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HALAL AWARENESS: IMPACT ON PURCHASING HALAL MEDICINES UNVEILED

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ABSTRACT

Indonesia offers significant opportunities for the halal sector thanks to its predominantly Muslim population. However, there is a notable lack of certified halal medicines, which is surprising given the crucial role that medicines play in human life. This study aims to investigate how awareness of halal practises influences Muslim consumers' intention to purchase halal medicines, with a particular focus on the Jabodetabek region. The study is based on a total of 150 respondents and employs a partial least squares structural equation modelling (PLS-SEM). From the analysis, it is found that awareness of halal products has a significant influence on the intention to purchase halal medicines. In addition, both subjective norms and perceived behavioural control are identified as significant factors influencing the intention to purchase halal medicines. However, it is worth noting that attitude does not have a statistically significant influence on the intention to purchase halal medicines. This result may be attributed to the limited availability of halal-certified medicines, which influences the attitude of individuals in the decision-making process.

Keywords: Halal awareness, Halal certification, Halal medicines, PLS-SEM.
JEL classification: D1; D7; D9; C3.

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I. INTRODUCTION

1.1 Background

According to the Royal Islamic Strategic Studies Centre (RISSC, 2021), the global Muslim community comprises 1.93 billion individuals, constituting 22% of the overall global population, and is estimated to grow by around 35% to 2.2 billion between 2010 and 2030 (Pew Research Center, 2011). As a result, there has been a growing demand for halal goods and adherence to a halal way of life (Murti, 2017) making Sharia values a way of life (Adinugraha & Sartika, 2019; Azam & Abdullah, 2020).

In 2019, there was a 3.2% increase in Muslim consumer spending, or around USD2.02 trillion, and it is estimated that by 2024, there will be a 3.1% increase in the cumulative annual growth rate (CAGR), with total Muslim spending reaching $2.3 trillion (Dinar Standard, 2020) and continuing to rise in the future (Murti, 2017), including the purchase of Muslim medicines. According to The State of The Global Islamic Economy Report, 2021/2022, Muslim spending on halal medicine is estimated to be around USD 100 billion from 2021 to 2025, and to reach USD 129 billion (Dinar Standard, 2022).

Indonesia has the largest Muslim population globally, with approximately 87.2% of its population following Islam, indicating that Muslims make up the primary consumer base within the nation. In 2020-2021, Indonesia ranks from 10th to 4th on the Global Islamic Indicator (Reuters, 2021). Indonesia ranks among the nations with significant consumption of pharmaceutical goods after Turkey and Saudi Arabia, reaching USD 5.4 billion (Reuters, 2020) and is the country where halal is most discussed (Priantina & Mohd Sapian, 2021).

Indonesia has yet to tap into this potential, evident from the substantial count of uncertified halal medicines, totaling 16,897 products (LPPOM MUI, 2022; Putriana, 2016). Nevertheless, the government has taken proactive steps by implementing legislation to foster the growth of the halal sector in Indonesia, as outlined in Law No. 33 of 2014 on Halal Assurance, with the objective of positioning Indonesia as a leading global halal producer by 2024 (Indonesian Law, 2014). Furthermore, the Ministry of Health of the Republic of Indonesia has set a goal to decrease the reliance on imported pharmaceutical raw materials by 25% by 2023, aiming to enhance halal assurance measures (Kemenkes, 2023). This is because halal certification can be a benchmark and even boost the confidence of Muslim, non-Muslim and international consumers who pay attention to high levels of product hygiene and its impact on health (Aziz & Chok, 2013; Mohamed Omar et al., 2012; Perdana et al., 2019; Viverita & Kusumastuti, 2017). It will even have an impact on business growth (Salindal et al., 2018) where the research of Bustamam (2010) note that manufacturers of halal-certified pharmaceutical products are able to expand the market to countries like Canada, India, and China.

In its Fatwa No. 30 of 2013 on medicines and treatments, the MUI state that medicines and treatments must always be made from pure and halal materials (Fatwa MUI, 2013). This is because Muslims must consume halal and tayyib products in accordance with Islamic teachings (as stipulated in AL Quran, Al-Baqarah 168, Al-Nahl 4, Al-Maidah 87, Al-Anfal 69 and Al-Nahl 114). Evidenced in Article 141 of Government Regulation No. 39 of 2021 (Government Regulation of the Republic of Indonesia, 2021) on the Implementation of the Halal Assurance,

is halal certification obligations, one of which concerns over-the-counter (OTC) medicines and restricted OTC medicines, which will be targeted by 17 October 2029 and Government Regulation No. 6 of 2023 (Presidential Regulation of the Republic of Indonesia, 2023).

Despite the available research on the intention to purchase halal medicines, a critical review of the literature reveals a notable gap, particularly in the area of more specific type of medicines. The studies by Edris (2020), Kasri et al. (2021), Sadeeqa et al. (2013), and Vizano et al. (2020) have shed light on the various determinants that influence consumers' purchasing intentions for halal pharmaceutical products. However, these studies primarily focus on medicine in a general context. The specific dynamics and consumer behaviour associated with over-the-counter (OTC) and restricted over-the-counter medicines available to the public without a doctor's prescription remain remarkably understudied. Given the unique nature of this type of medicines and the unique considerations that influence consumer decision-making processes in this context, there is an urgent need for research in the subject. Understanding the factors that influence consumer intention to buy specifically the OTC and restricted OTC medicines is essential for practical implications in the pharmaceutical industry. In Malaysia and South Africa, awareness of halal standards notably influences consumers' intentions to buy halal goods (Aziz & Chok, 2013; Bashir, 2019) and halal awareness affects the purchase decision (Zakaria et al., 2018). A person tends to be influenced by intention in decision making to motivate themselves to fulfil unmet needs (Armitage & Conner, 2001). Intention is also an active predictor of a person's behaviour (Armitage & Conner, 2001), which is formed by a combination of attitudes, influences from the social environment and behavioural control (Ajzen, 1991, 2012).

Against this background, the current study investigates how halal awareness influences the purchasing decisions of Muslim consumers with regard to halal medical products. The main objective of this research is to find out to what extent the level of halal awareness influences the intention to purchase halal medicines, focussing on over-the-counter and restricted over-the-counter medicines, using a case study in the Jabodetabek region. 50% of all halal-certified pharmaceutical manufacturers are located in the Jabodetabek region (Wulandari, 2019). In addition, about 15 percent of all Muslims in Indonesia live in the Jabodetabek region (BPS, 2021a, 2021b; Dukcapil Kabupaten Tanggerang, 2021; Kemenang, 2021). Therefore, the Jabodetabek area is very strategic and has the potential to investigate the purchase intention of halal medicines.

This study is organised into several sections. Following this introduction, the subsequent section provides a review of pertinent literature. Section three presents data and methodology. Section four elaborates results and discussion. Last section concludes findings followed by recommendations.

II. BACKGROUND AND LITERATURE REVIEW

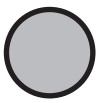
2.1. Background

2.1.1. Halal Medicines

Halal in Arabic language means "permissible" and according to Al-Munawwir dictionary means "open" (Munawwir, 1997). Within the context of Islamic jurisprudence, halal can be understood as denoting items or practices that are permissible or lawful (Amir & Tjibtosubroto, 2019). As regulated in the letter Qs. Al-Baqarah verse 168, Al-Nahl verse 4, Al-Maidah verse 87, Al-Anfal verse 69, and Al-Nahl verse 114.

Health Law No. 36 of 2009 (Indonesian Law, 2009) explains that medicine is a product that can affect the state of the body which functions as a healer, restorer and can even improve human health. In Indonesia, pharmaceuticals are categorised into distinct groups, each subject to regulation as outlined in Minister of Health Regulation No. 949 of 2000. (Menkes RI, 2000), divided into several groups including;

Over-the-counter drugs are drugs that are sold to the public without a doctor's prescription such as pharmacies, drug stores and small stalls and have a green circle mark with a black border.



Source: Indonesian Minister of Health No. 949 of 2000

Figure 1.
Over-the-Counter Drugs

Restricted over-the-counter drugs are hard drugs that are easily obtained and without a doctor's prescription but have several special criteria in sales, such as: a) only allowed to be sold if they are still in the original packaging from the place of manufacture, b) administration of drugs may only be allowed if there are warning signs as regulated in Decree of Minister of Health number 2380/A/SK/VI/1983 such as; P1: ("Caution! Read the usage instructions!"), P2 (Caution! Only for gargling. Do not swallow!"), P3 ("Caution! Only for external use on the body!"), P4 ("Caution! Only for burning!"), P5 ("Caution! Do not swallow!"), P6 "Caution! Hemorrhoid medicine, do not swallow!"), c) A blue circle sign with a black border.

Source: Indonesian Minister of Health No. 949 of 2000

Figure 2.
Restricted Over-the-Counter Drugs

MUI Fatwa Number 30 of 2013 (Fatwa MUI, 2013) concerning Drugs and Medications states that basically drugs and treatments must not be made from non-halal ingredients such as the use of alcohol / ethanol as a medicinal ingredient, the use of nicotine for medicinal ingredients, the use of animal placenta as a medicinal ingredient and others.

2.1.2. Theory of Planned Behaviour (TPB)

The halal industry in Indonesia has increased so rapidly that it has an impact on the number of product choices for consumers which is the beginning of product evaluation to trigger high product purchase intentions, except for impulsive purchases (Peter & Olson, 2010).

Theory of Planned Behaviour (TPB) theory divides three determinants of a person's behaviour towards the formation of intentions, including subjective norm towards the behaviour, perceived behavioural control, and attitude (Ajzen, 1991, 2012). Ajzen (1991) explains that TPB theory is related to consumer behaviour and social psychology. However, Khalek (2014) discovers that the influence of subjective norms is outweighed by the attitudes of Muslim consumers. Within the Theory of Planned Behavior (TPB), the primary focus lies on an individual's intention toward engaging in a particular behavior. Intention is described to achieve motivational factors in influencing behaviour because the more the intention to contribute increases, the greater the likelihood of performance. While individual attitudes are determined by their perceptions of the success of performing behaviours and evaluations that will lead to favourable attitudes such as intention to buy (Aziz & Chok, 2013) or attitudes have a significant effect on purchase intentions (Afsari et al., 2017). In subjective norms or feelings of social normative pressure, a person's decision is determined by external pressure factors (Perdana et al., 2019). In contrast, perceived behavioral control encompasses individuals' perceptions regarding the ease or difficulty of executing behaviors of interest, as well as their capability to carry out specific actions (Ajzen, 1991).

2.1.3. Purchase Intention

Many studies discuss purchasing intentions such as Zafar & Rafique (2012) and Zarrad H & Debabi M (2015) explaining that intention is the desire to make a purchase. It can stem from an individual's intention, which serves as a motivating force for acquiring products, whether they are directly marketed or advertised. This inclination suggests the potential for consumers to make future purchases of the items. The desire to purchase a product begins with several processes; 1) Consumers do information gathering, 2) Adjusting consumer purchasing intentions for the product they want to buy, 3) Consumers review purchases. The desire process will have an impact on the influence of positive consumer feelings towards certain brands. This information explains the data obtained by customers to influence purchasing decisions (Hosein, 2012).

2.2. Previous Studies

Halal certification is proof of the halal status of a product or item that has fulfilled aspects of hygiene, quality assurance and has been authorized by BPJPH in accordance with the fatwa issued by the Indonesian Ulema Council (MUI) (Salindal et al., 2018). According to Bustamam (2010), producers of pharmaceuticals certified as halal successfully broaden their market reach beyond Muslim-majority nations to include countries with diverse religious demographics. Halal certification emerged in the mid-1960s to meet the need of immigrants who settled in the West (Salindal et al., 2018).

Several studies examining the purchase of halal products such as Afendi et al. (2014), Afsari et al. (2017), Aziz & Chok (2013), Nastiti et al. (2022), and Shah Alam & Mohamed Sayuti (2011) use the TPB model as the basis of research. For instance, Perdana et al (2019) examine the purchase intention of food products in MENA using the TPB approach and find that there is a positive and significant relationship between attitude, subjective norms and perceived behavioral control and the intention to buy food products. External variables such as halal awareness and halal certification are discussed in Aziz & Chok (2013). They find their positive and significant relationship with purchase intention. Nastiti et al (2022) further show that behavioral control and attitude have a significant effect on cosmetic purchase intention.

Vizano et al (2020) examine the purchase intention of Southeast Asian consumers of halal medicine and find that the perception, quality, safety and knowledge have a significant effect on purchase intention of halal medicine. Nur Famiza et al (2017) and Sadeeqa et al (2013) note that knowledge, perceptions and attitudes of a person working in the pharmacy and health department directly affect the decision to purchase halal medicinal products. Kasri et al (2021) in their research find that attitude, religiosity, halal product knowledge, and perceived behavioral control have a significant effect on purchase intention, while subjective norms are not significant. Other studies that cover halal medicines include Purnami et al. (2022), Affandi et al (2021), Rahmah & Barizah (2020), Saha et al (2019), Sudarsono & Nugrohowati (2020), Syahrir et al (2019), and Xuan et al (2022). Looking at these studies, we may note that there are only few studies that apply the theory of planned behavior (TPB) to the purchase intention of OTC drugs and limited OTC medicines.

III. METHODOLOGY

3.1. Data Collection

Data collection spanned from January to March 2022, focusing on study sites in the Jabodetabek area. The primary goal is to scrutinize the purchasing patterns of halal medicines within the Muslim community. The survey encompasses a total of 150 participants, with 126 using Google Forms and 24 participating offline.

A convenience sampling method, specifically employing the snowball sampling technique, is used. This strategy aims to reach individuals who are typically challenging to identify, such as experts. This approach facilitates a gradual expansion of the research, analogous to a snowball rolling and accumulating a more diverse range of perspectives (Naderifar et al., 2017). This study comprises

150 participants with diverse backgrounds, providing a comprehensive sample for analysis. Further details are available in Table 2 for reference.

A 6-point Likert scale ranging from "strongly disagree" to "strongly agree" is used to assess the components analysed in this study. The measurement constructs are derived from existing literature in order to meet the precise objectives of this research.

Table 2.
Respondent Frequency

Characteristics	Description	Number (Person)	Percentage
Gender	Male	64	43%
	Female	86	57%
Age Group	18-23	53	35%
	24-39	51	34%
	40-55	41	27%
	56-60	3	2%
	>60	2	1%
Occupation	Teacher/Lecturer	13	9%
	Student	47	31%
	Private Employees	26	17%
	Doctor/ Nurse/ Pharmacist/ Health Epidemiologist/ Environmental Sanitation Worker/ Surveillance/ Nutritionist/ Environmental Health	26	17%
	Entrepreneur	8	5%
	Civil Servant	21	14%
	Housewife	4	3%
	others	5	3%
Last and current education	Ph.D.	1	1%
	Master	19	13%
	Bachelor	73	49%
	Diploma 3	15	10%
	Diploma 2	1	1%
	High School	41	27%
Experience in purchasing OTC and restricted OTC drugs	Yes	145	97%
	No	5	3%

Source: Primary data processed (2023)

The questionnaire incorporates items adapted and drawn from prior studies to compute various constructs including attitude, knowledge, subjective norms, religiosity, perceived behavioral control, and purchase intention. For instance, indicators for attitude are from Kasri et al (2021), Sadeeqa et al (2013), Sosianika & Amalia (2020), and Sudarsono & Nugrohowati (2020). Indicators for halal awareness are adapted from Affandi et al (2021) and Aziz & Chok (2013). Subjective norms are measured with reference to Ajzen (2005), Haque et al (2015), and Kasri

et al (2021). Finally, indicators for perceived behavioral control and the Purchase Intention are from Golnaz et al (2010), and Vizano et al (2020).

3.2. Data Analysis Technique

In this study, structural equation modelling (SEM) serves as the analytical approach to quantify relationships between constructs, as outlined by Hair et al. (2011). Ascarya and Tekdogan (2021) argue in favour of using this method in Islamic economics and finance research. The SEM method is suitable when the theoretical basis is still under development and the assumption of normality of the data is not required (Aguirre-urreta, 2015).

3.3. Model Development

Figure 3 illustrates the structural model utilized in this study. Its framework aims to investigate the correlations among attitudes, halal awareness, subjective norms, and perceived behavioral control concerning their influence on the purchase intention of halal medicines. Each element within the model is chosen following an extensive literature review, resulting in the conceptualization of four constructs tailored to align with the parameters of the current study.

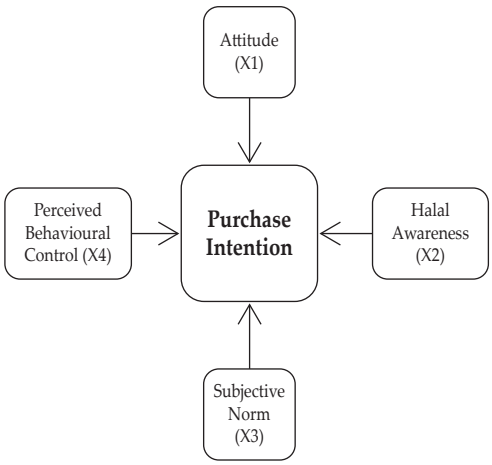


Figure 3.
Research Framework

Attitudes are conceptualized to correlate with the purchase intention of halal medicines which aims to see consumer behaviour in choosing drugs used. The linkage between halal awareness and purchase intent is conceptualized to enhance consumers' understanding of halal medications. Subjective norms are added to the model because they can shape purchase intent even more so in involving social pressure. Similarly, perceived behavioural control will encourage individual beliefs about the ability to buy and use halal medicines, both in accessibility (ease of obtainment), and others.

This study uses data triangulation, both qualitative and quantitative data, collected through self-managed questionnaires from the Jabodetabek community and experts. In other words, triangulation is an approach that involves collecting data from multiple sources and then comparing data from all sources to verify controversial information, with the aim of deepening understanding of a topic (Kitto et al., 2008; Mathison, 1988; Miles & Huberman, 1984). In such cases, it can make the research more complete and can strengthen the research if done carefully (Jentoft & Olsen, 2019; Jick, 1979).

IV. RESULTS AND ANALYSIS

4.1. Results

4.1.1. Evaluation of the Measurement Model (Outer Model)

Validity and reliability tests. We examine validity using the convergent validity test and discriminant validity test, which are presented in Table 3. Convergent validity is measured by outer loading and Average Variance Extracted (AVE) (Garson, 2018) with an AVE value of more than 0.5 (Hair et al., 2018). Discriminant validity is seen from the FornellLarcker criterion value with the requirement in the outer loading value must be more than 0.70 (Chin, 1998; Hair et al., 2018). Another rule is that indicators with loadings in the range of 0.40 to 0.70 should be eliminated (Vinzi et al., 2011). After that, the Reliability Test is seen from Cronbach's alpha (α) and composite reliability (CR) (see Table 4). The Cronbach's alpha value is in the range of 0.801 to 0.900, while the composite reliability (CR) is in the range of 0.870 to 0.930. These results indicate that the variables used in this study are feasible (α and CR>0.70), as recommended by Sarstedt et al. (2017).

Table 3.
Fornell-Lacker Criterion Output

Construct Relationship	X1	X2	X3	X4	Y
X1	0.840				
X2	0.541	0.792			
X3	0.504	0.593	0.877		
X4	0.331	0.353	0.440	0.870	
Y	0.547	0.662	0.662	0.474	0.806

Source: Primary data processed (2023)

Table 4.
Outer Model Output

Indicator	Measurement	Outer Loading	Weights	Descriptive Distribution					
				1	2	3	4	5	6
Cognitive (α=0.859, CR=0.905 and AVE=0.705)									
X1.1	Consuming halal-certified products is important to me	0.83	0.30	0%	1%	0%	7%	37%	56%
X1.2	Ensuring the halal status of something consumed is important to me	0.89	0.28	0%	1%	0%	5%	39%	55%
X1.3	Consuming only halal product is a principle in my life.	0.87	0.33	1%	0%	3%	9%	38%	50%
X1.4	Consuming only halal will bring goodness to my life	0.77	0.29	0%	0%	0%	6%	40%	54%
Cognitive (α=0.801, CR=0.870 and AVE=0.627)									
X2.1	I always try to ask about the halal status of the products I consume.	0.83	0.34	0%	1%	3%	22%	41%	32%
X2.2	I always try to check the presence of the halal logo on OTC and restricted OTC drugs that I consume.	0.86	0.36	1%	1%	3%	13%	45%	38%
X2.3	I understand that halal is mandatory for Muslims, especially in choosing OTC and restricted OTC drugs.	0.77	0.30	0%	0%	1%	5%	31%	63%
X2.4	I try to avoid OTC and restricted OTC drugs that are *syubhat* (unclear or doubtful about halalness).	0.70	0.25	0%	0%	1%	9%	45%	45%
Cognitive (α=0.900, CR=0.930 and AVE=0.769)									
X3.1	My family suggests buying halal-certified OTC and restricted OTC drugs.	0.88	0.30	0%	2%	6%	9%	41%	42%
X3.2	My teacher/ Ustaz suggests buying halal-certified OTC and restricted OTC drugs.	0.89	0.29	0%	2%	3%	9%	43%	42%
X3.3	My friends suggest buying halal-certified OTC and restricted OTC drugs.	0.92	0.33	0%	2%	3%	17%	39%	39%

Table 4.
Outer Model Output (Continued)

Indicator	Measurement	Outer Loading	Weights	Descriptive Distribution					
				1	2	3	4	5	6
X3.4	Influencers that I follow suggest buying halal-certified OTC and restricted OTC drugs.	0.82	0.23	1%	5%	8%	20%	35%	31%
Cognitive (α=0.893, CR=0.925 and AVE=0.756)									
X4.1	In my opinion, halal certified OTC drugs and restricted OTC drugs are widely available.	0.86	0.31	0%	1%	2%	15%	45%	38%
X4.2	In my opinion, halal certified OTC drugs and restricted OTC drugs are easy to obtain.	0.86	0.24	0%	0%	1%	18%	47%	33%
X4.3	In my opinion, halal certified OTC drugs and restricted OTC drugs are affordable.	0.87	0.28	0%	1%	2%	19%	52%	27%
X4.4	From what I've observed, numerous drug brands have already obtained halal certification.	0.89	0.31	0%	1%	4%	13%	47%	35%
Cognitive (α=0.865, CR=0.903 and AVE=0.650)									
Y.1	I intend to buy halal-certified medicinal products.	0.81	0.26	0%	1%	1%	4%	35%	59%
Y.2	I will study on halal-certified OTC and restricted OTC drugs.	0.74	0.24	0%	2%	1%	12%	44%	41%
Y.3	I will recommend friends and family to buy halal-certified OTC and restricted OTC drugs.	0.85	0.26	0%	1%	1%	7%	43%	49%
Y.4	I will encourage manufacturers of OTC and restricted OTC drugs to carry out halal certification.	0.77	0.22	1%	1%	5%	15%	41%	37%
Y.5	I will share information about OTC and restricted OTC drugs that have been halal certified.	0.85	0.26	0%	1%	1%	16%	41%	41%

Source: Primary data processed (2023)

4.1.2. Structural Model Assessment (Inner Model)

In this model, certain metrics demand attention, such as the Standardized Root Mean Square Residual (SRMR), which should ideally fall below 0.1 or even 0.08, signifying the adequacy of observed correlations or relationships (Gao et al., 2015). Both the saturated model (0.070) and the estimated model (0.070) exhibit SRMR results consistent with this benchmark. Furthermore, the Variance Inflation Factor (VIF) is employed to gauge the absence of multicollinearity. With VIF results ranging from 1.274 to 1.796, all values remain beneath the designated threshold (Hair et al., 2017).

Table 5.
Direct and Indirect Effect Output

Construct Relationship	*β*	*p-values*	95% (BCCI)	Supported?
X1 → Y1	0.154	0.085	(-0.033; 0.310)	No
X2 → Y1	0.334	0.001***	(0.119; 0.514)	Yes
X3 → Y1	0.312	0.000***	(0.162; 0.475)	Yes
X4 → Y1	0.167	0.021**	(0.022; 0.305)	Yes

Note: * Significant at Alpha 10*; ** Significant at Alpha 5%; *** Significant at Alpha 1%
Bias-corrected and accelerated confidence interval (BCCI)

Source: Primary data processed (2023)

Upon examining the outcomes of the direct effect analysis (as illustrated in Table 5), it is apparent that attitude (X1) lacks a noteworthy and favorable impact on the intention to purchase halal medication (BCCI ranges from -0.033 to 0.310, with a p-value higher than 0.05). Conversely, halal awareness exhibits a significant and positive influence on the intention to procure halal drugs (BCCI ranges from 0.119 to 0.514, with a p-value of less than 0.05), while subjective norms demonstrate a significant and positive effect on the intention to acquire halal medicines (BCCI ranges from 0.162 to 0.475, with a p-value of less than 0.05), and perceived behavioral control showcases a significant and positive impact on the intention to purchase halal medications (BCCI ranges from 0.022 to 0.305, with a p-value of less than 0.05). In summary, hypothesis 1 is refuted, whereas hypotheses 2, 3, and 4 garner support.

Table 6.
Effect Size and Multicollinearity Output

Construct Relationship	f^2	Q^2	VIF
X1 → Y	0.038	0.501	1.542
X2 → Y	0.155	0.387	1.766
X3 → Y	0.133	0.599	1.796
X4 → Y	0.054	0.575	1.274

Source: Primary data processed (2023)

Coefficient of determination (R^2). Table 7 shows that the coefficient of determination (R^2) is 0.591, and the adjusted R^2 is 0.580. This means that 59% of the intention to buy halal medicines is explained by the variables. This could be considered as moderate (Chin, 1998). It is important to note that while R^2 measures how well the model explains the sample data, it cannot predict its performance on new data (Shmueli et al., 2019). To address this limitation, the study adopts the PLSpredict approach for predicting sustained performance. The findings reveal that the predictive value of Q^2 exceeds 0, indicating the effective prediction of sustained performance by the PLS-SEM model. Moreover, the RMSE and MAE values of the PLS-SEM model surpass those of the naive linear model, underscoring the superior predictive capability of the former (refer to Table 8). In summary, it can be inferred that the model employed in this study demonstrates a high predictive efficacy (Shmueli et al., 2019).

Table 7.
Coefficient Determination and Blindfolding Output

Construct Relationship	SSO	SEE	R^2	R^2 Adjusted	Q^2
Y	750.000	482.360	0.591	0.580	0.357
X1	600.000	600.000			
X2	600.000	600.000			
X3	600.000	600.000			
X4	600.000	600.000			

Source: Primary data processed (2023)

Effect size and predictive relevance. In terms of effect size and predictive relevance, Cohen's f^2 evaluates the impact of exogenous variables to the endogenous variable. Cohen's f^2 values are categorized into small (0.02), medium (0.15) and large (0.35) (Sarstedt et al., 2017). The f^2 values in this study are between 0.038 and 0.155 (see Table 6), which indicates significant effects of the exogenous variables on the dependent variable. In the subsequent analysis to assess the predictive relevance of the independent variables, Stone-Geisser's Q^2 is used (Sarstedt et al., 2017). The Q^2 value for the variable intention to buy halal medicines is 0.357 and thus exceeds the minimum threshold value of 0 (see Table 7). The study is therefore appropriately constructed and the model has predictive relevance.

Table 8.
Output of PLSpredict

Construct	PLS-SEM		Benchmark	
	RMSE	MAE	RMSE	MAE
Y1	0.549	0.391	0.615	0.454
Y2	0.711	0.496	0.761	0.541
Y3	0.547	0.411	0.567	0.420
Y4	0.836	0.603	0.904	0.647
Y5	0.657	0.503	0.688	0.518

Source: Primary data processed (2023)

4.2. Robustness Check

In this study, a non-linear criterion is used to assess the correspondence between the constructs in the model and the theoretical expectations (Sarstedt et al., 2020). While the theoretical assumptions often imply a linear relationship between the constructs, the relationships in the real world do not always correspond to this assumption. In statistical terms, a nonlinear relationship denotes that the strength of the association between two constructs is impacted not solely by the extent of alteration in the exogenous construct, but also by its particular value (Hair et al., 2018). To account for potential non-linearities, a polynomial model is integrated in this study by introducing the quadratic effect. Upon scrutinizing the outcomes, it becomes evident that the quadratic effect lacks statistical significance across all paths (refer to Table 9). Consequently, the insignificance of these interactions serves as evidence supporting the robustness of the linear effects (Sarstedt et al., 2020).

Table 9.
Output of Quadratic Effect

Construct Relationship	β	p-values	f^2	95% (BCCI)
X1 → Y1	0.154	0.085	0.047	(-0.007; 0.406)
X2 → Y1	0.334	0.001	0.078	(0.114; 0.467)
X3 → Y1	0.312	0.000	0.095	(0.150; 0.485)
X4 → Y1	0.167	0.021	0.024	(-0.023; 0.251)
Quadratic Effect X1 -> Y	0.029	0.608	0.004	(-0.085; 0.141)
Quadratic Effect X2 -> Y	-0.043	0.532	0.007	(-0.161; 0.115)
Quadratic Effect X3 -> Y	0.009	0.905	0.000	(-0.139; 0.153)
Quadratic Effect X4 -> Y	-0.057	0.440	0.014	(-0.161; 0.099)

Source: Primary data processed (2023)

4.3. Analysis

4.3.1. Attitude Effect on Purchase Intention

Table 9 above reveals that X1, signifying attitude, demonstrates a path coefficient of 0.154. The corresponding P-Value is 0.085, exceeding 0.05, and the T-Statistic is 1.727, below 1.96. This implies that attitude does not exert a statistically significant impact on the intention to purchase halal medicines. This contrasts with findings from Afendi et al. (2014) and Shah Alam & Mohamed Sayuti (2011), where a significant influence on the intention to purchase halal food is observed.

To validate this result, an interview was conducted with the head of the Tangerang Pharmacy. According to the interview, the availability of drugs significantly shapes an individual's or patient's attitude. The certification of halal drugs doesn't always ensure their availability, especially for medications addressing specific illnesses. The head of the Tangerang Pharmaceutical Installation UPT emphasized that drugs under patent rights are categorized into (1) Patent Drugs and (2) Generic Drugs. Generic drugs, predominantly used by health centers in Tangerang, have limited availability with halal certification for both over-the-counter and limited over-the-counter medications.

Referencing Table 4, respondents' attitudes are predominantly represented by scale 6 responses, signifying a strong positive inclination towards halal medicine. In contrast, their responses to other variables X and Y show a broader distribution towards scales 5 and 4, indicating a trend of agreement and moderation. This descriptive information offers insights into the overall sentiment, demonstrating a higher magnitude and level of endorsement among respondents regarding halal medicine when compared to other factors surveyed.

4.3.2. Halal Awareness Effect on Purchase Intention

Referring to Table 9, X2 or halal awareness exhibits a path coefficient of 0.334, a P-Value of 0.001 (below 0.05), and a T-Statistic of 3.290 (higher than 1.96). This indicates that halal awareness significantly and positively affects the purchase intention of halal medicines. The Muslim community's intention to purchase halal medicines in Jabodetabek is thereby influenced by their level of halal awareness. This awareness reflects consumers' understanding and concern for a product's halal status in maintaining health (Septiani & Ridlwan, 2020). Higher awareness correlates with increased attention to whether a product fulfils halal requirement, encompassing medicinal products and aligning with religious beliefs (Qs. Al-Baqarah [2]: 173). This study aligns with research by Aziz & Chok (2013), Bashir (2019), and Septiani & Ridlwan (2020), demonstrating the significant influence of halal awareness on the inclination to purchase halal food items.

4.3.3. Subjective Norms have Effect on Purchase Intention

As indicated in Table 9, X3 or subjective norms portrays a path coefficient of 0.312, a P-Value of 0.000 (below 0.05), and a T-Statistic of 3.886 (exceeding 1.96). Subjective norms exert a significant and positive influence on the purchase intention of halal medicines. These norms play a crucial role, particularly in involving social pressure and influence from individuals in one's social circle, such as teachers, influencers, family, and friends. This influence encourages and, at times, pressures individuals to adhere to halal principles when purchasing medicines. The study is in line with Elseidi's research (2018), illustrating the significant impact of subjective norms on the purchase intention of halal-labeled food products in Scotland.

4.3.4. Perceived Behavioural Control Effect on Purchase Intention

Table 9 highlights that X4, representing perceived behavioral control, displays a path coefficient of 0.167. The associated P-Value is 0.021 (below the 0.05 threshold), and the T-Statistic is 2.314 (exceeding 1.96). The findings suggest a clear and positive relationship between perceived behavioral control and the inclination to purchase halal medicines. Factors encompassed by perceived behavioral control, such as accessibility, knowledge, product information availability, and economic considerations, contribute to an elevated purchase intention for halal medicines. This finding concurs with Shah Alam & Mohamed Sayuti's (2011) study, which underscores the significant impact of behavioral control on the purchase intention.

V. CONCLUSION AND RECOMMENDATION

This study examines the intention to purchase halal medicines in the Muslim Jabodetabek community, focussing on OTC and restricted OTC medicines. In addition to applying the Theory of Planned Behaviour (TPB) model, this study introduces halal awareness as an additional variable. The results highlight the importance of halal awareness, perceived behavioural control, and subjective norms as influential factors affecting the intention to purchase halal medicines. Moreover, the model shows that attitude, halal awareness, subjective norms and perceived behavioural control jointly contribute to the fit of the model and provide a moderately classified framework for describing the determinants of intention to purchase halal medicine in the Jabodetabek Muslim community.

In addition, this research reveals the limited availability of certified halal medicines, especially in the category of over-the-counter medicines and limited over-the-counter medicines. This scarcity has an impact on individual patient attitudes and perceptions. The limited availability of halal certified medicines is particularly noteworthy as it does not always match the medical needs of patients. This scenario is exacerbated by the widespread use of generic medicines, both OTC and restricted OTC.

It is expected that stakeholders and organisations will increase their efforts to promote halal-certified medicines in the future, including both OTC and prescription medicines. This endeavour is of great importance, especially given the increased awareness of the Muslim population in the Jabodetabek region of the need for halal-certified medicines. Another notable aspect is the heavy dependence on imported medicinal raw materials, which makes it difficult to ensure an uninterrupted supply chain.

Nevertheless, it is appropriate to recognise a limitation of this study: The selected variables are only moderately meaningful due to the limited scope of variables related to the intention to purchase halal medicines. As a result, other latent variables that may influence this intention remain unexplored in this study. It is recommended that this study be extended by including additional variables that have an impact on the intention to choose halal medicines. In addition, it is recommended that further research efforts focus on specific geographical regions and specific types of medicines, as different endemic diseases are prevalent in different areas.

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