

DEVELOPING A HALAL LITERACY INDEX FOR MUSLIMS IN JAYAPURA CITY

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Abstract

Halal literacy is central to Muslims' consumption decisions, yet a large Muslim population does not necessarily translate to a high comprehension of halal rules, and evidence from Eastern Indonesia remains scarce. This study develops a halal literacy index for Muslims in Jayapura City, Papua, Indonesia, and uses it to measure their level of halal literacy. Primary data were collected from 200 Muslim respondents through an online questionnaire of 20 dichotomous knowledge items (correct = 1, incorrect = 0). Exploratory Factor Analysis (principal component extraction with Varimax rotation) grouped 16 retained items into seven dimensions: consumption of prohibited animals, use of living organisms in consumer products, emergency conditions, consumption of prohibited meat, slaughter of prohibited animals, product processing, and the halal logo. Four items did not load at ≥ 0.50 and were removed. The seven dimensions were combined with equal weights into an index ranging from 0 to 1. The overall index is 0.9395, which falls in the high category (≥ 0.67). Dimension scores were highest for the halal logo (0.995) and lowest for product processing (0.870), where the hunted-game item had the lowest share of correct answers. The results suggest that halal literacy in this sample is anchored in categorical prohibitions and recognizable certification signals rather than in knowledge of how processing affects halal status. The factor structure should be treated as exploratory, given the marginal KMO value (0.516), three single-item dimensions, and the factor structure should be interpreted as exploratory, and findings are bounded by the non-probability online sampling design.

Keywords: Halal Literacy Index; Halal Consumption; Jayapura City

A. Introduction

The halal industry holds enormous potential as an alternative driver of global economic growth. According to the State of the Global Islamic Economy Report 2020/2021, Muslim consumer spending on halal food and beverages, halal pharmaceuticals and cosmetics, Muslim-friendly tourism, and halal lifestyle products reached USD 2.02 trillion in 2019 (Dinar Standard & Salam Gateway, 2022). Indonesia,

the country with the largest Muslim population in the world (229 million people, approximately 87.2% of its total population), has significant potential to develop the halal industry. Halal product consumption in Indonesia reached USD 144 billion in 2019, making it one of the largest consumers in this sector (Nirwandar & Sikhoh, 2022).

Jayapura City, located in Papua Province in Eastern Indonesia, is experiencing rapid growth in micro, small, and medium enterprises (MSMEs). Economic growth reached 12.26% in 2023, dominated by the wholesale and retail trade sectors (Deferetes, 2024). This is reflected in the growing number of food and beverage brands entering the MSME market in Jayapura City (Ramah La, 2023). However, the rapid development of MSMEs must be matched by consumers' need for quality products, both in production processes and in final outputs. One important aspect of product quality, and of consumption in general, is halal status, which tells Muslim consumers whether a product is permissible for them. Jayapura is also a religiously plural city, where Muslims (183,430) represent the largest group, followed by Protestants (111,921), Catholics (84,474), Buddhists (1,273), and Hindus (1,010). This composition shows that MSME consumers in Jayapura come from diverse religious backgrounds. In such a plural society, halal literacy supports inclusivity and tolerance by providing shared understanding and education about halal product standards as an ethical, safe, and quality choice, thereby fostering social awareness (Alam et al., 2025).

Halal literacy, which reflects the public's knowledge of halal products, processing, and certification, is an instrument for strengthening the halal ecosystem in Indonesia. At the national level, however, halal literacy is mostly examined in large regions such as Java, Sumatra, Kalimantan, and Sulawesi, which are assumed to be representative of the wider community (Lutfika, 2022). This assumption overlooks regional conditions, especially in Eastern Indonesia, which remain to be explored. Papua deserves particular attention because its multicultural society makes halal literacy a point where religious understanding and economic inclusion meet. Halal literacy in Papua therefore has the potential to become a strategic instrument for strengthening the local economy and promoting a halal ecosystem in the region.

Previous studies have mostly treated halal literacy as an explanatory variable. For instance, halal literacy was found to have a positive effect on the use of halal products only when mediated by halal awareness; without an increase in halal awareness, it did not significantly influence the use of halal products (Maryam & Sumar'in, 2022). Among Muslim adolescents in Papua, attitudes and behavioral control significantly influenced the intention to purchase halal products, whereas subjective norms and halal knowledge showed no significant effect (Pratiwi, 2018). In Madiun Regency, halal literacy and religiosity simultaneously influenced interest in consuming halal products (Setyowati & Anwar, 2022). Research on MSME actors shows that many are still unaware of the proper use of the halal logo and do not understand the official halal certification application process. In many cases, halal logos are used on personal initiative without following formal procedures through authorized institutions (Affandy, 2021). While these studies provide meaningful insights into how halal literacy affects consumers' preferences and behavior, literature that measures the level of halal literacy itself as a construct requiring systematic measurement remains limited, particularly in the Indonesian context.

This study addresses that gap by developing a multidimensional halal literacy index. Unlike (Bashir, 2019; Jalil et al., 2026; Norhidayah, 2025). Which focus on halal awareness, certification, and the halal logo, respectively, this index is built from 16 final knowledge indicators grouped through Exploratory Factor Analysis into seven dimensions: consuming prohibited animals, use of living organisms in consumer

products, emergency conditions, consuming prohibited meat, slaughtering prohibited animals, processing methods, and the halal logo. Beyond labelling, the index therefore also covers raw materials, slaughtering, processing, and emergency conditions. Accordingly, this study aims to develop a halal literacy index for Muslims in Jayapura City, Papua Province, Eastern Indonesia, and to measure their level of halal literacy using the index.

B. Methods

To measure halal literacy, primary data were collected from 200 Muslim respondents in Jayapura City through an online questionnaire of 20 statement items with dichotomous response options (Yes/No). A correct answer was scored 1, and an incorrect answer 0, so higher scores indicate greater halal knowledge. The items were derived from the fatwa of the Indonesian Ulema Council (MUI) Fatwa Commission on halal product determination No.11 of 2009 and from academic articles on halal literacy (A'rasy, 2025; Salehudin, 2010a; Sardiana, 2020). Where the ruling depends on specific conditions, as in item X11 (hunted game), the answer key follows the view that game killed by a wound from a sharp, penetrating projectile is lawful when the hunter is a Muslim and mentions the name of Allah (QS Al-Ma'idah [5]: 4; HR al-Bukhari, hadith of 'Adi ibn Hatim). The answer key for each item is presented in Table 1.

Tabel 1: Statement Items in The Questionnaire

Item	Statements	Yes	No
X1	Carrion (dead animals) is permissible to consume.	0	1
X2	Animal blood (flowing blood) is permissible to consume.		1
X3	Pork is prohibited for consumption.	1	0
X4	Animals slaughtered without mentioning the name of Allah are permissible to consume.	0	1
X5	The use of cosmetic products containing gold particles for men is permissible.	1	0
X6	Fish and locusts are types of carrion that are permissible to consume.	1	0
X7	Animal skins (e.g., crocodile and snake) that have been tanned/purified may be used as accessories.	1	0
X8	In emergency situations, prohibited (haram) food may be consumed for survival.	1	0
X9	Medicines containing pork fat are prohibited for consumption.	1	0
X10	Pork slaughtered while mentioning the name of Allah is permissible to consume.	0	1
X11	A deer hunted by being shot to death is prohibited for consumption.	0	1
X12	Alcoholic beverages are prohibited for consumption.	1	0
X13	Food mixed with alcohol at a level below 0.5% is permissible for consumption.	1	0
X14	Selling alcoholic beverages/liquor is permissible as a source of income.	0	1
X15	The use of cosmetics containing or derived from human organs is prohibited.	1	0
X16	Swiftlet nests are permissible for consumption.	1	0
X17	We may eat in places that serve prohibited food such as pork.	0	1
X18	Civet coffee (kopi luwak) is permissible for consumption after	1	0

Item	Statements	Yes	No
	it has been purified (cleaned).		
X19	Narcotics are prohibited for consumption.	1	0
X20	Halal logo: The image below represents the latest halal logo issued by the Ministry of Religious Affairs.	1	0

Source : Data Processed (2023)

This quantitative study used primary data collected through an online questionnaire. Respondents were selected using purposive sampling based on the following criteria: (1) Muslim, (2) resident of Jayapura City, (3) aged 18 years or older, and (4) willing to complete the questionnaire. Eligibility was verified through screening questions at the beginning of the questionnaire, and respondents who did not meet the criteria were excluded. The questionnaire was distributed through WhatsApp groups, yielding 200 valid responses. The sample of 200 gives a ratio of 10 respondents per item.

Weighting and calculation procedures were used to construct the Halal Literacy Index among Muslims in Jayapura City. Exploratory Factor Analysis (EFA) is a statistical technique for identifying patterns of relationships among variables and grouping indicators into more representative factors or constructs. It is exploratory because the factor structure is not determined in advance, which makes it suitable for development research and index construction (JR et al., 2019).

EFA was performed in SPSS using principal component analysis as the extraction method, based on the Pearson correlation matrix of the 20 dichotomous items. Sampling adequacy was assessed with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy ($MSA > 0.50$ acceptable) and Bartlett's test of sphericity ($p < 0.05$). Communalities were examined to assess the variance of each item explained by the factors (extraction values > 0.50 acceptable). Factors were retained using the Kaiser criterion (eigenvalue > 1) and rotated using Varimax rotation. Items with a rotated loading ≥ 0.50 were considered valid indicators of their factor, and items that did not load at ≥ 0.50 on any factor were removed. EFA was used only to group the items into dimensions; factor loadings were not used as index weights.

The Halal Literacy Index was constructed using equal weighting, adapting the weighted-mean aggregation of the Alkire-Foster approach (Alkire et al., 2015). Each of the seven factors received the same weight, and the items within a factor shared that weight equally. The index was computed as follows:

Step 1. Factor score (proportion of correct answers in factor j):

$$F_j = (1 / k_j) \times \sum x_i \quad (x_i = 0 \text{ or } 1; k_j = \text{number of items in factor } j)$$

Step 2. Factor weight (equal weighting):

$$w_j = 1/7 \text{ (each of the 7 retained factors receives the same weight, so } \sum w_j = 1)$$

Step 3. Halal Literacy Index:

$$HLI = \sum (w_j \times F_j), \quad j = 1, \dots, 7$$

Equivalently, each item in factor j has a weight of $1/(7 \times k_j)$. The index was computed for each respondent and then averaged across the 200 respondents; the category in Step 4 is applied to this mean score.

Step 4. Category (equal intervals on the 0–1 scale):

low: $HLI < 0.33$; moderate: $0.33 \leq HLI < 0.67$; high: $HLI \geq 0.67$

Because halal literacy is measured on a 0–1 index scale and no established benchmark exists for categorizing it, the index was classified into three levels using equal intervals: low (< 0.33), moderate ($0.33 \leq HLI < 0.67$), and high (≥ 0.67). This classification was determined by the researchers and serves to interpret the index within the context of this study.

C. Findings and Discussion

1. Findings

Demography Characteristics of the Respondents

Table 2 presents the characteristics of the 200 Muslim respondents. Most were male (134; 67.0%), and 66 (33.0%) were female. The majority were aged 25–45 years (157; 78.5%), followed by those aged 46–65 years (25; 12.5%) and under 25 years (18; 9.0%); there were no respondents over 65. Most respondents had completed senior high school (100; 50.0%) or a bachelor's degree (80; 40.0%), while 14 (7.0%) held a master's degree, 5 (2.5%) had completed junior high school, and 1 (0.5%) held a doctoral degree. The sample is therefore dominated by working-age respondents with at least a secondary education, which should be considered when interpreting the results.

Table 2: Demography Characteristics of the Respondents

	Frequency	Percentage
Gender		
Male	134	67%
Female	66	33%
Age		
<25 Years old	18	9%
25-45 Years old	157	78.5%
46-65 Years old	25	12.5%
>65 Years old	0	0%
Education		
Junior high school	5	2.5%
Senior high school	100	50%

Source : Data Processed (2023)

Kaiser Meyer Olkin (KMO) and Bartlett's Test

Before factor extraction, sampling adequacy was examined using the KMO measure and Bartlett's test of sphericity (Table 3). The KMO value was 0.516, only marginally above the minimum threshold of 0.50, which indicates that the correlation matrix is barely adequate for factor analysis. Bartlett's test was significant ($\chi^2 = 396.225$, $df = 190$, $p < 0.001$), indicating that the correlation matrix is not an identity matrix and that the items are sufficiently correlated to proceed. The data therefore meet the minimum requirements for EFA, but the marginal KMO value means that the resulting factor structure should be interpreted with caution.

Table 3: KMO Measures and Bartlett's Test

Kaiser Meyer Olkin Measure of Sampling Adequacy	0.516
Bartlett's Test of Sphericity	
Approx. Chi Square	396.225
df	190
Sig.	0.000

Source : Data Processed (2023)

Communalities

Communalities indicate the proportion of each item's variance that is explained by the extracted components (Table 4). The extraction values ranged from 0.510 (X13) to 0.726 (X7), so all 20 items shared more than half of their variance with the seven extracted components.

Table 4: Communalities

Indicator	Initial	Extraction
X1	1.000	0.551
X2	1.000	0.610
X3	1.000	0.690
X4	1.000	0.521
X5	1.000	0.560
X6	1.000	0.521
X7	1.000	0.726
X8	1.000	0.537
X9	1.000	0.516
X10	1.000	0.723
X11	1.000	0.558
X12	1.000	0.614
X13	1.000	0.510
X14	1.000	0.519
X15	1.000	0.675
X16	1.000	0.666
X17	1.000	0.565
X18	1.000	0.545
X19	1.000	0.547
X20	1.000	0.548

Source : Data Processed (2023)

Total Variance Explained

Seven components had eigenvalues greater than 1 (Table 5), and together they explained 57.71% of the total variance. The first two components accounted for 25.39%, and the seventh had an eigenvalue of 1.041, only slightly above the retention threshold. The seven-component solution therefore explains a moderate share of the total variance and should be regarded as an exploratory structure.

Table 5: Total Variance Explained

Indicator	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.870	14.349	14.349	2.870	14.349	14.349
2	2.209	11.045	25.394	2.209	11.045	25.394
3	1.559	7.795	33.190	1.559	7.795	33.190

Indicator	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
4	1.481	7.403	40.593	1.481	7.403	40.593
5	1.246	6.231	46.824	1.246	6.231	46.824
6	1.137	5.685	52.510	1.137	5.685	52.510
7	1.041	5.203	57.712	1.041	5.203	57.712
8	.975	4.873	62.585			
9	.949	4.747	67.332			
10	.887	4.434	71.766			
11	.790	3.948	75.714			
12	.756	3.781	79.494			
13	.677	3.386	82.880			
14	.655	3.276	86.156			
15	.646	3.230	89.386			
16	.565	2.825	92.211			
17	.497	2.484	94.695			
18	.490	2.451	97.146			
19	.347	1.735	98.881			
20	.224	1.119	100.000			

Source : Data Processed (2023)

Rotated Component Matrix

Table 6 presents the rotated component matrix. Seven factors were formed from 16 items, with loadings ranging from 0.515 to 0.882. Factor 1 comprises X1, X2, X4, X5, and X17; Factor 2 comprises X15 and X18; Factor 3 comprises X8, X9, and X19; Factor 4 consists of X3 only; Factor 5 consists of X10 only; Factor 6 comprises X6, X7, and X11; and Factor 7 consists of X20 only. Four items (X12, X13, X14, and X16) did not load at ≥ 0.50 on any factor and were removed. Factors 4, 5, and 7 are each represented by a single item and are therefore treated as single-indicator dimensions, for which internal consistency cannot be estimated. Three loadings ($X_2 = 0.515$, $X_{11} = 0.537$, and $X_9 = 0.546$) are close to the 0.50 threshold.

Table 6: Result of Rotated Component Matrix

Indicator	Component (Factor)						
	1	2	3	4	5	6	7
X1	0.724						
X2	0.515						
X3				0.882			
X4	0.662						
X5	0.654						
X6						0.635	
X7						0.725	
X8			0.647				
X9			0.546				
X10					0.835		
X11						0.537	
X12							
X13							
X14							

Indicator	Component (Factor)						
	1	2	3	4	5	6	7
X15		0.786					
X16							
X17	0.682						
X18		0.672					
X19			0.659				
X20							0.665

Source : Data Processed (2023)

Weighting and Measuring the Index

Table 7 shows the composition and weights of the index. In line with the equal weighting scheme described in the Methods, each factor received a weight of $1/7$ (0.1429), and the items within a factor shared that weight equally, so the item weight equals $1/(7 \times k)$, where k is the number of items in the factor.

Table 7: Factor Composition and Weight Distribution

Factor	Dimension	Items	Factor weight	Item weight
F1	Consumption of Prohibited Animals	X1, X2, X4, X5, X17	$1/7 = 0.1429$	$1/35 = 0.0286$
F2	Use of Living Organisms in Consumer Products	X15, X18	$1/7 = 0.1429$	$1/14 = 0.0714$
F3	Emergency Conditions	X8, X9, X19	$1/7 = 0.1429$	$1/21 = 0.0476$
F4	Consumption of Prohibited Meat	X3	$1/7 = 0.1429$	$1/7 = 0.1429$
F5	Slaughter of Prohibited Animals	X10	$1/7 = 0.1429$	$1/7 = 0.1429$
F6	Product Processing	X6, X7, X11	$1/7 = 0.1429$	$1/21 = 0.0476$
F7	Halal Logo	X20	$1/7 = 0.1429$	$1/7 = 0.1429$
	Total	16 items	1.0000	

Source : Data Processed (2023)

Table 8 reports the number and proportion of correct answers and the weighted score of each item. The overall Halal Literacy Index is 0.9395, which falls into the high category (≥ 0.67). Expressed as the proportion of correct answers, all seven factors also fall into the high category: Halal Logo (0.995), Use of Living Organisms in Consumer Products (0.968), Slaughter of Prohibited Animals (0.960), Consumption of Prohibited Animals (0.936), Emergency Conditions (0.928), Consumption of Prohibited Meat (0.920), and Product Processing (0.870).

Product Processing has the lowest score, mainly because only 77.0% of respondents answered X11 correctly (a deer hunted by being shot), compared with 90.0% for X6 and 94.0% for X7. The Halal Logo factor has the highest score, with 199 of 200 respondents (99.5%) answering correctly. Overall, these results indicate a high level of halal literacy across all dimensions, with relatively more room for improvement in the processing of animal products.

Table 8: Results of the Halal Literacy Index

Factor / item	Correct answers (n)	Proportion correct	Weight	Weighted score	Level
Factor 1: Consumption of Prohibited Animals		0.936	1/7 = 0.1429	0.1337	High
X1: Carrion (dead animals) is permissible to consume	182	0.910	0.0286	0.0260	
X2: Animal blood (flowing blood) is permissible to consume	183	0.915	0.0286	0.0261	
X4: Animals slaughtered without mentioning the name of Allah are permissible to consume	192	0.960	0.0286	0.0274	
X5: The use of cosmetic products containing gold particles for men is permissible	188	0.940	0.0286	0.0269	
X17: We may eat in places that serve prohibited food such as pork	191	0.955	0.0286	0.0273	
Factor 2: Use of Living Organisms in Consumer Products		0.968	1/7 = 0.1429	0.1382	High
X15: The use of cosmetics containing or derived from human organs is prohibited	192	0.960	0.0714	0.0686	
X18: Civet coffee (kopi luwak) is permissible for consumption after it has been purified	195	0.975	0.0714	0.0696	
Factor 3: Emergency Conditions		0.928	1/7 = 0.1429	0.1326	High
X8: In emergency situations, prohibited (haram) food may be consumed for survival	184	0.920	0.0476	0.0438	
X9: Medicines containing pork fat are prohibited for consumption	181	0.905	0.0476	0.0431	
X19: Narcotics are prohibited for consumption	192	0.960	0.0476	0.0457	
Factor 4: Consumption of Prohibited Meat		0.920	1/7 = 0.1429	0.1314	High
X3: Pork is prohibited for consumption	184	0.920	0.1429	0.1314	
Factor 5: Slaughter of Prohibited Animals		0.960	1/7 = 0.1429	0.1371	High

Factor / item	Correct answers (n)	Proportion correct	Weight	Weighted score	Level
X10: Pork slaughtered while mentioning the name of Allah is permissible to consume	192	0.960	0.1429	0.1371	
Factor 6: Product Processing		0.870	1/7 = 0.1429	0.1243	High
X6: Fish and locusts are types of carrion that are permissible to consume	180	0.900	0.0476	0.0429	
X7: Animal skins (e.g., crocodile and snake) that have been tanned/purified may be used as accessories	188	0.940	0.0476	0.0448	
X11: A deer hunted by being shot to death is prohibited for consumption	154	0.770	0.0476	0.0367	
Factor 7: Halal Logo		0.995	1/7 = 0.1429	0.1421	High
X20: Identify the latest halal logo issued by the Ministry of Religious Affairs	199	0.995	0.1429	0.1421	
Halal Literacy Index (mean of 200 respondents)			1.0000	0.9395	High

Note: the proportion in a factor row is the mean proportion of correct answers of its items; the weighted score of a factor is the sum of the weighted scores of its items (equivalently, factor weight $\times$ proportion). The seven factor scores sum to the index. Source: Data processed (2023)

2. Discussion

Halal literacy is understood as normative-religious knowledge that guides Muslim consumption behaviour (Wahyuni et al., 2018; Salehudin, 2010) and that extends beyond labelling to ingredients, processes, and sharia implications (Antara et al., 2016). The overall index of 0.94, with all seven factors between 0.87 and 0.995, shows that Muslim respondents in Jayapura City answered the large majority of knowledge items correctly. The pattern across factors is more informative than each score taken separately. Knowledge was almost universal for rules that are categorical and visible in everyday life: the halal logo (99.5% correct), the rule that invoking the name of Allah does not make pork lawful (96.0%), and the prohibitions of carrion, blood, and pork (91.0–92.0%). It was less consistent for rulings that depend on conditions or exceptions and are rarely encountered in ordinary consumption, especially the hunting, tanning, and carrion-exception items of the processing factor (87.0%, and only 77.0% for the hunted deer). In this community, halal literacy therefore appears to be anchored in categorical prohibitions and recognisable signals rather than in technical reasoning about how processing affects halal status.

Three qualifications apply. First, the gap between the highest and the lowest

factor is about 12 percentage points and every factor falls into the high category, so the differences describe relative rather than absolute weaknesses. Second, when many items are answered correctly by more than 90% of respondents, variance is restricted. This probably weakened the inter-item correlations and may help explain the marginal KMO value and the fragmentation of the structure into seven factors, three of which contain a single item. Third, item X11 is worded without the conditions of lawful hunting and may have been ambiguous for respondents, which could have lowered the score of the processing factor. Future instruments should state these conditions explicitly.

The prohibitions of carrion, blood, and pork are stated explicitly in QS Al-Ma'idah verse 3 and QS Al-An'am verse 145, and they are *haram li dzatihi*, a prohibition attached to the substance itself that no process can change (al-Qaradawi, 1999). Halal literature treats them as fundamental knowledge (Salehudin, 2010) and as the most stable indicator of halal literacy across social and geographical contexts (Antara et al., 2016). Because such rules are categorical and require no case-by-case judgement, they are easy to teach and easy to retain. The same holds for slaughter, since the requirements for lawful slaughter and for the permissibility of the animal are shared across the halal standards of Indonesia, Malaysia, and Singapore (Azam & Abdullah, 2021), which may make guidance on this point consistent and widely available.

The setting of Jayapura City may reinforce this pattern. According to the demographic data presented in the Introduction, Muslims are the largest religious group but make up only about 48% of the population, so Muslim consumers routinely encounter food that is not halal and must distinguish it in daily transactions. Under such conditions the boundary between permissible and prohibited food, particularly pork, is likely to remain salient, and checking labels may become a habit. Clear knowledge of prohibited ingredients has also been linked to halal awareness and to trust in the halal assurance system (Aziz & Chok, 2013; Nur Wahyuni et al., 2018). This study did not measure exposure or religiosity, so this explanation remains an interpretation to be tested, for example by comparing Jayapura with majority-Muslim areas.

The near-universal recognition of the halal logo (199 of 200 respondents) fits the same logic. The logo functions as a signal of trust between products and consumers (Hayati & Putri, 2021; Samad et al., 2022) and, as the mark of BPJPH certification, is intended to guarantee ingredients, processes, and production through to consumption (Badan Penyelenggara Jaminan Produk Halal, 2022; Jeglič, 2021). Recognising it is a visual task repeated at every purchase of packaged goods, unlike the reasoning required by processing rules. Recognition is, however, different from verification, as discussed below.

The processing factor combines three items that share one feature: each concerns an exception or a condition attached to a general rule, namely fish and locusts as permitted carrion (90.0% correct), tanned animal skins (94.0%), and animals killed by hunting (77.0%). Such cases seldom arise in the everyday purchases of an urban household and are probably learned through formal religious instruction rather than through repeated exposure. The low score on X11 may also reflect its wording, which does not state the conditions under which hunted game is lawful (a Muslim hunter, the mention of the name of Allah, and death caused by the wound). Some respondents may therefore have read the statement as referring to an animal that died without lawful slaughter. In addition, consumers in countries with large Muslim populations tend to assume that Muslim producers will avoid products that conflict with Islamic

principles (Koc et al., 2024), which reduces the need to learn how processing affects halal status. This assumption may be less secure in Jayapura City, where MSMEs are growing rapidly (Deferetes, 2024) and where many operators still use halal logos without formal certification (Affandy, 2021).

The emergency factor (92.8%) reflects the concept of *rukhsah*, under which prohibitions may be lifted temporarily in exceptional circumstances. This doctrine has received public attention, most visibly in the debate over the MUI fatwa on the AstraZeneca vaccine (Sudarsono et al., 2024), which may explain why it is well known despite being conditional. The factor, however, also contains items on medicines containing pork fat and on narcotics, so it captures knowledge of prohibited substances as much as reasoning about emergencies, and its label should be treated as provisional. The factor on organs in consumer products (96.8%) was also high, indicating that basic knowledge extends to non-food products, consistent with the view that halal literacy makes consumers more critical of raw materials in cosmetics and lifestyle products (Aslan & Aslan, 2016; Osman et al., 2022). This conclusion rests on two items (human-derived cosmetics and kopi luwak), so it cannot be generalised to non-food products as a whole.

These findings should also be read alongside evidence on the supply side. We found that many MSME operators still use halal logos without formal certification, so the high level of consumer literacy recorded here is not yet matched by compliance among producers (Affandy, 2021). In that setting, recognizing the logo, which nearly all respondents did, is not the same as verifying what it stands for, because a logo used without certification cannot assure that BPJPH certification is meant to give. Consumer confidence in halal-labelled food has been found to decline when information about a product's halal-haram status is limited, and such information is an important factor in Muslim consumers' purchasing decisions (Mohammad, 2013). Respondents who can identify the logo but cannot check a product's certification status may therefore remain exposed to misleading labels. Religiosity, expressed through attention to certified halal logos, has likewise been shown to influence the decision to buy halal chicken in Malaysia (Harwati et al., 2023). Because this study measured neither logo verification nor purchasing behavior, the links between halal literacy, logo recognition, and consumer decisions remain to be tested in future research.

D. Conclusion

This study measured and analyzed the halal literacy of the Muslim community in Jayapura City using a quantitative approach based on Exploratory Factor Analysis (EFA). The analysis identified seven dimensions of halal literacy, namely: 1) consuming prohibited animals, 2) the use of living creature organs in products, 3) emergency conditions, 4) consuming prohibited meat, 5) slaughtering prohibited animals, 6) processing processes, and 7) halal logos. The findings indicate the level of halal literacy among Muslim consumers in Jayapura City is high, both at the factor and aggregate levels. The results particularly reflect a strong understanding of fundamental halal and haram principles, including prohibited animals, prohibited meat, and restrictions on consumption in Islam.

The main contribution of this study lies in the development of a multidimensional halal literacy index that extends beyond halal labelling to include raw materials, processing, slaughtering, and the underlying principles of halal and haram. The study also provides empirical evidence from Jayapura City, a socio-culturally heterogeneous setting, thereby contributing to the broader geographical and

contextual scope of halal literacy research.

However, this study is limited to the cognitive measurement of halal literacy and does not examine its relationship with actual halal consumption behavior. In addition, the study focuses only on consumers and therefore does not capture the perspective of MSME actors, regulators, and other stakeholders within the halal ecosystem. Future studies should therefore examine the relationship between halal literacy and consumption behavior and incorporate multiple stakeholders to obtain a more comprehensive understanding of the halal ecosystem.

The findings imply that high levels of halal literacy should be supported by practical knowledge, particularly regarding halal certification, verification of halal information and logos, and the selection of halal products. Strengthening practical halal literacy through collaboration among local government, BPJPH, religious institutions, higher education institutions, and MSMEs may help translate consumer knowledge into more informed halal consumption practices.

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F. Author Contributions Statement

This research was produced through the authors contribution at every stage. The authors provided constructive feedback on every paragraph. The process of writing this research and article involved: Fachrudin Fiqri Affandy defining and drafting the research concept, compiling the literature review, summarizing previous research, and taking responsibility for discussing the research findings by comparing the results, the literature review, and previous research. Ira Eka Pratiwi, a Postdoctoral fellow at Hiroshima University, Japan, contributed to strengthening this research through quantitative research methods using the Explanatory Factor Analysis (EFA) approach, reviewing the validity of the research instruments, and refining the research arguments through a comprehensive review.

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