz, 2002). Accordingly, halal beliefs are the tendency of Muslim consumers to choose and buy halal food and refuse to engage in activities contrary to Islamic teachings (Mohamed et al., 2013); Schneider et al., 2011; Borzooei & Asgari, 2013; Suleman et al., 2021). Based on the presentation of various definitions of beliefs, it can be concluded that beliefs come or come from oneself, one's beliefs can be said or done, and a person's beliefs can also be influenced by a social group (his environment). Halal beliefs in this study are defined as an aspect of belief in halal values, always wanting everything halal, believing that halal is true, believing that halal is useful, and believing that halal is a blessing (Schneider et al., 2011; Suleman et al., 2021).

Preparation of Instruments and Measurement of the Literacy Scale of Halal Food Products

HFL's construct measurement instrument was prepared based on literature studies, interviews, and discussions with 12 experts (*expert judgment*) who are domiciled or have been domiciled in Indonesia, Japan, Taiwan, Australia, Malaysia, the Netherlands, and America. Based on literature studies, several measurement scales that have been tested for validity were obtained from Salehudin (2010), Salahudin et al. (2017), and Cahyaningtyas (2019). However, not all question items in the measurement scale were used, considering that the measured measurement scale was specifically related to food, was intended for consumers, and was based on the theory of Planned Behavior (TPB). Considerations in the preparation of the food product literacy construct in this study are:

1) LPPOM MUI's cooperation with halal certification bodies in other countries to enter into an international cooperation agreement or *mutual recognition agreement* (MRA) which is adjusted to Article 46 paragraph (1) of Law Number 33 of 2014 concerning Halal Product Guarantee (JPH) which reads: "The government can carry out international cooperation in the field of JPH in accordance with the provisions of laws and regulations." Furthermore, Article 46, paragraph (2) reads, "International cooperation in the field of JPH as referred to in paragraph (1) can take the form of JPH development, conformity assessment, and/or recognition of Halal Certification."
2) The International Cooperation (MRA) must be recognized by BPJPH (Halal Product Assurance Organizing Agency), MUI, and the Indonesian Ministry of Foreign Affairs so that the overseas halal certification body can carry out halal certification for its products in the country. So that in this case, the MUI fatwa is still used as a basis and a strong foundation for determining halal certification.
3) The question items in the HFL construct will be based on the results of the content validity test from 12 expert panels (WNI) who are in Indonesia, have lived abroad for a long time, or are living abroad.

Addressing Question Items

The preparation of the question items is based on 3 dimensions, namely (1) knowledge of halal-haram food products, (2) halal awareness, and (3) halal beliefs. Related to the dimensions of halal knowledge, it can be seen from the definition of halal, the halalness of a product, including Halal in substance, Halal in how to process it, and Halal in how to obtain it so that the indicators are derived from the definition, namely substances, processes and ways of obtaining. In addition, the dimension of halal knowledge is measured from halal knowledge related to forbidden animals. This forbidden beast is clearly mentioned in the Quran.

Meanwhile, the dimension of halal awareness is measured based on the ability to understand, know, feel and choose halal products consumed and used based on information and knowledge about halal obtained by a Muslim consciously. Halal beliefs are measured based on the level of trust in halal values, always wanting everything halal, believing that halal is true, believing that halal is useful, and believing that halal brings blessings.

Table 2. Items of Questions in the Initial Instrument of Measuring the Literacy Construct of Halal Food Products

X-n	Question Item
1	Foods containing pigs are haram.
2	Foods containing *angciu* are haram.
3	Foods containing cooked liquor/white wine are haram.
4	Foods containing *charsiu* sauce are haram.
5	Foods containing rum/*rhum* are haram.
6	Foods containing mirin are haram.
7	The blood of animals is haram to be consumed.
8	Fanged animals are haram.
9	Animals living in two realms are haram.
10	Sharp-hoofed (for gripping) bird meat is haram.
11	The carcasses of animals (except fish and locusts) that die without slaughter are haram.
12	Animals slaughtered (by a Muslim) without mentioning the name of Allah (saying bismillah) are forbidden to eat.
13	Animals that are not slaughtered because of ALLAH is forbidden to eat.
14	Foods used as a sacrifice/offering in rituals/pagans/other shirking activities are haram.
15	*Jallalah* (Garbage/litter-eating animals) is haram.
16	All kinds of food mixed with unclean and disgusting substances are haram.
17	All kinds of food that harm one's health are haram.
18	Halal food contaminated by illegal or (non-halal) substances becomes haram.
19	Food obtained in a non-halal way is haram.
20	Along with the development of science, I understand the reason why pork is forbidden.
21	I understand the reason why blood is forbidden to be consumed.
22	I understand the reason why it is forbidden to drink alcohol.
23	Food/drinks should not be named using the name of the encoded drink (e.g., beer).
24	Food/drinks should not be named after pigs or dogs and their equivalents.
25	Food/drinks should not be named after demons and the like.
26	Food/drinks should not be named using words with erotic, vulgar, and or pornographic connotations.
27	It is allowed to name food/drinks with names that have been widely known and directed (urf), such as *pletok* beer, *bakpia*, and crocodile bread.
28	The requirements for food products to obtain a halal certificate, one of which is sensory (taste), must not resemble illegitimate substances, even though the product's raw material is halal (for example, artificial meat with the same taste as pork).
29	I am aware that a Muslim is not allowed to eat illicit food.
30	I am aware that there are consequences if we neglect to consume haram food. For example, our prayers will not obtain *Ijabah* from Allah.
31	I know and understand the concept of *halalan thoyiban* in Islam.
32	I am aware that an expiration date is important to ensure whether a food product is still good for consumption.
33	I think it is important to have knowledge about the original halal label from MUI to determine the halal certification of a food product.
34	In my opinion, to ensure whether or not food products are halal other than halal labels, also by looking at information on the composition/content of ingredients in food products.
35	Ensure that halal food products sold do not mix with illicit products.
36	Ensure that the cooking utensils, plates, spoons, and forks used do not mix with utensils for cooking/serving haram food.
37	I am looking for halal logos/labels/certificates before buying food products.
38	I understand how to check the halal logo/label/certificate, including the expiration date.
39	I understand and know how to find information/confirm halal labels/logos or official halal certification of a food product.
40	I understand and know how to confirm halal and non-halal food even though there is no halal label.
41	I understand that halal food is also healthy, of good quality, and blessed.
42	Food that has halal labels/logos must be halal
43	Food that has a halal certificate must be halal

X-n	Question Item
44	Food sold by a Muslim or someone with a Muslim appearance, such as veiling, copying, and bearding, must be halal
45	Foods with a composition that does not contain pork/dogs/alcohol are definitely halal
46	I am sure that halal food is definitely healthy
47	I am sure that my worship will be rejected if I eat illegal products
48	I'm sure my prayers will be rejected if I eat illegal products
49	I am sure that kosher food will not harm my body
50	I think the halal logo/ label is very important
51	I think halal certificates are very important

After the question items are successfully compiled, the question items are tested using a validity test. Validation of question items to be built in HFL construct measurements is carried out using a content validity test. The validity of the content ensures that measurements are made by including adequate question items, understandable, and representative of concepts (Hendryadi, 2017). The content validity test in this research was by testing the feasibility or relevance of the content of the instrument through rational analysis with the assessment of 12 experts (*expert judgment)*. If the data collection instrument can cover topics defined as relevant and adequate dimensions, it can be concluded that the instrument has good content validity (Cooper & Schindler, 2014). The question items in the instrument to be tested are arranged in Table 2.

Perform a validity test using the *Content-Validity Coefficient*.

Aiken (1985) formulated **Aiken's V** formula for calculating the validity coefficient of content based on the results of an assessment by a panel of experts (raters) of as many as (n) people on a question item in order to find out the extent to which the question item represents the measured construct (Aiken, 1985). The formula proposed by Aiken is as follows; $V = \sum s/[n(c-1)]$, $s = r - lo$, Lo = lowest scoring number (e.g., 1), c = highest scoring number, and r = the number given by the appraiser

Based on the initial validity and reliability results, it is known that the third assessor of the 12 assessors did not meet the validity, so it was excluded from the calculation. Thus, the number of appraisers becomes 11 people. Based on *the V Rater Aikens* table, with the number of *raters* of 11 people on a scale of 5 using a significance level of p= 0.05, the minimum V value is 0.70 (Aiken, 1985). After testing the validity of the contents with the Aikens V method, the results were obtained that 8 question items had a V value of less than 0.70. Therefore, the 8-question item no. 10, 11, 35, 38, 39, 41, 42, and 49 were not included in the calculation of construct validity.

Inter-Rater Reliability Test

After the content validity test, an estimate of reliability between assessors/raters (*Inter-Rater Reliability/IRR*) is carried out to see the level of agreement between experts or raters in assessing every aspect of the instrument. Two techniques for estimating reliability between raters can be used: the Kappa coefficient from Cohen and the Reliability Test between raters using Alpha Cronbach and *Intraclass Correlation Coefficients* (ICC). This ICC technique was developed based on variance analysis, but in certain cases, the result has similarities with the Alpha coefficient. The ICC technique is used because the assessor/*rater* is many, more than two, and the score of the assessment result is continuous.

Table 3. Intraclass Correlation Coefficients (ICC) Calculation Results.

	Intraclass Correlation	95% Confidence Interval		F Test with True Value			
		Lower Limit	Upper Limit	*Value*	df1	df2	Sig.
Single Measures	0.283[a]	0.196	0.399	5.340	52	520	0.000
Average Measures	0.813[c]	0.728	0.879	5.340	52	520	0.000

Based on the reliability value of the Alpha coefficient (rxx=0.813) estimated using Cronbach's Alpha Coefficient, the average value of agreement between raters is 0.813. With these

results, it can be concluded that the results of this assessment can be trusted (Tavakol & Dennick, 2011). Furthermore, the results of the ICC calculations are shown in Table 3.

Table 3 shows the average agreement between the raters was 0.813 with a lower limit of 0.728 and an upper limit of 0.879, while for one person, the consistency rater is 0.283 with a lower limit of 0.196 and an upper limit of 0.399. If the results of the ICC values are classified according to the reliability classification put forward by Fleiss (1975), then it can be concluded that the agreement between the raters is very strong, and each assessor has a good consistency (Fleiss, 1975). After the ICC value was met, exploratory factor analysis was carried out.

Exploratory Factor Analysis

Factor analysis is a multivariate technique that confirms the dimensions of the concept that have been operationally established, as well as shows which items are most appropriate for each dimension (Sekaran & Bougie., 2016). Factor analysis was carried out using an exploratory factor analysis test. At this stage, the resulting instrument in the form of a questionnaire was distributed to the respondents. The sampling procedure used a *judgment sampling* technique based on certain considerations. Respondents were selected with the following criteria: aged between 17 – 70 (to develop general validation of measurements), Muslim, and living in Indonesia.

The measurement scale used is the Likert scale, the Likert scale developed by Rensis Likert, which is the most frequently used variation of the rating scale, which is summed and provides a larger data volume than other scales (Cooper & Schindler, 2014). In this Likert scale, 5 points of agreement are used from number 1, which means strongly disagree, to number 5 which means strongly agree (Umar, 2005: 137).

The questionnaire was distributed only online from March 2021- August 2021, considering that in that year, the Covid pandemic was still ongoing in Indonesia. The online questionnaire distribution received responses from 557 respondents, but only 550 respondents were eligible for further testing. Five hundred fifty respondents consisted of 385 women and 165 men. Correspondingly, 221 respondents were between 17 and 25, 178 respondents were between the ages of 26 and 40, 130 respondents were between the ages of 41 and 55, and the remaining 21 were between the ages of 56 and 75.

The main purpose of factor analysis is to explain the relationship between many latent variables by reducing the number of manifest variables to several factors. Those factors are random quantities that cannot be observed (measured) directly. The Exploratory Factor Analysis Test was carried out with the following stages: (1) perform a data normality test. (2) extraction, (3) rotation, and factor selection

Stage 1: Conducting a data normality test, which was carried out with a non-parametric one-sample *Kolmogorov-Smirnov* test. Based on the results of the data normality test with *Kolmogorov-Smirnov*, it was found that all values of *Asympt, Sig*, (2-tailed) were 0.000, Because the values *of Asympt, Sig*, (2-tailed) were 0.000 < 0.05 so the data was not distributed normally. Furthermore, the Exploratory factor analysis test was carried out using the *Principal Axis Factor* method because the data were not distributed normally.

Several assumptions must be met in factor analysis testing, which is as follows;

1) The Kaiser-Mayer-Olkin Measure of Sampling Adequacy (KMO MSA) value must be greater than 0.5, and the value *of Bartlett's Test of Sphericity* (Sig) must be less than 0.05. KMO is an index comparing the distance between the correlation coefficient and the partial coefficient as a whole. If the sum of the squares of the partial correlation coefficient among the entire pair of variables is of little value compared to the sum of the squares of the correlation coefficient, it will result in a KMO value close to one.
2) There is a strong correlation between variables. This can be seen from the value of the Measure of Sampling Adequacy (Anti-Image Correlation) between variables greater than 0.5. MSA is an index of the comparison of the distance between the correlation coefficient and the partial correlation coefficient of each item/variable. To be able to perform a factor analysis, the MSA value is considered sufficient if the MSA value > 0.5. If there are items/variables that do not

have an MSA value of > 0.5, then the variables must be excluded from factor analysis gradually one by one.

3) To minimize the problem in the sample size then, the communality value must be determined. In this study, the selected communality value is a moderate communality of 0.40 or greater than 0.40 (Velicer & Fava, 1998; Tabachnick & Fidell, 2001).

The EFA test was carried out sequentially 8 times so that all assumptions were met with the KMO value in the Test: (1) 0.886; (2) 0,874; (3) 0,841; (4) 0,835; (5) 0,811; (6) 0,788; (7) 0,771; (8) 0,750. In the 1st Test, there were 10 items, namely items no. 1, 8,11, 14, 25, 30, 31, 40, 41, and 46, that did not meet the required assumptions because the communality value was less than 0.40. Meanwhile, the KMO, BTS, and AIC values have met the required assumptions.

In the second Test, 10 items did not meet the communality value, namely items number 2, 3, 9, 12, 13, 15, 16, 17, 18, and 19. Therefore, the 10 items must be eliminated in the second Test. In the 3rd Test, 3 items must be eliminated, namely items number 7, 10, and 20. In the 4th Test, 3 questions must be eliminated, namely numbers 22, 29, and 39. In the 5th Test, 2 questions must be eliminated, namely numbers 21 and 34. In the 6th Test, there was 1 missing question item, number 32. In the 7th Test, there was 1 missing question item, namely no. 33. All question items are eliminated from the first to the last Test because they do not meet the required assumptions since the communality value is less than 0.40, while the KMO, BTS, and AIC values already meet the required assumptions.

Furthermore, extraction is carried out using the *Principal Axis Factoring* method. After being extracted, a rotation of factors is carried out by maintaining all factors with eigenvalues greater than 1.0. Rotation is carried out by the Varimax method. After the rotation is carried out, 4 factors forming the literacy construct for halal food products are obtained. These Four Factors contributed 69.758% of the general variant and 57.828% of the variance in our 11 items, as shown in Table 4 and 5.

Table 4. Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	4.106	31.581	31.581	3.679	28.303	28.303	2.534	19.495	19.495
2	2.060	15.843	47.423	1.676	12.889	41.192	1.882	14.474	33.969
3	1.599	12.301	59.725	1.128	8.676	49.868	1.569	12.072	46.041
4	1.304	10.033	**69.758**	1.035	7.960	57.828	1.532	11.787	**57.828**
5	0.897	6.899	76.657						
6	0.567	4.365	81.023						
7	0.487	3.749	84.772						
8	0.425	3.266	88.037						
9	0.400	3.076	91.113						
10	0.378	2.906	94.020						
11	0.319	2.451	96.471						
12	0.269	2.073	98.544						
13	0.189	1.456	100.000						

Based on the rotation of the factors formed (Table 5), the next step was to give a name to each factor by grouping the question items according to the results of the factor rotation presented in Table 6.

Table 6 shows the question items in factor 1 that fall into the halal awareness factor category. The question items in factor 2 are included in the halal knowledge factor, then factor 3, behavioral beliefs, and factor 4 as the halal label belief/halal trust.

Table 5. Rotated Factor Matrix

	Factor			
	1	2	3	4
X4	0.108	**0.779**	0.024	0.001
X5	0.090	**0.718**	0.050	0.011
X6	0.072	**0.841**	0.076	0.081
X35	**0.716**	0.067	0.140	0.019
X36	**0.717**	0.098	0.109	0.048
X37	**0.746**	0.126	0.065	0.137
X38	**0.621**	0.059	0.127	0.063
X42	0.019	0.020	0.028	**0.727**
X43	0.071	0.046	0.076	**0.711**
X47	0.161	0.046	**0.887**	0.104
X48	0.275	0.110	**0.795**	0.132

Table 6. Grouping of Question Items

Factor 1 (Halal Awareness)	Factor 2 (Halal Knowledge)	Factor 3 (Behavioral Beliefs)	Factor 4 (Halal Label Belief/Halal Trust)
35. Ensure that halal food products sold do not mix with illicit products.	4. Foods containing *charsiu* sauce are haram.	47. I am sure that my worship will be rejected if I consume haram products.	42. Food that has a halal label/logo must be halal
36. Ensure that the cooking utensils, plates, spoons, and forks do not mix with utensils for cooking/serving haram food	5. Foods containing rum/*rhum* are haram.	48. I am sure that my prayer will be rejected if I eat illegal products	43. Food that has a halal certificate must be halal
37. I look for halal logos/labels/certificates before buying food products	6. Foods containing mirin are haram		
38. I understand and know how to check the halal logo/label/certificate, including the expiration date.			

Analysis Model

The Halal Food Literacy Construct is multidimensional since it consists of 4 dimensions. The constituent indicators are suspected to be reflective indicators because they are assumed to have similar content. Thus, testing was carried out to prove the nature of the indicators constituting the HFL construct. In structural models that use multidimensional constructs, the confirmatory analysis was carried out twice to test the validity of the construct by analysing the first-order construct, specifically the latent construct of dimensions reflected or formed from its indicators, and analysing the second-order construct formed by the latent construct of its dimension (MacKenzie et al., 2011).

Furthermore, testing the validity and reliability of the construct from 4 factors from the HFL construct was conducted on 80 respondents using confirmatory factor analysis. Based on the results of the path diagram in the first Test, the HFL indicators of KP47, KP48, P4, P5, and P6 are invalid because the resulting factor load is < 0.70. After the invalid indicators were removed, the next test results were as follows.

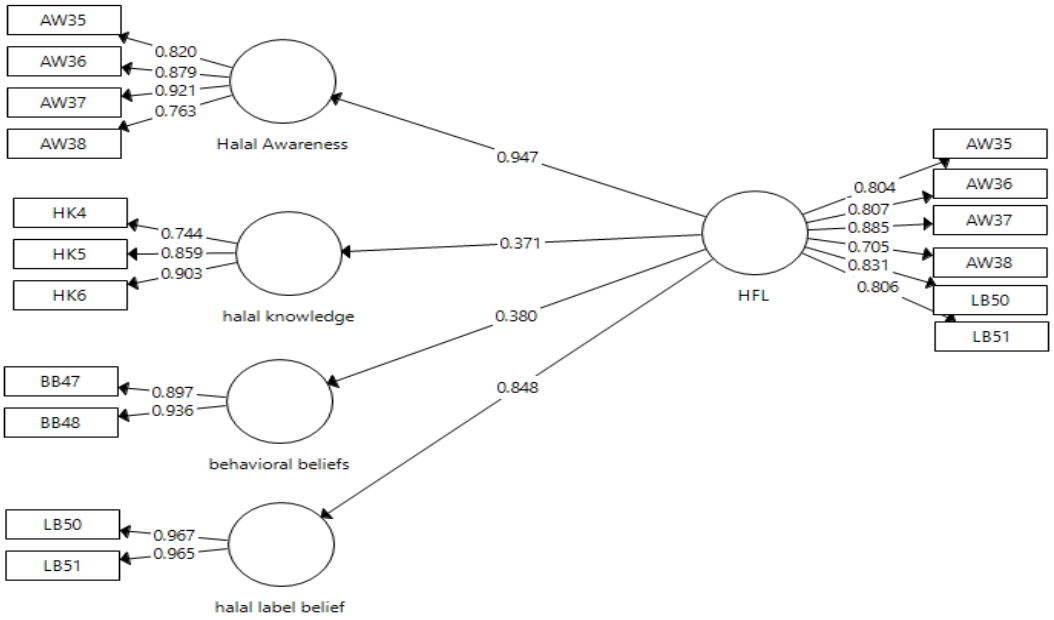


Figure 2. Outer Model Test Results

From the outer model test results, all constructs produce a factor charge value of > 0.70, indicating that all construct indicators were valid. As for the validity of the discriminant, cross loading results showed that each indicator's correlation with its construct was higher than that of other constructs. Thus, the validity of the construct had already been met.

Table 7. AVE and Reliability Test Results

	CA	RA	CR	AVE
Halal food literacy	0.892	0.896	0.918	0.653
Halal knowledge	0.790	0.843	0.875	0.702
Awareness	0.868	0.877	0.911	0.720
Halal label belief	0.928	0.928	0.965	0.933
Behavioral beliefs	0.812	0.841	0.913	0.840

Note: cronbach's alpha (CA), rho_A (RA), composite realiability (CA), and average variance extracted (AVE)

Convergent validity in this Test was seen from the resulting AVE value, where all AVE values met the convergent validity requirement, which was > 0.50. Meanwhile, the construct's reliability can be seen in Table 7, where the values of Composite Reliability and Cronbach's Alpha are above > 0.70, so all HFL construct indicators were reliable. Based on the results of the outer loading, all HFL construct indicators in the model were valid, and all statistical T values resulted in > 1.664 (more than the T table).

Table 8. Path Coefficient Test Results

	Koef	Mean	STDEV	T Statistics	P Values
Halal food literacy → Halal awareness	0.947	0.945	0.021	45.523	0.00
Halal food literacy → Halal label belief	0.848	0.815	0.107	7.908	0.00
Halal food literacy → Behavioral beliefs	0.380	0.383	0.106	3.599	0.00
Halal food literacy → Halal knowledge	0.371	0.374	0.102	3.639	0.00

From the results of the path coefficient in Table 8, all first-order constructs have a significant effect on HFL's second-order construct where the resulting T-statistical value is more than >1.66. Therefore, all first-order constructs are the construct dimensions that make up the Halal Food Literacy construct.

Based on the confirmation analysis test above, it can be proven that the Halal Food Literacy construct consists of four factors in the form of dimensions (facets) where the constituent indicators are reflective indicators called common latent construct (MacKenzie et al., 2005).

Discussion

Based on the EFA test conducted on halal food literacy constructs, four factors that make up the HFL construct were obtained. The four factors are Halal awareness, Halal knowledge, Behavioral beliefs, and Halal Trust. This dimension of halal knowledge is measured by Bloom's taxonomic concept from basic knowledge level to evaluation using halal and haram attributes based on materials, methods, and processes, as well as using indicators in the DSN-MUI food haram halal fatwa. Nurhayati and Hendar (2019) stated that knowledge of halal products could be interpreted as a collection of various kinds of information about halal products.

Meanwhile, the dimension of halal awareness is measured based on the ability to understand, know, feel and choose halal products consumed and used based on information and knowledge about halal obtained by a Muslim consciously. The last factor is related to the dimension of belief, namely halal beliefs related to religious values and halal beliefs related to halal labels. Halal beliefs here are identified by how much faith in halal they believe in. Halal beliefs are measured based on the level of trust in halal values, always wanting everything halal, believing that halal is true, believing that halal is useful, and believing that halal brings blessings. Confidence in Halal trust is measured by the level of confidence in the importance of using the halal label, the use of halal certificates, and the level of trust in the existence of halal labels and halal certification on a product (Giada & Riccardo, 2018).

Many people assume that if we are in a Muslim community or Muslim country, then automatically, all the food we consume must be halal (Soesilowati & Yuliana, 2016; Ismoyowati, 2015). In fact, not necessarily the entire chain of production of goods from upstream to downstream is carried out halal (Prabowo et al., 2015). Most consumers ensure that their products are halal only from halal labels (Izzuddin, 2018; Aspan et al., 2017; Alfian & Marpaung, 2017). People in Muslim countries tend to have the perception that when there is a halal label on a product, the product is automatically halal and does not contain haram elements (Ismoyowati, 2015; Qomaro, 2018). Halal labels are one of the important factors influencing purchasing intentions in consumers, both Muslim and Non-Muslim, in countries other than Indonesia, such as Pakistan, Turkey, Malaysia, and India, because most consumers pay more attention to halal marks on food products than the composition of ingredients (Ghadikolaei, 2016).

In testing the validity of multidimensional constructs with confirmatory analysis carried out twice. By analyzing the first-order construct and analysis on the second-order construct, it was found that the indicators in the Halal Food Literacy construct can define the characteristics of the construct so that the realization of the indicators is reflective or reflective of the construct. Construct with reflective indicators assumes that the covariance between the measurements of the model is explained by the variant, which is a manifestation of its construct domain. The correlation between the indicator is strong, and the direction of the indicator is from the construct to the indicator (Jarvis et al., 2003).

The characteristics of reflective indicators include indicators that must have the same content and theme, while changes in indicators will not change the construct. Eliminating one indicator will not change the meaning of the construct, and indicators are the embodiment, reflection, or manifestation of the construct. Besides, these indicators are conceptually interchangeable (Jarvis et al., 2003).

Halal Food Literacy in this study is based on the concept of literacy for consumers. In this case, we use the Theory of Planned Behavior as the theoretical basis for building the concept of HFL. The cognitive aspects related to Bloom's taxonomy concept are used to compile indicators in HFL. The concept of HFL is built on the basis of cognitive domains based on six levels in Bloom's Taxonomy on the basis of halal knowledge related to food products based on the qur'an, as-sunnah, and MUI halal-haram fatwa.

This study's results differ from the halal literacy research conducted by Salehudin (2010) in Indonesia and Salahuddin et al. (2017) in Malaysia. The two studies did not specifically take scale measurements on halal food products. However, they were more general in the halal industry because some of the indicators mentioned cigarettes, cosmetics, medicines, and fashion, so it can be said that research on measuring scales in halal food literacy was only carried out in this study. This research method uses exploratory factor analysis, which is not carried out by Salehudin (2010) and Salahuddin et al. (2017)

Based on the results of this study (Table 6), it can be proven that the Halal Food Literacy construct consists of four factors in the form of multidimensional facets with dimensions of halal awareness, halal knowledge, halal beliefs related to religiosity, and halal label beliefs as the forming dimensions. At the same time, the constituent indicators are reflective. These indicators are measured using a Likert scale. Based on the nature of reflective indicators, the indicators in the HFL construct can be replaced with other indicators that reflect the content of the HFL construct.

Conclusions

Based on the development of the HFL concept in this study, Halal Food Literacy is defined as the ability to remember halal knowledge, be able to understand, be aware, and know how to choose and evaluate halal food products based on beliefs about halal values. The measured HFL scale was specifically related to food, was intended for consumers in Indonesia, and was based on the theory of Planned Behavior.

The Halal Food Literacy construct is multidimensional with dimensions of halal awareness consisting of 4 indicators, namely (1) Ensure that halal food products sold do not mix with illicit products. (2) Ensure that the cooking utensils, plates, spoons, and forks do not mix with utensils for cooking/serving haram food (3) I look for halal logos/labels/certificates before buying food products, and (4) I understand and know how to check the halal logo/label/certificate, including the expiration date. The dimension of halal knowledge consists of 3 indicators, namely (1) Foods containing charsiu sauce are haram, (2) Foods containing rum/rhum are haram, and (3) Foods containing mirin are haram. The dimension of halal belief related to religiosity consists of 2 indicators, namely (1) I am sure that my worship will be rejected if I consume haram products, (2) I am sure that my prayer will be rejected if I eat illegal products and the last dimension is halal label belief/halal trust consists of 2 indicators, namely (1) Food that has a halal label/logo must be halal and (2) Food that has a halal certificate must be halal. The four dimensions are measured using a Likert scale of 1-5.

Halal Food Literacy construct consists of four factors in the form of dimensions (facets) where the constituent indicators are reflective. Based on the nature of reflective indicators, the indicators in the HFL construct can be replaced with other indicators that reflect the content of the HFL construct. The measurement of the HFL construct can be used in the manufacture and development of regulations related to halal and haram in food products, especially in Indonesia, considering that the method used is adapted to regulations in Indonesia and the respondents generally represent the people in Indonesia. However, it does not rule out the possibility that this HFL construct can be used in other countries whose socio-cultural conditions, as well as the rules and regulations, are in accordance with Indonesia. In addition, measuring the scale of halal food literacy can be a perspective in marketing to determine how necessary and important halal certification and halal labels are in food products for consumers so that it can be a reference for producers in marketing their products. Theoretically, it is hoped that the findings of this study can help the development of literature in the research area on literacy in the halal industry sector, especially in the halal food sector.

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