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Analyzing The Level of Knowledge, Awareness and Attitude of Muslim Students Towards Halal Medicine in Yogyakarta

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ABSTRACT

This research aims to examine the influence of public knowledge, awareness and attitudes towards halal medicines. The sample for this research was 100 respondents selected using a purposive sampling method in Yogyakarta. Data was collected through questionnaires distributed via social media and analyzed using multiple linear regression. The research results showed that the variables of knowledge, awareness and attitude were 61.4% regarding the halalness of medicines. Meanwhile, other factors contributed 38.6%, the rest was influenced by other variables. So, the knowledge variable has an insignificant influence, while awareness and attitude have a positive and significant influence on the halalness of medicines. This shows that Muslim students tend to still have low knowledge regarding understanding the halal nature of medicines. Apart from that, awareness and attitude also have different positive influences on the halalness of medicines. These findings have implications for the government, pharmaceutical factories and related agencies to pay more attention to the halalness of medicines in an effort to maintain public health and public trust. On the other hand, this research also contributes to researchers in the pharmaceutical field by enriching the literature regarding factors that influence the halalness of medicines.

Keywords: *awareness, attitude, knowledge, halal medicine*

ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh pengetahuan, kesadaran dan sikap masyarakat terhadap kehalalan obat-obatan. Sampel penelitian ini adalah 100 responden yang dipilih dengan metode *purposive sampling* di Yogyakarta. Data dikumpulkan melalui kuesioner yang disebarkan melalui media sosial dan dianalisis dengan menggunakan regresi linier berganda. Hasil penelitian menunjukkan bahwa variabel pengetahuan, kesadaran dan sikap sebesar 61,4% terhadap kehalalan obat-obatan. Sedangkan faktor lain memberikan kontribusi sebesar 38,6%, sisanya dipengaruhi oleh variabel lain. Jadi, variabel pengetahuan memiliki pengaruh tidak signifikan, sedangkan kesadaran dan sikap berpengaruh positif dan signifikan terhadap kehalalan obat. Hal ini menunjukkan bahwa pengetahuan pelajar muslim cenderung masih dikatakan rendah terhadap mengerti akan kehalalan obat. Selain itu, kesadaran dan sikap juga memberikan pengaruh positif yang berbeda terhadap kehalalan obat. Temuan ini berimplikasi pada pemerintah, pabrik farmasi dan dinas terkait untuk lebih memperhatikan kehalalan obat-obatan dalam upaya menjaga kesehatan masyarakat serta kepercayaan masyarakat. Di sisi lain, penelitian ini juga memberikan kontribusi bagi para peneliti di bidang farmasi dengan memperkaya literatur mengenai faktor-faktor yang mempengaruhi kehalalan obat-obatan.

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Kata kunci: kesadaran, sikap, pengetahuan, obat halal

INTRODUCTION

The importance of halal status for pharmaceutical products is currently under scrutiny with the implementation of the Halal Product Assurance Law in Indonesia. According to Hijriawati *et al*., (2018), this regulation mandates that all products, including medications, circulated and traded in Indonesia must have a halal certificate. Nevertheless, the facts regarding the halalness of pharmaceutical products still require serious attention. Some issues arise because not all medicines meet the criteria to obtain halal status. Putriana (2016) indicates that some medicines still use ingredients that cannot be categorized as halal.

Medications play a crucial role in the healthcare sector, contributing to the reduction of diseases and deaths and improving the quality of individual lives (Rahem, 2018). However, public access to medications with halal certification appears more challenging compared to food or beverages with halal labels. This is due to the limited number of medications that have obtained halal certification compared to food or beverage products. Data from the Indonesian Ulema Council (MUI) shows a decreasing trend in the number of medicines with halal certification, with 1,891 certified medicines in 2019 decreasing to 890 in 2020 (Hudaefi *et al*., 2021). The scarcity of halal-certified medicines may be associated with a lack of public demand for halal medications. Public behavior may have correlations with their level of knowledge, perceptions, and attitudes towards medications with halal certification.

Research on the use of halal products in the Malang region has been conducted by Zani & Effendi (2023) and Indarningsih & Suci (2023) aiming to analyze the impact of halal labels and product safety on consumer purchasing decisions in Malang. The research results show that 22% of respondents actively read information related to the halalness and safety of products on their packaging, while 43% of consumer purchasing decisions are influenced by the presence of halal and safe labels on products. Other studies conducted by Hakim *et al.,* (2022) dan Purwanti (2017), investigating the knowledge, attitudes, and perceptions of consumers regarding the halalness of medicines in Banyumas Regency, indicate that awareness and knowledge of Muslim consumers regarding the halalness of medicines are still prevalent issues among Muslims. Research findings indicate that only 23% of respondents have good knowledge about the halalness of medicines, while attitudes and perceptions mostly fall into the category of moderately good.

Based on the above background, this research aims to investigate the level of awareness and attitudes of the community towards the halalness of medicines. The purpose of this study is to understand and measure the level of knowledge, awareness, and attitudes of Muslim students regarding the halalness of medicines in the Yogyakarta region.

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SYSTEMATIC REVIEW

Halal Medicinal Ingredients According to Islam

The Institute for the Assessment of Food, Pharmaceuticals, and Cosmetics of the Indonesian Ulema Council (LPPOM MUI) was established on January 6, 1989. Its primary role is to ensure the well-being of Muslim consumers concerning the consumption of food, pharmaceuticals, and cosmetic products. As per the Minister of Religious Affairs of the Republic of Indonesia's Decision Number 518 dated November 30, 2001, Article 1 elucidates that halal food is defined as food that lacks components or substances prohibited for consumption by Muslims. Furthermore, its production adheres to Islamic law, ensuring conformity with religious principles (LPPOM MUI, 2021).

According to Asmak (2015), the halal status of a pharmaceutical product in the Islamic perspective is not only dependent on the ingredients used but also involves the production process and the source of obtaining these ingredients. Permissible pharmaceutical ingredients must be free from forbidden substances such as pork or materials from animals slaughtered in a manner inconsistent with Islamic law. Ingredients derived from plants, soil, water, minerals, and microorganisms are considered halal, except for those that are toxic. Synthesized drugs are also considered halal unless they contain harmful or non-halal substances. Additionally, the preparation, processing, and storage methods of drugs must be free from non-halal or impure elements. The use of these drugs should not have harmful future effects, and hygienic aspects in drug production must be considered. The concept of *halalan toyyiban* includes cleanliness from dirt, dust, germs, and other non-halal contaminants. Certification from an honest and trustworthy Muslim doctor is required during inspections, and drugs must not contain ingredients not disclosed in proven formulations. It is also crucial that treatments do not involve magic, idolatry, superstition, or the use of substances or media prohibited by Islamic law, and the drugs produced must be safe for consumers (Syofyan *et al.*, 2017).

Halal Law in the Islamic Concept

The law regarding the use of intoxicants for medical treatment (as narrated in Muslim, Ahmad, Abu Daud, and Tirmidzi) states that "Intoxicants are not a remedy, but a disease." (Narrated by Abu Daud) states, "Indeed, Allah has sent down both disease and cure and has made for you every disease a cure. Therefore, seek treatment, but do not seek treatment with what is forbidden." (Narrated by Bukhari) declares, "Verily, Allah has not made your cure in what He has made forbidden for you." It is said that in a state of emergency or when human life is threatened, and there is no other medicine available except for an intoxicant, based on religious principles, seeking treatment with an intoxicant is not prohibited (Apriyanto, 2023).

Knowledge

Knowledge is the awareness, identification, and application for the development of humanity. It is constructed from data, information, and previous knowledge (Mohajan, 2017). An individual's knowledge is influenced by various

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factors, such as education, information or mass media, socio-cultural and economic factors, occupation, interests, and environment (Yanti & Handayani, 2014). In interpreting new information and making purchasing decisions, each consumer has a different level of knowledge (Nawi *et al*., 2022). Consumers quickly choose and decide which products to buy and consume if they have ample product information (Syofyan *et al.*, 2017).

Awareness

Awareness is the ability to understand, sense, and be conscious of an event and an object (Shuhaimi *et al.*, 2022). The level of awareness is a measure of an individual's consciousness and response to stimuli from the environment (Iranmanesh *et al*., 2019). Awareness is an individual's ability to establish a connection with their environment and themselves (through their senses) and to set limits on their environment and themselves (through attention) (Syofyan *et al*., 2017). Consciousness is the realm that contains the results of our observations of the external world. The level of awareness is a measure of an individual's consciousness and response to stimuli from the environment (Ren *et al.*, 2023). Thus, it can be understood that halal awareness can be conceptualized as a process of obtaining information to enhance awareness of what is permissible for Muslims to eat, drink, and use (Hamdani *et al*., 2021).

Attitude

Attitude is the organization of motivational, perceptual, and cognitive processes that settle within an individual in relation to various aspects of life (Fauziah, 2012). Attitude is considered a closed response of an individual towards an object (Husnawati *et al*., 2023). It can also be defined as a general evaluation made by humans about themselves, others, objects, or issues (Syofyan *et al*., 2017). The function of attitude is to serve as an instrument for self-adjustment, behavior measurement, and measurement of experiences. Additionally, it is used for statements that describe one's personality or character (Notoatmodjo, 2012).

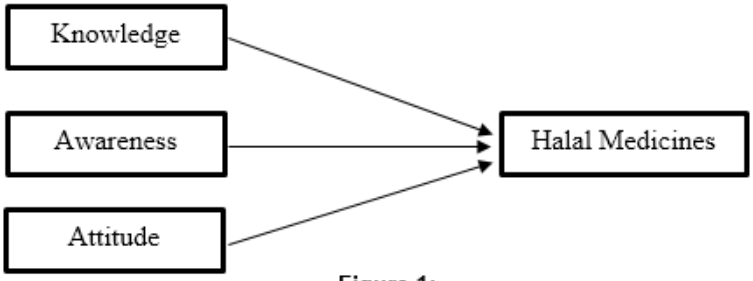

Figure 1:
Development Hypothesis

Development Hypothesis

Hypotheses typically contain temporary assumptions that establish a connection between the problem to be investigated. Usually, these consist of thoughts and mapping of the effective and correct relationships between the issues to be

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studied (Sugiyono, 2019). Based on Figure 1 above, the hypotheses in this research are as follows:

Muslim Students' Knowledge of Halal Medicine

The assumption is that Muslim students' knowledge about halal medicines can be influenced by factors such as religious education, exposure to information, and understanding of the principles of halal medicines in Islam. Relevant research consistent with this hypothesis may have been conducted in the context of religious, health, or pharmacological studies. For example, a study conducted by Aziz *et al*. (2020), Santosa *et al*. (2022), Normasilla (2021), Husnawati *et al*. (2023) and Mardiyanti & Willi (2023) discuss factors that influence consumer knowledge about halal medicine, which can generally be related to the knowledge of Muslim students. Based on this description, the temporary assumptions in this research are:

H_1: Knowledge Has a Significant Positive Influence on the Halalness of Medicines

Muslim Students' Awareness of Halal Medicine

Muslim students' awareness of halal medicine can actually have a significant impact, especially in the context of health and the choice of medicine made by individuals. Awareness of halal medicines can ensure that consumers are more careful in choosing and using medicines. Understanding the ingredients used in making medicines and halal certification can give consumers confidence that the products they consume are safe and in accordance with their religious or ethical norms (Hakim *et al.,* 2022). If Muslim Students are aware and confident that the medication they are taking is halal, this can increase the level of compliance with treatment. Understanding that the medications used are in line with their beliefs and values can help maintain consistency in treatment, which in turn can increase its effectiveness. The research results of Purwanti (2017), Mardiyanti & Willi (2023), Nugrahaeni & Rachmawati (2021), Santosa *et al*. (2022) and Hansen *et al*. (2023) the high level of awareness of Muslim students regarding halal medicines can encourage pharmaceutical companies to focus more on transparency, education and halal certification in the production of medicines. This can create positive pressure on the pharmaceutical industry to comply with higher safety and halal standards. Based on this description, the temporary assumptions in this research are:

H_2: Awareness Has a Significant Positive Influence on the Halalness of Medicines

Attitudes of Muslim Students towards Halal Medicine

Muslim students' attitudes towards halal medicines can vary and are influenced by various factors. Several aspects can influence attitudes towards halal medicines, such as religious understanding, halal certification, health education or personal experience. Empirically, research conducted by Zani (2013), Putriana (2016), Syofyan et al. (2017), Husnawati *et al*. (2023) dan Hakim (2022) in several regions in Indonesia show that there are variations in people's attitudes towards halal medicine. Through a survey involving 1000 respondents, the results showed that 65% of respondents stated the importance of halal medicine in their selection and consumption. As many as 78% of those who stated the importance of halal medicines

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indicated that they actively sought information about halal medicines before making a purchase. By detailing empirical data like this, the explanation of people's attitudes towards halal medicine becomes more concrete and measurable, providing a deeper picture of people's views and behavior regarding this issue. Based on this description, the temporary assumptions in this research are:

H_3: Attitudes Have a Significant Positive Influence on Halal Medicines

RESEARCH METHOD

This research development uses quantitative methods. Surveys function as the main information tool, with respondents acting as the main research subjects and receiving questionnaires from the researchers themselves (Sugiono, 2019). The population in this research is all Yogyakarta City Students, both SMA, DI/D2/D3, D4/S1, Masters and S3, however, because the number of active Yogyakarta students is not known with certainty, according to Sekaran, the number of research samples is between 30 to 500 is sufficient (Sekaran & Bougie, 2016). For this reason, the number of samples used in this research was 100 data. The data obtained is then processed, researched and analyzed to test the hypothesis at the statistical test stage. This research uses parametric inferential statistical techniques, namely *Ordinary Least Square* (OLS) with the help of the E-Views 10 program, data analysis using multiple linear regression. Data quality tests, classical assumption tests, and multiple regression tests will be carried out on research data. Specifically, we will test the multiple linear regression equation model:

$$Y=\alpha+\beta_1+\beta_2+\beta_3+\varepsilon$$

Model :

$$KO = \alpha + \beta 1P + \beta 2K + \beta 3S + \varepsilon$$

Information:
KO = Halal Medicine
α = Constant
β = Regression Coefficient
P = Knowledge
K = Awareness
S = Attitude
ε = Error Variable

RESULT AND DISCUSSION

Respondent Characteristics

Descriptions of the characteristics of respondents are grouped into three, namely gender, age and level of education as shown in the following table:

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Table 1. Respondent Characteristics

Characteristics	Demographics	Percent
Gender	Male	44%
	Female	56%
Age	17-25	78%
	26-35	21%
	>36	1%
Education	SMA	23%
	D1/D2/D3	5%
	D4/S1	61%
	S2/S3	11%

Source: Distribution of questionnaires, data processed, 2023

Based on Table 1, of the 100 selected respondents, it can be seen that the composition based on the criteria, 44 percent of respondents were male and 56 percent female. If we look at the age group, the majority of respondents are aged 17-25, 26-35 and >36, respectively 78 percent, 21 percent and 1 percent of the total respondents. Meanwhile, if we examine further in terms of educational level, there are more respondents with Bachelor's degrees compared to other levels of education.

Muslim Students' Level of Knowledge Regarding Halal Medicine

Knowledge is the result of knowing after sensing an object. The sensing process can occur through sight, hearing, smell, taste and touch (Rossje & Fitri, 2020). The results of the research show that Muslim students' knowledge of halal medicine in Yogyakarta is 96.5%, which is in the good category regarding understanding of the definitions of halal and haram. Meanwhile, knowledge of halal and haram provisions was 88% in the good category, and knowledge of halal medicines was also in the good category, 78%.

Table 2. Percentage of Respondents' Knowledge

Knowledge Parameters	Statement	Responses	
		Yes	No
Definition of halal and haram (P1)	1. Halal means permitted	100%	0%
	2. Haram means breaking the law/not permitted	93%	67%
Average and category		**96,5% (Good)**	
Halal and haram provisions (P2)	3. Carcasses are haram for Muslims to eat	84%	16%
	4. Blood is haram for Muslims to eat	88%	12%
	5. Pork is haram for Muslims	89%	11%
	6. Khamr is a haram drink for Muslims	91%	9%
Average and category		**88% (Good)**	
Halal medicine (P3)	7. There are medicines with a halal logo	94%	6%
	8. There are capsules made from pork gelatin	74%	26%
	9. There are syrups/elixirs containing alcohol	78%	22%

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	10. Limits on the use of alcohol in medicine according to the MUI	81%	19%
	11. The use of insulin contains pork according to the MUI	63%	37%
	Average and category	**78% (Good)**	

Source: Distribution of questionnaires, data processed, 2023

Data Quality Analysis

Validity test

The validity test is employed to assess the validity of a questionnaire, determining if the statements within it effectively measure the intended constructs. A questionnaire is considered valid when the statements accurately reflect what the questionnaire is designed to measure. Utilizing a significance level (α) of 5%, the validity test employs criteria where, if the observed correlation (r count) exceeds the critical correlation (r table), the statement is affirmed as valid. The outcome of the validity test is summarized as follows:

Table 3. Validity test

Variable	Indicator	r count	Sig (r table)	Result
Knowledge (X1)	P1	0,536	0,195	Valid
	P2	0,819	0,195	Valid
	P3	0,786	0,195	Valid
	P4	0,724	0,195	Valid
	P5	0,705	0,195	Valid
Awareness (X2)	P1	0,886	0,195	Valid
	P2	0,905	0,195	Valid
	P3	0,848	0,195	Valid
	P4	0,902	0,195	Valid
Attitude (X3)	P1	0,786	0,195	Valid
	P2	0,736	0,195	Valid
	P3	0,778	0,195	Valid
	P4	0,450	0,195	Valid
	P5	0,779	0,195	Valid
	P6	0,791	0,195	Valid
Halal Medicines (X3)	P1	0,806	0,195	Valid
	P2	0,872	0,195	Valid
	P3	0,784	0,195	Valid
	P4	0,846	0,195	Valid

Source: E-Views 10, data is processed, 2023

From the table above, it can be concluded that all correlation results from 100 respondents with a total of 19 items have a value greater than the r value in the table (r count > 0.195). Therefore, it can be concluded that all statements in this

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questionnaire are valid and can be used for further testing. Apart from validity testing, this questionnaire also uses a reliability test to determine whether the instrument is appropriate and reliable enough to reveal data. Variable is considered reliable if it has a Cronbach Alpha value > 0.60.

Reliability Test

When measuring the same indication using the same measuring instrument more than once, this reliability test is used to ensure consistent measurement findings. If the Cronbach's alpha value is more than 0.60 then the data results are considered reliable (good), and if it is less than 0.60 then it is considered unreliable.

Table 4. Reliability test

Variable	Cronbach's Alpha	N of Items	Result
Knowledge	0,752	5	Reliable
Awareness	0,907	4	Reliable
Attitude	0,792	6	Reliable
Halal Medicines	0,845	4	Reliable

Source: E-Views 10, data is processed, 2023

Based on the description in Table 4, it shows that the Cronbach's Alpha coefficient on four variables, namely knowledge, awareness, attitude and halal medicine, has a value above 0.60. Thus, it is determined that the data information in this research is reliable. Where the r_{count} value obtained for each variable question item has a r_{count} value greater than the r_{table}. So, it can be concluded that the four statement items on the knowledge variable with a Cronbach's alpha value of 0.752, the awareness variable with a Cronbach's alpha value of 0.907 are declared valid. Meanwhile, the Cronbach's alpha value for the attitude variable is 0.792, so it can be concluded that the statements in this questionnaire are reliable because they have a Cronbach's alpha value > 0.600.

Classic Assumption Analysis

Normality test

The normality test in the regression model is used to determine whether the residual value of data is close to normal or not. The regression model is said to be good if the residual value of the data is normally distributed. This test is the initial stage in the data analysis selection method. A statistical procedure called a "normality test" can help to evaluate whether the data at hand is normally distributed. A probability distribution with certain characteristics, such as symmetry and a single bell, is a normal distribution, which is sometimes referred to as a Gaussian distribution or Gauss distribution (Permatasari, 2021). Checking the normality of data is an important stage in the data analysis process because it forms the basis for many parametric statistical approaches.

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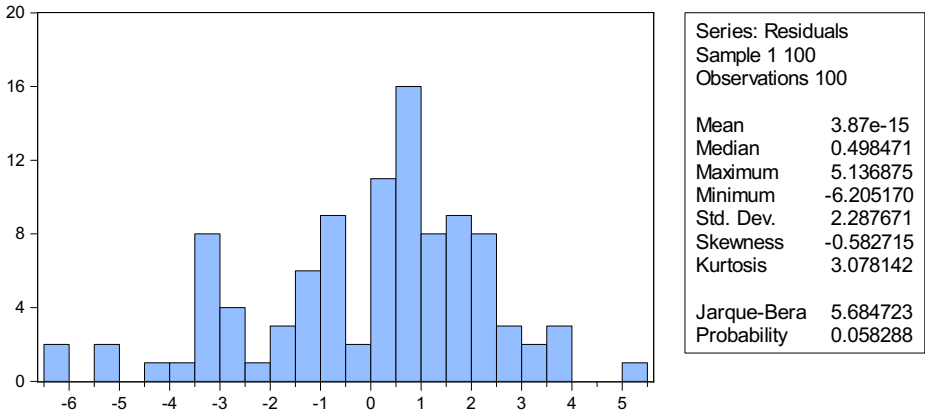
Table 5. Normality test



Source: E-Views 10, data is processed, 2023

The normality test in this study was via histogram and was developed by Jarque-Bera. Based on the results of the image above, it shows that the test carried out with 100 samples produced a probability value of 0.058> 0.05, which means the residual data is normally distributed.

Multicollinearity Test

A multicollinearity test assesses the degree of correlation among independent variables in a regression model to ascertain the presence of high or perfect correlation. A correlation value of less than 10.00 between variables suggests the absence of multicollinearity issues. Regression analysis employs this test to identify potential problems with multicollinearity, which occurs when there is a noteworthy correlation among two or more independent variables in the model. Such correlation challenges the regression model's ability to accurately gauge the individual impact of independent variables, leading to potential difficulties in precise influence determination (Silitonga, 2019).

Table 6. Multicollinearity test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.921456	54.13127	NA
X1	0.002752	18.55103	1.002975
X2	0.008903	50.70071	2.353189
X3	0.007681	92.16789	2.357726

Source: E-Views 10, data is processed, 2023

From the results of the multicollinearity test above, it shows that the VIF value is >10.00, so it can be concluded that there is no multicollinearity in this research variable, so the multicollinearity test has been fulfilled.

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Heteroscedasticity Test

The purpose of the heteroscedasticity test is to assess whether there are deviations from classical assumptions in a regression model, particularly the assumption of constant variance. This assumption posits that there should be no inequality in the variance of residuals across the model. The heteroscedasticity test is a statistical tool employed to determine if a significant difference exists between the number of independent variables and the variability (spread) of errors (residuals) within the regression model. When the variability of errors is not consistent or homoscedastic, the occurrence of heteroscedasticity can jeopardize the linear regression assumption. Detecting and addressing such deviations is crucial to maintain the reliability of the regression model's predictions (Usmadi, 2020).

Table 7. Heteroscedasticity test
Heteroskedasticity Test: White

F-statistic	0.511127	Prob. F(9,90)	0.8630
Obs*R-squared	4.862719	Prob. Chi-Square(9)	0.8461
Scaled explained SS	4.656578	Prob. Chi-Square(9)	0.8632

Source: E-Views 10, data is processed, 2023

If the prob value is <0.05 then heteroscedasticity occurs, conversely if it is greater than the prob value then heteroscedasticity does not occur. From the test results in the table above using the white method, the probability value is 0.846 > 0.05. So, the results show that heteroscedasticity did not occur in this study.

Autocorrelation Test

The autocorrelation test is a correlation that occurs between the residuals between variables in the regression model. This test is carried out to find out whether in the model there is a correlation between the variables being studied. Sequential correlation tests, sometimes referred to as autocorrelation tests, are used to determine whether values in a time series or data collected at specific intervals are correlated. When values in a time series are linked over a predetermined period of time, or when data from one time point influences data from another time point, this phenomenon is known as autocorrelation (Ineu Sintia *et.,al* 2022).

Table 8. Autocorrelation test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.700993	Prob. F(2,94)	0.4987
Obs*R-squared	1.469556	Prob. Chi-Square(2)	0.4796

Source: E-Views 10, data is processed, 2023

Through the Breusch-Godfrey Test, if the prob value is > 0.05, autocorrelation occurs and if the prob value is < 0.05, autocorrelation does not occur. The table above

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shows that the value of Prob. Chi-Square is 0.479, so it can be concluded that this research does not have autocorrelation.

Linear Regression Analysis

Multiple regression analysis aims to demonstrate the degree of impact exerted by independent variables on the dependent variable. In this research, the analysis incorporates more than one independent variable, specifically awareness and attitude, while the dependent variable under consideration is the halalness of medicines.

Table 9. Linear Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.506370	1.709227	-0.296257	0.7677
X1	-0.028097	0.052462	-0.535566	0.5935
X2	0.194480	0.094354	2.061177	0.0420
X3	0.546102	0.087643	6.230959	0.0000

Source: E-Views 10, data is processed, 2023

The multiple linear regression model equation is carried out between the independent variable and the dependent variable, as in the following formula:

Y= -0.506 - 0.028 + 0.194 + 0.546

- The constant value obtained is -0.506, so it can be interpreted that if the independent variable increases by one unit on average, the dependent variable will decrease by -0.506
- The regression coefficient value for variable X1 is negative (-) at 0.028, so it can be interpreted that if variable
- The regression coefficient value for variable X2 is positive (+) at 0.194, so it can be interpreted that if variable
- The regression coefficient value for variable X3 is positive (+) at 0.546, so it can be interpreted that if variable

Partial T-Test

Partial t test, also known as individual t test, is a statistical tool used in regression analysis to assess the level of significance of each individual regression coefficient in a model. The aim is to determine whether each independent variable significantly contributes to the dependent variable in the regression model (Ferils, 2022).

Table 10. T-Partial test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.506370	1.709227	-0.296257	0.7677

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X1	-0.028097	0.052462	-0.535566	0.5935
X2	0.194480	0.094354	2.061177	0.0420
X3	0.546102	0.087643	6.230959	0.0000

Source: E-Views 10, data is processed, 2023

1. The Knowledge variable (X1) has a t-statistic value of 0.535 with a Prob value. (Significance) is 0.593 (>0.05), so it can be concluded that variable X1 has no significant effect on variable Y.
2. The Awareness variable (X2) has a t-statistic value of 2.061 with a Prob value. (Significance) is 0.042 (<0.05), so it can be concluded that variable X2 has a significant effect on variable Y.
3. The Attitude Variable (X3) has a t-Statistic value of 6,230 with a Prob value. (Significance) is 0.000 (< 0.05), so it can be concluded that variable X3 has a significant effect on variable Y.

F Test (Simultaneous)

The simultaneous F test is a statistical tool in regression analysis that is used to determine whether at least one independent variable together has a significant impact on the dependent variable in the model. This involves testing whether at least one independent variable has a significant influence on the dependent variable (Ahmad *et al.,* 2022).

Table 11. F- Simultaneous test

Sum squared resid	518.1104	Schwarz criterion	4.667102
Log likelihood	-224.1448	Hannan-Quinn criter.	4.605070
F-statistic	49.03045	Durbin-Watson stat	2.134805
Prob(F-statistic)	0.000000		

Source: E-Views 10, data is processed, 2023

It is known that the F-Statistic value is 49.03 with a Prob value. (F-Statistic) is 0.000 (<0.05), so it can be concluded that the independent variable (X) has a significant effect simultaneously on the dependent variable (Y).

Coefficient of Determination Test

According to (Widarjono, 2018) the Coefficient of Determination Test (R-Squared) is to explain the proportion of variations in the dependent variable that will be explained by the independent variable. The data used in this research is cross section data to obtain R-Squared results, so they can be seen from Adjusted R-Squared.

Table 12. R-Squared test

R-squared	0.605087	Mean dependent var	16.02000
Adjusted R-squared	0.592746	S.D. dependent var	3.640346

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Source: E-Views 10, data is processed, 2023

Based on the results in the table above, the Adjusted R-Square value is 0.614, the influence of the independent variable on the dependent variable simultaneously is 61.4%. Meanwhile, the remaining 38.6% was influenced by other variables outside this research.

Discussion

Knowledge of Muslim Students Regarding the Halalness Medicine

The variable Knowledge (X1) has a t-Statistic value of 0.535 with a Prob. (Significance) value of 0.593 (>0.05). Therefore, it can be concluded that the variable X1 does not have a significant influence on the variable Y. This finding differs from Aziz *et al*. (2020), Santosa *et al*. (2022), Normasilla (2021), Husnawati *et al*. (2023) and Mardiyanti & Willi (2023), which state that knowledge influences the consumption of halal drugs. However, this research aligns with the assertions of Ahmad *et al.* (2020), Trisnawati & Alfiyaturrohmaniyah (2018) and Madania et al. (2021), stating that knowledge alone does not play a significant role unless accompanied by a comprehensive evaluation of aspects such as ingredient content, purpose of use, dependence, availability of halal alternatives, and medical considerations. Medicine content containing forbidden substances, inappropriate use according to Islamic principles, or risky dependence can affect the halalness Medicine. Consultation with religious experts or scholars is also crucial to obtain views and fatwas that can guide decisions related to the halalness of drugs within the context of Islamic law. In emergency medical situations, halal principles may be waived for urgent health reasons.

Awareness of Muslim Students Regarding the Halalness Medicine

The variable Awareness (X2) has a t-Statistic value of 2.061 with a Prob. (Significance) value of 0.042 (<0.05). Therefore, it can be concluded that the variable X2 significantly influences the variable Y. This aligns with the research of Purwanti (2017), Mardiyanti & Willi (2023), Nugrahaeni & Rachmawati (2021), Santosa *et al*. (2022) and Hansen *et al*. (2023), which state that being aware and confident that the consumed Medicine is halal can increase compliance with medication. Increased awareness of the halalness Medicine in society may be due to factors such as the availability of information, health education, and awareness of halal labels on medications. However, to enhance literacy and ensure students' awareness of the halalness Medicine, collaborative efforts from the government, healthcare institutions, and communities are needed to provide clear, easily accessible, and understandable information for all layers of society.

Attitude of Muslim Students Regarding the Halalness Medicine

The variable Attitude (X3) has a t-Statistic value of 6.230 with a Prob. (Significance) value of 0.000 (<0.05). Therefore, it can be concluded that the variable X3 significantly influences the variable Y. This aligns with research by Zani (2013), Putriana (2016), Syofyan et al. (2017), Husnawati *et al*. (2023) and Hakim (2022) in

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various regions of Indonesia, showing variations in students' attitudes toward the halalness of drugs. Positive attitudes of students toward the halalness Medicine can create an environment that supports the use of safer medications aligned with religious values or societal ethics. This can contribute to the overall improvement of public health.

CONCLUSION

Based on the analysis and discussion results, it can be concluded that all independent variables in the study, namely knowledge, have a non-significant influence on the halalness of drugs. This is due to knowledge about the content of ingredients, the purpose of use, dependence, the availability of halal alternatives, and medical considerations. Meanwhile, the variables of awareness and attitude have a positive and significant influence on the halalness of drugs, both simultaneously and partially.

Knowledge plays a role in controlling society's behavior towards the halalness of drugs. The internalization of knowledge values in daily life will influence a person's attitudes and behavior in determining what choices they should consume. The research results show that public knowledge about the halalness of drugs in Yogyakarta is 96.5%, categorized as good in understanding the definitions of halal and haram. Meanwhile, knowledge about halal and haram regulations is 88%, categorized as good, and knowledge about halal drugs is also good at 78%.

This research has several limitations that need to be considered in interpreting the results. Limited sample size, geographical or temporal constraints, and limitations in data collection methods can affect the generalizability of findings. Additionally, financial and time limitations, as well as variability in respondent characteristics, can affect the validity of the results. Nevertheless, this research still contributes valuable insights into the understanding of knowledge, awareness, and attitudes of Muslim learners towards the halalness of drugs, and an understanding of these limitations can serve as a basis for future research.

For academics, this research is expected to add to the literature related to the concept of halal and can be developed for further research by adding variables, samples, and using different analysis methods. Meanwhile, for the public, this research is expected to increase awareness and knowledge about halal medications.

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