

DEVELOPMENT OF A HALAL-LABELLED VACCINE PURCHASING BEHAVIOR MODEL: A STUDY ON THE HALAL LIFESTYLE OF MUSLIM CONSUMERS AND SUSTAINABLE DEVELOPMENT GOALS (SDGS) IN INDONESIA

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ABSTRACT

Objective: This study tested the dependent variable of halal-labelled vaccine purchasing behavior influenced by three independent variables, namely vaccine efficacy beliefs, knowledge of halal vaccines and halal labelling through one moderating variable of religiosity. Theoretical Framework: This research develops the Grand-Theory Planned Behavior model by modifying the attitude variable and adding the moderating variable of religiosity.

Method: Quantitative survey research design. The sampling technique was carried out by purposive sampling. Respondents were taken as a sample of adult consumers who had consumed the halal-labelled Flu-Bio, CoronaVac and Vac2Bio vaccines in the Soloraya area, totaling 200 respondents. Quantitative model testing was carried out using the Structural Equation Model. The model testing stages include the validity and reliability tests of indicators, descriptive tests of respondents, inferential statistical tests, classical assumption tests and tests of multi-group moderator variables. Testing the moderating variables used the statistical program tool of AMOS 21 software

Results and Discussion: It was found that there was a direct influence of vaccine efficacy beliefs, knowledge of halal vaccines and halal label on purchasing behavior. The moderating variable test of perceived religiosity was unable to strengthen the antecedents of purchasing behavior

Research Implications: It is hoped that this research will be able to increase the positive attitude of the Indonesian people towards the status of halal-labelled vaccines. Strengthening the status and lifestyle of consuming halal-labelled vaccines can improve the quality of Indonesian people's health status towards Indonesia's Golden Generation 2045 and the Sustainable Development Goals (SDGs)

Originality/Value: This research has the urgency of being able to provide answers for academics and marketers of halal-labelled products in developing a consumer behavior model for the halal community lifestyle in Indonesia. This research can be used as a marketing strategy to reduce the doubts of the Muslim community in Indonesia regarding the halalness of vaccines.

Keywords: halal determination, halal-labelled vaccine, purchasing behavior, religiosity, Sustainable Development Goals (SDGs).

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1 INTRODUCTION

The research findings of (Sari, Fairuza, Aziza, & Setiati, 2024) seemed surprising with the emergence of extraordinary cases of Poliomyelitis in Indonesia in 2022-2023 after Indonesia was declared polio-free since 2014. The outbreak of Polio cases in Indonesia is an iceberg phenomenon. This incident was triggered by a drop in immunization coverage during the pandemic. The general chairman of IDAI explained that there were three provinces in Indonesia that have low scores for polio vaccine coverage, namely the provinces of Aceh special area, West Sumatra and Riau. There were findings by the team where people stated that 'the main thing was having a halal certificate first before wanting to be vaccinated'. This phenomenon can be interpreted as belief in halal label as well as the perceived religiosity variable which is the main factor in Indonesian people's willingness to take vaccines (Alsuwadi, Hammad, Elbarazi, & Sheek-Hussein, 2023).

Vaccinations have been carried out by various health authorities to fight the virus with the aim of achieving community immunity. For some Muslims in Indonesia, rejection arose due to hoax information about the pork fat content in the vaccine manufacturing process using porcine or trypsin elements (WHO, 2020). The process of making vaccines in the future that fulfills the overall rules of the *halalan-thoyyiban* (food that is halal and good) concept, sharia (Islamic religious law that regulates the lives of Muslims) core concepts such as preserving life with the need to allow prohibitions, empowering social responsibility for the benefit of the wider community encourages the continued importance of the vaccination program (Alsuwadi *et al.*, 2023). The success of the vaccine program in Indonesia can improve the quality of public health. The increase in the quality of Indonesian public health is marked by a decrease in the prevalence of under-five children experiencing deaths and infections due to non-vaccination, so that this research activity can become superior basic research in the future.

For Indonesian people, it is very easy to arise for sensitivity and turmoil regarding the issue of halal (permitted) and haram (prohibited) vaccines. There is an opinion in rural communities in Indonesia and in areas that are less technologically literate through hoax information that man-made vaccines contain toxic chemicals to weaken Muslims and these vaccines are used as a Jewish conspiracy theory to paralyze the young Muslim generation (Nasution, 2018). Vaccines conflict with the Prophet Muhammad SAW (tibbon-nabawy) model of treatment which uses natural substances such as herbs. The reason put forward by opponents of vaccines is that herbal medicines are artificial medicines and concocted by Allah SWT, while chemical medicines are man-made so they must be avoided (Nasution, 2018). Apart from that, there is an opinion among the educated middle class of Indonesian Muslims that behind the sale of modern medicines, vaccines using doctors and health workers are big agents of capitalists who hold vaccine patents driven by Bill Gates and his cronies (Haq & I.S., 2020); (Siraki & Mohammad, 2023).

(Lau, T. C., Choe, K. L., & Tan, 2018) conducted a study, intrinsic religiosity means that increasing awareness of the spiritual presence of God will influence the increase in behavior of consuming halal-labelled products. Various research findings that are not yet conclusive can be a gap in research through consumers' perceived religiosity as a moderating variable capable of influencing the behavior of purchasing halal-labelled vaccines so that they can expand understanding of the Planned Behavior Theory.

This research has the novelty of modifying the attitude variable in a theory that is already solid, namely the Theory of Planned Behavior. This research adds one moderating variable which is expected to strengthen the determinants of purchasing behavior. Based on the description in the background, the findings show that there are still relatively few studies discussing consumer behavior regarding halal vaccine behavior models in Indonesia. Based on the phenomenon gaps, research gaps and theoretical gaps, two problem formulations are proposed as follows: 1. Are beliefs about vaccine efficacy, knowledge and halal vaccine label able to have a positive influence on the behavior of purchasing halal-labelled vaccines, 2. Is perceived religiosity

as a moderating variable able to strengthen positive influence of antecedents of halal label vaccine purchasing behavior.

This research is in line with (Rahayuwati, 2021) study, where currently the Indonesian government requires all people to carry out vaccinations as an effort to improve the quality of basic health. This activity can result in a reduction in the prevalence of infectious diseases and further improvement of the vaccination program against non-Covid-19 infectious diseases in Indonesia. Efforts to achieve superior health status in welcoming Indonesia's golden generation in 2045 and achieving the goals in the SDGs and green economy (Pamungkas *et al.* 2024) are challenges for researchers to carry out model studies.

2 THEORETICAL FRAMEWORK

2.1 THEORY OF PLANNED BEHAVIOR

The Theory of Planned Behavior was put forward by (Fishbein & Ajzen, 1975) so it is known as the Fishbein-Ajzen theory. This theory emphasizes the importance of intention in behavior. Next, the Planned Behavior Theory tries to explore the influence of intentions on beliefs, attitudes and subjective norms that surround individuals (Izek Ajzen, 1991). There are three independent variables in the Planned-Behavior theory that can influence behavioral intentions, namely attitude (attitude toward behavior), subjective norms and perceived behavioral control. Attitudes are influenced by two aspects, namely individual beliefs about what will happen if they carry out the expected behavior (behavioral beliefs) and the assessment of whether the results obtained are good or bad (evaluation of behavioral outcomes)(Izek Ajzen, 1991).

Tsai & Bagozzi (2014) expanded Planned-Behavior Theory to include the role of social identity and group norms that help explain member contribution and goal-directed behavior. This model outlines the concept of group intention (we-intention), debating differences and establishing values to understand contribution behavior in virtual communities as well as collective behavior in

distributed environments. Research results show that group norms and social identity, attitudes and anticipated emotions contribute to the development of behavioral intentions, which can influence group-intentions (we-intentions). In research findings, subjective norms are less effective than group norms or social identity in encouraging contribution behavior.

(Izek Ajzen, 1991) explained that the Planned Behavior theory is not an exclusive model for predicting intentions and behavior, but is flexible to continue to be expanded by adding predictors which are able to explain significantly the variance of intentions. Several researchers expanded the Theory of Planned Behavior, which was carried out in the initial stages by (Taylor & Todd, 1995). Both researchers agree that the TPB does not include variables such as moral obligations, habits and self-identity which can better predict behavioral intentions and can be a theoretical gap in future superior research (Taylor & Todd, 1995).

2.2 THE ANTECEDENTS OF HALAL VACCINE PURCHASING BEHAVIOR

(Hossain, 2007) examined brand image from the efficacy of a brand, which is a description, association, belief, observation and trust held by consumers towards a particular brand. (Hossain, 2007) provided a definition of brand efficacy as consumers' overall perception of the brand or the way they see the brand of a product which may not be in accordance with the brand identity. Indicators of quality, image according to (Schifmann & Kanuk, 2010) include superior quality, trustworthy, effective, reliable in use and benefits.

The role of the halal concept in marketing is growing very rapidly, especially in the context of branding (Aaker, 1996). The definition of halal awareness literally means having good information and knowledge about the halalness of the products consumed (Aziz & Chok, 2013). Research by (Nasution, 2018) explained that halal awareness, knowledge of halal brands brings peace of mind to Muslim consumers before consuming a product.

Halal label is a document issued by an Islamic institution which explains that the products listed in it comply with Islamic standards (Riaz, 2007). (Ahmad, 2015) researched that halal label has functions and roles for both parties,

producers and consumers. Indicators of halal label according to (Aziz & Chok, 2013) include understanding the halal logo, selecting halal products according to institutions with legal status, selecting products based on halal logos, knowledge of the differences between halal logos and fake logos and understanding products that use halal label from other countries.

There are research findings that there is a positive influence of religious identity on the behavior of choosing a halal meat shop in Muslim communities in South Asian countries (Bri, 2011). However, several other studies have found different results. Research findings by (Lau, T. C., Choe, K. L., & Tan, 2018) showed that in Malaysia, extrinsic religiosity does not have a significant influence on consumer behavior, while intrinsic religiosity has a significant influence. Intrinsic religiosity means that increasing awareness of God's spiritual presence will influence the increasing intention to consume halal brands.

Baumsteiger & Chenneville (2015) explained that religious identity is not related to purchasing intentions. However, the studies above view religion as a construct of religiosity, not used as a single dimension for forming attitudes. (Shin, Amenuvor, Basilisco, & Owusu-Atwi, 2019) researched that brand confidence has an influence on buying behavior. Increasing individual knowledge tends to influence behavior referring to feelings, facts and experiences within individuals and groups. The belief factor is one of the main foundations (Kamarulzaman & Madun, A. bin, & Noorhidawati, 2017).

Religiosity according to research findings by (Abdelghani & Hassanuddin, 2018) has a positive effect on buying behavior. The purchasing behavior of a product is influenced by consumer habits, attitudes, values, trust and culture. Several researchers have found that there is an influence of religion on consumer behavior. Research by several researchers in Thailand and Malaysia concluded that there is a positive influence of religion on shopping orientation (Kamarulzaman & Madun, A. bin, & Noorhidawati, 2017). Soesilowati (2011) in her research found that religion influences intentions to consume halal products. The higher the level of individual religiosity, the greater the individual's attention to consuming halal products (Soesilowati, 2011).

Based on the various references above, a research hypothesis is proposed as follows:

Ha: It is suspected that vaccine efficacy, halal knowledge and halal label can have a positive influence on vaccine purchasing behavior, and perceived religiosity can act as a moderating variable.

2.3 RESEARCH MODEL FRAMEWORK

Figure 1

Halal-labelled vaccine purchasing behavior model

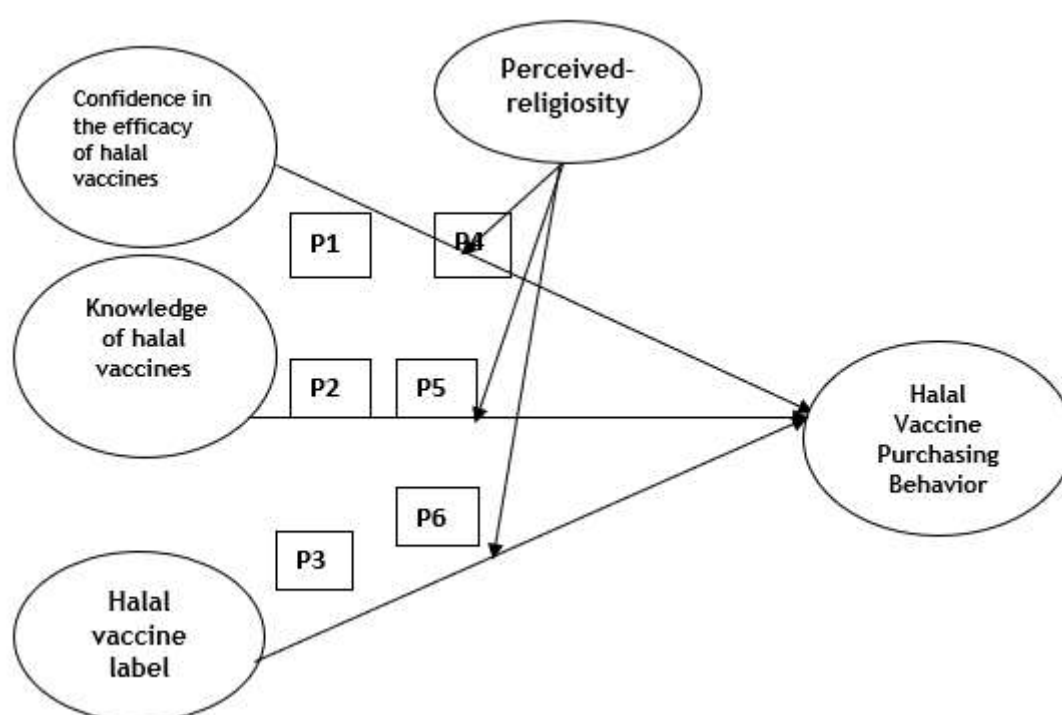


Figure 1 describes the dependent variable model test of halal vaccine purchasing behavior which is influenced by three independent variables, namely belief in the efficacy of halal vaccines, knowledge of halal vaccines and label of halal vaccines through one moderating variable - perceived religiosity.

3 RESEARCH METHODS

This research is basic research aimed at developing knowledge (Sekaran & Bougie, 2016). Based on the classification of research objectives, this

research is explanatory research that seeks to explore new symptoms or problematize an event. The data collection technique for this activity was quantitative research with a type of survey research.

Explanatory research is research that aims to look for new symptoms or theories and is a type of research that attempts to look for new ideas and look for new relationships between one variable and another (Ferdinand, 2014).

3.1 UNIT OF ANALYSIS

The unit of analysis in the activity is consumers who use halal-labelled vaccines who live in the Klaten Regency area. The age category taken as respondents is adulthood. This category considers respondents to be able to understand the concept of purchasing behavior for halal-labelled vaccines: Flu-Bio, CoronaVac and Vac2Bio produced by PT Biofarma Bandung Indonesia.

3.2 POPULATION

The population is all the objects of observation that need to be studied. This can be interpreted as the population being a combination of all the elements that form events and individuals who have similar characteristics and are the center of the researcher's attention. The sample is part of the population whose characteristics you want to estimate (Sekaran & Bougie, 2016). The population in this study are all consumers' halal-labelled vaccine in the Klaten Regency area.

3.3 SAMPLE

The number of respondents as a sample in this research was adjusted to the analysis method used, namely the Structural Equation Model (SEM). In the chi-square test, the SEM model has sensitivity related to the number of samples taken, so that the research sample will refer to the criteria proposed by (Hair, Black, Babin, & Anderson, 2020), namely through the Maximum Likelihood Estimation (MLE) technique where the number of good samples meets the

criteria. MLE is between 100-400 samples. It was decided that 200 respondents from the Klaten community would be taken as samples.

3.4 VARIABLES AND MEASUREMENT

This research uses five variables. Purchasing behavior variables are measured through 4 research indicators by (I. Ajzen, 2006). The variable of consumer confidence in the efficacy of halal vaccines as an independent variable is measured through 4 indicators adapted from (Raharja & Sari, 2022). Knowledge of halal vaccines is measured through 3 indicators (Sudarsono, Ikawati, Kurnia, Azizah, & Kholid, 2023). Halal label is measured by 4 indicators (Sudarsono *et al.*, 2023). The perceived religiosity variable as a moderator is measured through 4 indicators (Huber & Huber, 2019).

3.5 VALIDITY AND RELIABILITY OF INDICATORS

The number of respondents in the pre-survey test was 33 people. The construct validity test was used to measure the extent to which indicators are able to explain theoretical latent constructs. The reliability test is the internal consistency of variable indicators that are able to explain consistency in the form of a cut of value for construct reliability of at least 0.7 and a cut of value for variance extracted of at least 0.5.

3.6 DESCRIPTIVE ANALYSIS OF RESPONDENTS AND DESCRIPTIVE VARIABLES

In this analysis, a description of the research object is outlined, characteristics of respondents are based on gender, age, domicile, average monthly income, frequency of consuming vaccines. In the analysis, it is explained that descriptive statistics are related to variable indicators.

3.7 INFERENTIAL STATISTICAL ANALYSIS

This analysis describes confirmatory factor analysis, full model analysis and hypothesis testing in the form of assumption tests, Chi-square coefficient tests (μ^2) and probability.

3.8 ASSUMPTION TESTING

Testing the causality relationship between variables can be done using the Structural Equation Model data analysis technique. (Hair *et al.*, 2020) explained that SEM is a statistical model that can explain complex relationships between variables. In the research, classical assumptions were also tested.

3.9 TEST OF MODERATOR VARIABLES AND MODEL MODIFICATIONS

Empirical data testing was carried out on the initial model without including moderator variables, then the final model was tested by including moderator variables through multigroup tests and regression weight tests. Modifications to the model can be made by researchers regarding models that do not meet the testing requirements.

4 RESULTS AND DISCUSSION

4.1 RESPONDENT CHARACTERISTICS

Respondent characteristics are used as narratives to form a profile of the research object.

4.1.1 Respondent's gender

The distribution of respondents by gender is 90 male respondents (45%) and 110 female respondents (55%). This means that the majority of female respondents care about halal vaccines.

4.1.2 Respondent's age

The distribution of respondents aged 5 years to 25 years was 80 people (40%), 26 to 60 years 100 people (50%) and over 60 years 20 people (10%). This can mean that the majority of respondents who care about halal vaccines are of productive age.

4.1.3 Respondent's domicile

Distribution of respondents based on domicile 200 people (100%) were in Klaten district. This is in accordance with the target respondents as their research informants, the people of Klaten Regency.

4.1.4 Average monthly income

Distribution of respondents based on income is as follows: 90 people (45%) earn less than 3 millions, 100 people (50%) earn in the range of 3 millions to 8 millions and 10 people (5%) have income above 8 millions. This means that the respondent has a middle class income.

4.1.5 Frequency of taking vaccines

The distribution of respondents based on frequency of taking the vaccine was 60 people (30%) once, 110 (55%) people 2-3 times and 30 people (15%) more than 3 times. This means that the majority of respondents care about halal vaccines after taking the second or third vaccine or they go through a learning process.

4.2 TEST OF RESEARCH INSTRUMENTS

4.2.1 Validity Test

The validity test is used as a measurement tool to test the reliability of the questionnaire in measuring what it should measure. The validity measurement in this research shows the amount of variance of the indicators extracted by the latent variables/constructs that have been developed. The variance extracted value according to the expert panel agreement is acceptable if it is above 0.50. The results of the validity test of the halal vaccine purchasing behavior variable were with a value of 0.67, vaccine efficacy belief 0.77, halal knowledge 0.66, halal label 0.89, and perceived religiosity 0.72. The results of the research validity test show that the variance extracted values for all variables can meet the required criteria. This can be interpreted as the amount of variance from the indicators extracted by the instrument items being able to measure what should be measured.

4.2.2 Reliability Test

Reliability testing aims to test how far a measuring instrument can be relied upon or trusted. It can also be interpreted as the extent to which a measuring instrument can provide relatively the same results if repeated measurements are made on different objects. In this research, the reliability test used the reliability construct value. The minimum reliability value of the indicators forming latent variables that can be accepted by the panel is 0.70. The results of the reliability test for the halal vaccine purchasing behavior variable were with a value of 0.78, halal vaccine efficacy belief 0.77, halal vaccine knowledge 0.88, halal vaccinelabelling 0.85 and perceived religiosity 0.71.

The results of the research reliability test show that the construct reliability value for each latent variable is above 0.7. The findings of this test concluded that the measuring instrument for each latent variable was reliable.

4.2.3 AMOS Test Results

The test results on the feasibility of the SEM model are described in table 1.

Table 1

Full Model Feasibility Test Results

No.	Good of Fit Index	Cut off values	Result	Model Evaluating
1.	Chi square	small < 385.058	371.908	Good
2.	Probability	>0.05	0.152	Good
3.	RMSEA	<0.08	0.020	Good
4.	GFI	>0.90	0.965	Good
5.	AGFI	>0.90	0.933	Good
6.	CMIN/DF	<2.00	1.173	Good
7.	TLI	>0.95	0.983	Good
8.	CFI	>0.95	0.969	Good

source: primary data processed in 2024 n: 200

Based on the feasibility analysis of the causal relationship model, the dependent variable, halal purchasing behavior, is directly influenced by three independent variables in the form of efficacy halal vaccine, halal knowledge and halal-labelled vaccine with Religiosity-perception as a moderator. It is concluded that the model is appropriate or fit with evidence in data testing as seen from the level of significance of chi-square value.

4.3 HYPOTHESIS TESTING

Hypothesis testing in this research was carried out based on the Critical Ratio (CR) value of a causality relationship. The results of the research hypothesis test are presented in full in table 2.

Table 2

Hypothesis testing

No	Estimate	SE	CR	p	Result
1. Efficacy -> Halal purchasing behav vac	0.579	0.152	8.069	<0.001	accepted
2. Knowledge->Halal purchasing behav vac	0.386	0.088	5.457	<0.001	accepted
3. Halal Labelled-> Halal purchasing behav vac	0.337	0.077	4.266	< 0.001	accepted
4. Int1->Efficacy-Halal purchasing behav vac	0.294	0.307	2.545	< 0.008	accepted
5. Int2->Knowled-Halal purchasing behav vac	0.327	0.353	2.330	> 0.416	rejected
6 .Int3->Halal-labelled purchasing behav vac	0.402	0.324	1.176	> 0.248	rejected

source: primary data processed in 2024 n:200

Hypothesis testing of the influence of the three independent variables on the dependent variable has a positive critical ratio value with probability <0.001. It is concluded that the variables of vaccine efficacy belief, halal knowledge and halal label had a positive influence on halal vaccine purchasing behavior. In this research, the moderating variable perceived religiosity was unable to strengthen the two variables namely knowledge and halal label on purchasing behavior because it had a p value >0.05. The moderating variable perceived religiosity is only able to strengthen one variable, namely vaccine efficacy beliefs on purchasing behavior.

4.4 DISCUSSIONS

Based on the model study, the moderating variable - perceived religiosity - is able to strengthen the independent variable - halal vaccine efficacy beliefs on purchasing behavior - meaning the influence of this variable is in the strong category. This means that vaccine efficacy is the main consideration for consumers' willingness to consume vaccines. These research findings are in line with research (Raharja & Sari, 2022); (Sudarsono *et al.*, 2023). Primary data findings obtained from research explained that the majority of respondents were of productive age in the age range of 30 to 60 years, had incomes in the middle-high category at the level of the Indonesian middle class. They are generations X, Y and millennials who live in the Klaten Regency area, are technologically literate and are able to absorb information strongly. The Klaten region has a mixed religious and nationalist regional category. In this region there are many traditional, modern religious schools and various Islamic

boarding schools with various schools of thought (Sutiyono, 2011). Nuances of moderate Islamic religion color the cultural symbols of the Surakarta Palace and Klaten society, thus highlighting the fact that the dynamics of community life in Klaten Regency are influenced by the Javanese-Islamic cultural acculturation tradition (Sutiyono, 2011). The behavior and attitudes of people who are heavily influenced by Javanese Islamic traditions are known by several researchers as Islamic santri-priyayi (People who study Islam seriously and worship piously- The nobility or the highest social class in Javanese society) (Supariadi, 2017). Religiosity can influence vaccine efficacy beliefs on purchasing behavior. The findings of this research are in accordance with research results (Wardhana, 2020); (Trangerud, 2023) and (Sudarsono *et al.*, 2023).

The life activities of the Klaten community are often colored by Islamic cultural traditions and Javanese-Hindu cultural traditions as expressions of gratitude to God Almighty and expressions of resignation when experiencing disaster in the practice of daily life (Mulder, 1992). This strengthens the finding that perceived religiosity values are able to strengthen the moderation pattern in the halal vaccine purchasing behavior of Muslim communities in Klaten Regency. This phenomenon is in accordance with (Razak, 2017) findings that Malaysian society is synonymous with Malay-Muslim culture and it is still relevant to practice a combination of Islamic values by maintaining the local wisdom of traditional Malay culture. This combination of acculturation is still carried out as a behavioral practice in everyday life. Research findings on the perceived religiosity variable have not been able to strengthen the two independent variables in the sense of the Klaten Community's perceived religiosity regarding halal vaccines in the medium category according to the research findings of (Nugroho, Ihalauw, & Kriestian, 2022) through the observation of halal brand cosmetics.

Perceived religiosity-disability as a moderating variable needs to be investigated further whether this variable is actually an independent variable. This research has a limited scope of objects of observation by respondents only in the Klaten Regency area. Further stage activities can be carried out through testing a larger number of samples and expanding the scope of research objects in the Soloraya and Central Java Province areas. It is necessary to enrich the model at a wider testing stage by adding independent variables, adding moderating variables and efficacy belief variables - the vaccine is treated as a mediating variable.

5 CONCLUSION

Based on the research results, it is concluded that there is a direct effect of vaccine efficacy beliefs, halal knowledge and halal labels on halal vaccine purchasing behavior. The moderating test for perceived religiosity is only able to strengthen vaccine efficacy on halal vaccine purchasing behavior. From research findings, perceived religiosity has not been able to act as a moderating variable.

Managerial implications for the Ministry of Health, Klaten District Health Service, in the future must provide more assistance to the community as an effort to increase awareness and knowledge of halal vaccines so that they are willing to be vaccinated. The public's willingness to be vaccinated is an effort to scientifically combat viral pandemics in the future so that the SDGs goals of the Indonesian people are achieved through the realization of a Healthy Indonesian Golden Generation in 2045.

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