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ARTICLE

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Does "Halalness" Affect Young Muslims' Intentions to Use the COVID-19 Vaccine?

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Abstract: *Young Muslims comprise a large population in Indonesia. This study analyzes the effect of halal awareness, halal certification, attitudes, subjective norms, perceived behavior controls and vaccine quality on young Muslims' intentions to use the COVID-19 vaccine. This study involved 699 random respondents from 32 provinces in Indonesia. This research model develops Theory Planned Behavior (TPB) using structural equation modeling (SEM) with partial least squares structural equation modeling (PLS-SEM) data processing tools. The results showed that halal awareness and certificates had a P-value of <0.05 or positively affected Muslims' attitude towards vaccines. Likewise, halal awareness, attitudes, subjective norms and vaccine quality have a P-value of <0.05 and perceived behavior control has a P-value of <0.10 or positively affects Muslims' intentions to use vaccines. However, halal certification has a P-value of >0.10 or does not affect their intention to use vaccines. Islamic values remain a consideration for young Muslims in using the COVID-19 vaccine. Therefore, the government needs to include halal aspects in determining policies related to the implementation of vaccinations.*
Keywords: *attitude, COVID-19 vaccine, halal awareness, halal certificate, young Muslims*

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1. Introduction

The government issued Presidential Regulation No. 99 of 2020 concerning the procurement and implementation of vaccinations in tackling the 2019 coronavirus or COVID-19 pandemic. The presidential regulation states ministries/agencies, provincial governments and district/city governments will provide support to accelerate funds for the smooth procurement of COVID-19 vaccines following statutory provisions. To accommodate the dynamic development of COVID-19 case, changes to Presidential Regulation No. 14 of 2021 were issued. Technicalities for implementing vaccinations are detailed in the Regulation of the Minister of Health of the Republic of Indonesia No. 10 of 2021.

In the beginning, Indonesia used the Sinovac vaccine, which was permitted through an emergency use authorization (EUA), then was declared halal by the Institute for the Assessment of Food, Medicine and Cosmetics of the Indonesian Ulema Council (LPPOM Indonesian Ulema Council) and permitted by the Food and Drug Supervisory Agency (BPOM). The Indonesian Ulema Council, through the LPPOM Indonesian Ulema Council, determined the COVID-19 vaccine produced by Sinovac Lifescience Co Ltd is halal. Then the COVID-19 vaccine produced by Sinovac received approval from the BPOM related to *tayyib* aspects, including safety, quality and efficacy. After the BPOM issued a permit, a fatwa for the vaccine was issued and it could be used.

On the other hand, for the AstraZeneca vaccine, the LPPOM Indonesian Ulema Council was declared haram because the producers used trypsin from a pig pancreas to make the virus host. Trypsin is not a primary raw material for viruses but separates virus host cells from micro virus carriers. However, the Indonesian Ulema Council issued Fatwa No. 14 of 2021 permitting the COVID-19 vaccine produced by AstraZeneca in an emergency. This emergency had occured because communal (herd) immunity only occurs when 70% of the population has been vaccinated. Indonesia had received about 140 million vaccines but could use only 122.5 million doses or 28% of the population. However, not all Muslims accepted the Indonesian Ulema Council fatwa. Additionally, several Muslim communities choose not to use the COVID-19 vaccine or other types of vaccines.

Previous research found that "halalness" or religiosity is negatively related to vaccine use among Muslim doctors in the United States because they are identical to ingredients from pork trypsin (Mahdi et al., 2016). Eriksson and Vartanova (2021) also analyzed 147 countries and found the level of religiosity in a country affects confidence in vaccine use. In the Indonesian context, there are not many studies on intentions to use a halal COVID-19 vaccine. This may be related to the notion that the COVID-19 vaccine is only a stimulant of a person's immune response or development. Therefore, this study fills this gap by conducting a quantitative empirical study on the determinants of intention in using the COVID-19 vaccine. The expansion of the Theory of Planned Behavior (TPB) was adopted as a theoretical framework (Ajzen, 1991), where halal awareness and certification were added to the main components of the TPB framework (i.e., attitude, subjective norms and perceived behavior control).

This study collects primary data through an online survey involving 699 Muslim youth in Indonesia as the object of the halal vaccine. The number of respondents is based on the approach suggested by Kline (2016), which states that research using structural equation modeling (SEM) should have a minimum size of 200 respondents. The data is then analyzed using SEM as an empirical approach. The results of this study are expected to enrich the literature and contribute to determining government policies in providing COVID-19 vaccines for young Muslims. In addition, younger Muslims know about halal and haram laws, so they have reasons to choose a COVID-19 vaccine based on Islamic law. Finally, the COVID-19 vaccine has had significant impacts on young Muslims in the short and long-term.

2. Materials and Methods

2.1. Theory Planned Behaviour (TPB)

TPB describes behavior characteristics determined by the purpose of taking action. Three determinants predict behavioral intention: attitudes, subjective norms and perceived behavioral control (Ajzen, 1991). Researchers study the consumption behavior of halal products and services through the independent variables put forward in this theory (Hassan & Sengupta, 2019). Many studies have expanded the TPB research framework by adding variables that can predict behavioral intentions in specific product categories. For example, in addition to independent TPB variables, halal certificate and quality vaccine were determinants of intention to use halal vaccination (Bukhari et al., 2020; Chen & Tung, 2014; Hassan & Sengupta, 2019; Iranmanesh et al., 2020; Verma & Chandra, 2018). The research model is illustrated in Figure 1.

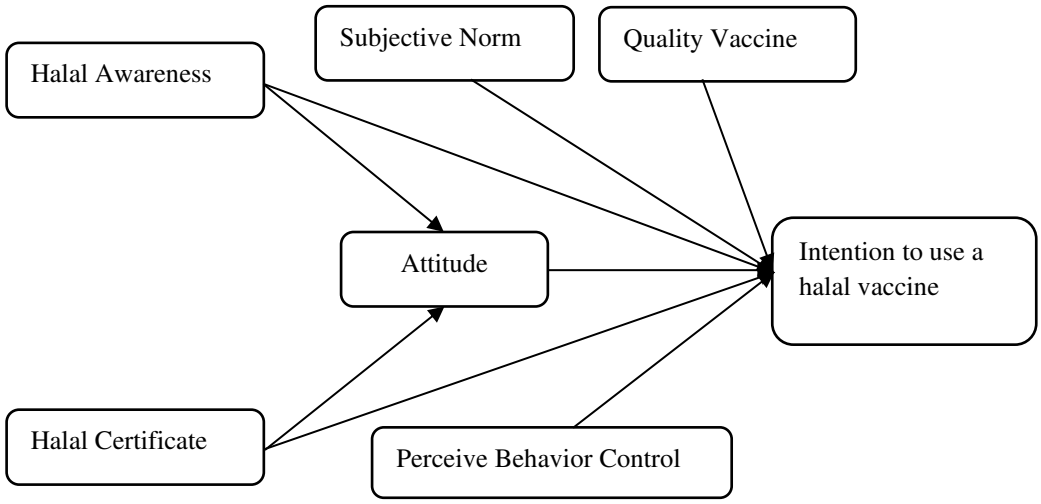

Figure 1. Research model

2.2. Sampling

The random sampling technique was used to obtain Muslim respondents who were allowed vaccines. Questionnaires were distributed online using the Google Forms platform to predetermined populations. The pilot study was deployed from February 19 to 29, 2020 and obtained 26 respondents. Validity and reliability tests were conducted, which eliminated invalid and unreliable questions. After corrections, from March 2 to March 23, 2020, questionnaires were distributed through several WhatsApp (WA) groups. Results were obtained from 712 respondents from 32 provinces in Indonesia after news spread through WA for 21 days. We eliminated 13 respondents due to incompleteness of information. Finally, the 699 respondents who met the expected respondent criteria were young Muslims aged 18 to 27 years.

Table 1. Respondents' Descriptive Details

Characteristics	Description	Frequency	Percentage (%)
Gender	Male	211	30
	Female	488	70
Status	Married	33	5
	Not married	666	5
Vaccination	Yes	31	4
	No	668	96
Age	< 18 years old	28	4
	18–22 years old	587	84
	23–27 years old	84	12
Education	Elementary school	1	0
	Junior high school	15	2
	Senior high school	523	75
	Bachelor's degree	150	21
	Master's degree	10	1
Profession	Government officer	14	2
	Private officer	53	8
	Entrepreneur	21	3
	Student	602	86
	Homemaker	9	1
Respondents' origin, top ten regions	Central Java	180	26
	Special Region of Yogyakarta	80	11
	West Java	79	11
	East Java	66	9
	Jakarta	57	8
	Bengkulu	31	4
	Lampung	28	4
	Banten	26	4
	West Sumatra	22	4
	West Nusa Tenggara	21	3

Table 1 shows that most respondents in this study were women (70%) and nearly all were single (95%). Most of the respondents were students (86%) and in senior high school (75%), where the average age is 18-22 years (84%) of the 699 respondents, most were not vaccinated (4%) because the vaccination program was not evenly distributed for all ages when the survey was conducted. In comparison, the top ten locations of respondents were the provinces of Central Java (26%), DI Yogyakarta (11%), West Java (11%), East Java (9%), DKI Jakarta (8%), Bengkulu (4%), Lampung (4%), Banten (4%), West Sumatra (4%) and West Nusa Tenggara (3%) plus 22 other provinces with less than 20 respondents. Based on gender, status, age, background, profession and region, the respondents in this study represent the young generation of Indonesian Muslims who are required to get the Covid-19 vaccine.

2.3. Method

The sample of respondents is Muslims spread across 32 provinces in Indonesia. Respondents were selected using a systematic random sampling method. A total of 699 respondents were deemed adequate for data analysis purposes (Sekaran, 2003). This research uses partial least squares structural equation modeling (PLS-SEM) to analyze the transformed data. Many researchers recommend using PLS-SEM as a statistical tool for path modeling to solve complex multivariate models (Hair et al., 2014). Many researchers have also recommended PLS-SEM because it is a flexible, robust and superior statistical tool for prediction and theory testing (Henseler et al., 2015).

3. Results and Discussion

From the characteristics detailed in Table 1, it is confirmed that the respondents for this study are the young generation of Muslims – male and female; majority unmarried; not vaccinated; average age 18-22 years; most studying at high school level; and representing 32 provinces. The characteristics that describe the respondents in this study present their status as members of the young Muslim population who were waiting for the Covid-19 vaccine in 2020.

3.1. Convergent Validity

Reliability analysis was carried out by considering the composite reliability values of the variables in the study, as shown in Table 2.

Table 2. Measurement Model Indicators

Code	Indicator	Factor Loading	CA	rho_A	CR	AVE
Attitude (AT)			0.855	0.860	0.896	0.634
AT1	I prefer the halal vaccine because the ingredients used are safe.	0.804				
AT2	I prefer halal vaccines because the quality of vaccines is better than those that are not halal.	0.801				
AT3	I prefer the halal vaccine even though the Indonesian Ulema Council allows the use of the haram vaccine during an emergency.	0.742				
AT4	I prefer the halal vaccine because it fits my belief.	0.802				
AT5	I prefer the halal vaccine because it increases my immunity.	0.829				
Halal Awareness (HA)			0.946	0.949	0.959	0.822
HA1	I realized that the vaccine I was using was halal.	0.900				
HA2	I realize that vaccines come from halal ingredients.	0.931				
HA3	I realized that the vaccine I used was produced according to Islamic regulations.	0.913				
HA4	I realized the vaccine I used had received a halal permit/label/certificate from the Indonesian Ulema Council.	0.912				
HA5	I realized that the vaccines I used had been distributed according to Islamic regulations.	0.877				
Halal Certificate (HC)			0.882	0.883	0.914	0.681
HC1	Halal certification guarantees the halalness of the COVID-19 vaccine that I use.	0.863				

Code	Indicator	Factor Loading	CA	rho_A	CR	AVE
HC2	Halal certification guarantees the cleanliness of the COVID-19 vaccine.	0.876				
HC3	Halal certification guarantees the safety of the COVID-19 vaccine.	0.852				
HC5	Halal certification guarantees my immunity from the COVID-19 virus.	0.791				
HC6	Halal certification makes me feel that I have fulfilled the provisions of my religion.	0.735				
Intention (IN)			0.928	0.929	0.944	0.736
IN1	I want to use the halal vaccine.	0.825				
IN2	I always try to get halal vaccines.	0.891				
IN3	I am willing to look for a hospital or place to get a halal vaccine.	0.839				
IN4	I am willing to travel a long way to get a halal vaccine.	0.899				
IN5	I intend to use halal vaccines in the future.	0.840				
IN6	I prefer to use the halal vaccine even though the brand is not very well known.	0.851				
Perceived Behavior Control (PBC)			0.853	0.862	0.894	0.629
PBC1	It would be more appropriate if I used the halal vaccine.	0.789				
PBC2	If the opportunity arises, I will use the halal vaccine.	0.819				
PBC3	I have complete control over the decision to use halal vaccines.	0.774				
PBC4	The decision to choose or not to use the halal vaccine is entirely up to me.	0.740				
PBC5	I believe that someday I will use the halal vaccine.	0.841				
Quality Vaccine (QV)			0.889	0.892	0.915	0.642
QP1	The vaccine that I will use comes from the appropriate material specifications.	0.766				
QP2	I got complete information about how to use the vaccine.	0.796				
QP3	I was informed about the expiration date and side effects of the vaccine.	0.787				
QP4	The vaccine that I will use is protected from possible contamination.	0.846				
QP5	The vaccine I am about to use has been tried and proven to provide human immunity.	0.809				
QP6	The vaccine I will use has received approval from the Indonesian Ulema Council and government agencies.	0.804				
Subjective Norm (SN)			0.957	0.958	0.965	0.822
SN1	My close family advised me to use the halal vaccine.	0.897				
SN2	A close friend advised me to use the halal vaccine.	0.916				
SN3	An important person in my life suggested that I use the halal vaccine.	0.911				
SN4	I believe that family opinion has influenced me choosing a halal vaccine.	0.904				
SN5	I believe my close friend's opinion has influenced me choosing a halal vaccine.	0.906				
SN6	I believe the opinions of people who are important to me regarding my choice of halal vaccines.	0.906				

Note: CA: Cronbach's alpha; Rho_A: reliability coefficient; CR: composite reliability; AVE: average variance extracted.

The composite reliability values showed values >0.7 for all latent variables. Sekaran and Bougie show that all latent variables in this model meet the reliability test criteria (Sekaran & Bougie, 2016). At the same time, the average variance extracted (AVE) is used to assess the convergent validity of each latent variable in the model (Hair et al., 2014). The variables of attitude, halal awareness, halal certificate, intention, perceived behavior control, vaccine quality and subjective norm have AVE values >0.5. The convergent validity measure has met the convergent validity criteria.

3.2. Discriminant Validity

The discriminant validity test explains that indicators with the same variable should be higher than those with correlations with different variables. Discriminant validity is measured from the value of the cross-loadings of each indicator. Following the Fornell-Larcker criteria, each construct's AVE square root value must be greater than the correlation between constructs. Discriminant validity is considered valid if the value of each indicator's loading is greater than the value of the loading of other variables (Hair et al., 2011). Table 3 shows the cross-loading value >0.7 in one variable and the cross-loading indicator value measuring the latent variable is higher than the other latent variables.

Table 3. Discrimination Validity

	AT	HA	HC	IN	PBC	QV	SN
Attitude	0.796						
Halal Awareness	0.404	0.907					
Halal Certificate	0.582	0.522	0.825				
Intention	0.708	0.326	0.458	0.858			
Perceived Behavior Control	0.731	0.386	0.576	0.596	0.793		
Quality Vaccine	0.390	0.694	0.543	0.403	0.379	0.802	
Subjective Norm	0.695	0.403	0.510	0.619	0.638	0.393	0.907

3.3. Model Structure

The coefficient of determination (R^2) has a value between 0 and 1. The value of the coefficient of determination is classified R^2 into three categories: 0.67 is substantial, 0.33 is moderate and 0.19 is weak, despite the minimum acceptable R^2 levels (Hair et al., 2011). From the R^2 attitude value, the R^2 value is 0.35, meaning the halal awareness and certificate variables can explain 35% of Muslim attitudes towards halal vaccine variance. Meanwhile, halal awareness, halal certificate, attitude, subjective norms, perceived behavior control and vaccine quality in the model have an R^2 value of 0.56. These variables explain 56% of the variance in intention to use halal vaccines.

3.4. Result Hypothesis

The level of significance between latent variables can be seen from the value of t-count (t-statistics) > t-table with a significance level of 5% (0.05). The results of the direct influence of exogenous variables on endogenous variables with a t-count value (t-statistics) > t-table and a significant level of 5% (0.05), then Ho is rejected if the P-value <0.05. The study results are statistically significant and can explain that halal awareness (0.138) and halal certificate (0.511) positively affect the attitude of Muslims toward using halal vaccines. Likewise, halal awareness (0.100), attitude (0.476), subjective norm (0.207), perceived behavior control (0.103) and vaccine quality (0.183) have positive effects on Muslim intentions to use halal vaccines. On the other hand, halal certificate (-0.032) does not affect intentions to use halal vaccines. These results show that halal certification (0.511) affects attitudes more than halal awareness (0.138). Meanwhile, attitude (0.476) has a more substantial influence than the subjective norm (0.207) and vaccine quality (0.183) on the intention of Muslims to use halal vaccines (Table 4).

Table 4. Hypothesis Testing

H0	Variables	Beta	T Stat	P Values	Conclusion
H1	Halal awareness -> Attitude	0.138	3.532	0.000	Supported
H2	Halal awareness -> Intention	0.100	2.400	0.017	Supported
H3	Halal certificate -> Attitude	0.511	11.948	0.000	Supported
H4	Halal certificate -> Intention	-0.032	0.733	0.464	Unsupported
H6	Attitude -> Intention	0.476	8.558	0.000	Supported
H7	Subjective norm -> Intention	0.207	4.224	0.000	Supported
H8	Perceived behavior control -> Intention	0.103	1.890	0.059	Supported
H9	Quality vaccine -> Intention	0.183	4.556	0.000	Supported

Awareness of the halal vaccine affects Muslims' attitude toward using the COVID-19 vaccine. The effect of halal awareness on this attitude follows research by Shaari and Arifin (2010). Likewise, Famiza et al. (2017) and Septiani and Ridlwan (2020) found a positive relationship between awareness and intention to consume halal products. The consciousness of halalness is influenced by religious background and cultural, educational and social interactions (Elias et al., 2016b). Meanwhile, knowledge about religion, culture, education and social interactions is influenced by social media. Media that provides continuous information about halal products affects individual awareness.

On the other hand, awareness of the halalness of vaccines harms Muslims' intention to use the COVID-19 vaccine. These results support the research by Elias et al. (2016a), Famiza et al. (2017), Krishnan et al. (2017) and Septiani and Ridlwan (2020), who found that awareness has a positive effect on the intention to consume halal products. The positive relationship between awareness of the halal vaccine and intention to use the COVID-19 vaccine is due to the Indonesian Ulema Council Fatwa No. 14 of 2021 concerning the law that permits a vaccine produced by AstraZeneca that contains pork trypsin parts. They understand it is allowed when there is no other choice but to use AstraZeneca vaccine containing haram ingredients.

Halal certification positively affects the intention to use the COVID-19 vaccine. The choice of Muslims to use halal-certified products is part of their obedience to religious orders. Islam recommends consuming halal food and medicine for the benefit of humans. The certification process assesses the vaccine ingredients and considers the production process (Ahmed et al., 2019; Jalil et al., 2018). Halal certification represents product quality in religious recommendations (Aziz & Chok, 2013; Malik et al., 2019; Rajagopal et al., 2011). Therefore, halal certification is essential for Muslims when consuming products (Hussain et al., 2016). Research by Ahmed et al. (2018) reveals the halal certificate positively affects consuming and using halal food. Halal certification is part of the Muslim lifestyle in daily consumption activities. Therefore, halal certification affects Muslims' intention to buy or use the COVID-19 vaccine.

However, halal certification does not affect the intention to use the halal vaccine. This research is in line with findings by Widyanto and Sitohang (2021), who found that halal certification is not related to Muslims' intention to use the halal vaccine. However, these results differ from Golnaz et al. (2010), Wirakurnia et al. (2021) and Mohayidin and Kamarulzaman (2014), which reveal that halal certification strongly influences Muslim consumers' preferences and purchasing behaviors. These results indicate the halal certification or halal fatwa on the Sinovac vaccine and the change in fatwa on the AstraZeneca vaccine do not affect intentions to use them. It is hoped, with the halal and permissible fatwa on the Sinovac and AstraZeneca vaccines, young Muslims can use either vaccine. However, the Indonesian Ulema Council fatwa does not seem to affect the intention of young Muslims to use the COVID-19 vaccine. This shows the halal certificate has not fully become a reason for Muslims to intend to use the halal vaccine.

The philosophy of young Muslims is influenced by information received through various sources about Islamic provisions for halal vaccines. The attitude of this generation toward the COVID-19 vaccine affects their intention to use it. These results follow the findings of Alam and Sayuti (2011), Mukhtar and Butt (2012), and Sudarsono and Nugrohowati (2020), who state that attitude affects the intention to consume halal products. Information about halal vaccines in the media has increased the controversy over the Sinovac and AstraZeneca vaccines from January to March 2021. Young Muslims use various sources of information from their closest family to social media to get information about halal or permissible COVID-19 vaccines.

Subjective norms significantly affect the intention to use halal vaccines. These results support the findings of Alam and Sayuti (2011), Amalia et al. (2020), Farhat et al. (2019), Garg and Joshi (2018), Saifudin and Puspita (2020) and Sudarsono et al. (2021). The influence of family, relatives and close friends affects young Muslims intending to use the COVID-19 vaccine. For example, young Muslims do not independently decide whether to use the vaccine. Moreover, the COVID-19 vaccine did not exist before or was only used in 2021. This situation has made young people pay close attention to close friends and family in making decisions about vaccination. These results reinforce previous findings that subjective norms affect the intention to buy or use halal products (Amalia et al., 2020; Farhat et al., 2019; Garg & Joshi, 2018; Saifudin & Puspita, 2020; Widyanto & Sitohang, 2021). These findings show that people close to the COVID-19 vaccine influence the intention of the younger generation to use it.

Perceived behavioral control influences the intention to use the COVID-19 vaccine. This result is the same as Golnas et al. (2010), who found that PBC contributes to the behavioral intention to purchase halal food products. Likewise, these results match those of Alam and Sayuti (2011) and Khibran (2019), who note that perceived behavioral control is an important factor before buying halal food. These findings confirm that choosing the COVID-19 vaccine is based on personal choice. The decision to implement vaccines for the Indonesian people is regulated by amendments to the Presidential Regulation of the Republic of Indonesia No. 14 of 2021. Then, the technical implementation of the vaccine is detailed in the Regulation of the Minister of Health of the Republic of Indonesia No. 10 of 2021. This government policy directly states the public is obliged to vaccinate. Therefore, this policy supports PBC in influencing the intention to use the COVID-19 vaccine.

Meanwhile, the views of young Muslims on the quality of the COVID-19 vaccine significantly affect the intention to use the halal vaccine. Vaccine quality is part of the requirements for obtaining halal certification from the LPPOM Indonesian Ulema Council. Information about the quality of vaccines obtained by young Muslims through the media shows that vaccine ingredients, manufacturing processes, distribution and legalization meet the standards. Therefore, this result is also relevant to positive developments in the views of young Muslims about halal certification, which affects their attitude toward using the COVID-19 vaccine.

Finally, the halalness of food, drink or elements that enter the body becomes important for Muslims. Islamic teachings clearly emphasize goods or drinks that are halal or haram for consumption. Therefore, the government needs to consider the halal element of the COVID-19 vaccine before young Muslims use it. Besides that, the government needs to ensure halal vaccines.

4. Conclusion

Halal awareness, attitudes, subjective norms, perceptions of behavioral control and vaccine quality influence the attitudes and intentions of young Muslims to use the halal vaccine. However, halal certification does not affect their intention to use the halal vaccine. This shows that Islamic values are important for young Muslims' consideration of using the halal vaccine. Therefore, the government needs to include halal aspects in determining policies related to implementing mass vaccinations. In addition, the Indonesian Ulema Council needs to assist the government in determining policies related to the vaccine used to minimize the COVID-19 outbreak.

Due to several limitations, research has not fully answered the behavior of Muslims towards the intention of using the COVID-19 vaccine. The first limitation is that data was obtained randomly from all provinces in Indonesia. So, the number of respondents from each region is not necessarily proportional to the young people in the area. Therefore, it is recommended to use a proportionate number of respondents in relation to the young people in each province. The second limitation is that the questionnaire could not separate the vaccination problem in Indonesia from the many people exposed to COVID-19. Government policies and their implementation influence the number of people exposed to COVID-19.

References

Ahmed, A., Lee, K. S., Bukhsh, A., Al-worafi, Y. M., Sarker, M. R., Ming, L. C., & Khan, T. M. (2018). Outbreak of vaccine-preventable diseases in Muslim majority countries. *Journal of Infection and Public Health Journal*, *11*, 153–155. https://doi.org/10.1016/j.jiph.2017.09.007

Ahmed, W., Najmi, A., Faizan, H. M., & Ahmed, S. (2019). Consumer behaviour towards willingness to pay for Halal products: An assessment of demand for Halal certification in a Muslim country. *British Food Journal*, *121*(2), 492–504. https://doi.org/10.1108/BFJ-02-2018-0085

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*. *5*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alam, S. S., & Sayuti, N. M. (2011). Applying the theory of planned behavior (TPB) in halal food purchasing. *International Journal of Commerce and Management*, *21*(1), 8–20. https://doi.org/10.1108/10569211111111676

Amalia, F. A., Sosianika, A., & Suhartanto, D. (2020). Indonesian millennials' halal food purchasing: merely a habit? *British Food Journal*, *122*(4), 1185–1198. https://doi.org/10.1108/BFJ-10-2019-0748

Aziz, Ay. A., & Chok, N. V. (2013). The Role of halal awareness, halal certification, and marketing components in determining halal purchase intention among non-Muslims in Malaysia: A structural equation modeling approach. *Journal of International Food and Agribusiness Marketing*, *25*(1), 1–23. https://doi.org/10.1080/08974438.2013.723997

Bukhari, S. N. Z., Isa, S. M., & Yen Nee, G. (2020). Halal vaccination purchase intention: a comparative study between Muslim consumers in Malaysia and Pakistan. *Journal of Islamic Marketing*, *12*(4), 670-689. https://doi.org/10.1108/JIMA-10-2019-0209

Chen, M. F., & Tung, P. J. (2014). Developing an extended theory of planned behavior model to predict consumers' intention to visit Green Hotels. *International Journal of Hospitality Management*, *36*, 221–230. https://doi.org/10.1016/j.ijhm.2013.09.006

Elias, E. M., Othman, S. N., Yaacob, N. A., & Saifudin, A. M. (2016a). A study of halal awareness and knowledge among entrepreneur undergraduates. *International Journal of Supply Chain Management*, *5*(3), 147–152. https://ojs.excelingtech.co.uk/index.php/IJSCM/article/view/1239

Elias, E. M., Saifudin, A. M., & Othman, S. N. (2016b). Halal awareness and knowledge among muslim's student entrepreneurship program: a. *2nd Interneational Conference on Business Global & Social Entrepreneurship*, (12-14 March), 1–8. https://repo.uum.edu.my/id/eprint/17766/

Eriksson, K. & Vartanova, I. (2021). Vaccine confidence is higher in more religious countries, *Human Vaccines & Immunotherapeutics*, 1–3. https://doi.org/10.1080/21645515.2021.1883389.

Famiza, N. A., Nor Samsinar, K., Kursimah, H., & Radin Firdaus, R. B. (2017). Buying halal pharmaceutical products: Do consumers have imperfect knowledge? *Pertanika Journal of Social Sciences and Humanities*, *25*, 153–163. https://myjurnal.mohe.gov.my/public/article-view.php?id=114067

Farhat, K., Aslam, W., & Sany Sanuri, B. M. M. (2019). Predicting the intention of generation M to choose family takaful and the role of halal certification. *Journal of Islamic Marketing*, *10*(3), 724–742. https://doi.org/10.1108/JIMA-12-2017-0143

Garg, P., & Joshi, R. (2018). Purchase intention of "halal" brands in India: The mediating effect of attitude. *Journal of Islamic Marketing*, *9*(3), 683–694. https://doi.org/10.1108/JIMA-11-2017-0125

Golnas, R., M, Z., S, M. N., & F.C., E. C. (2010). Non-Muslims' awareness of halal principles and related food products in Malaysia. *International Food Research Journal*, *17*, 667–674. http://psasir.upm.edu.my/id/eprint/11717/1/Non-Muslims_awareness_of_Halal_principles.pdf

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM) an emerging tool in business research. *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152. https://doi.org/10.2753/ MTP1069-6679190202

Hassan, Y., & Sengupta, A. (2019). India – An untapped market for halal products. *Journal of Islamic Marketing*, *10*(3), 981–1002. https://doi.org/10.1108/JIMA-09-2018-0179

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science ·*, *43*, 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hussain, I., Rahman, S., Zaheer, A., & Saleem, S. (2016). Integrating factors influencing consumers' halal products purchase: Application of theory of reasoned action. *Journal of International Food & Agribusiness Marketing*, *28*(1), 35–58. https://doi.org/10.1080/08974438.2015.1006973

Iranmanesh, M., Mirzaei, M., Parvin Hosseini, S. M., & Zailani, S. (2020). Muslims' willingness to pay for certified halal food: an extension of the theory of planned behaviour. *Journal of Islamic Marketing*, *11*(1), 14–30. https://doi.org/10.1108/JIMA-03-2018-0049

Isa, M. P. M., & Ismail, R. M. (2015). Understanding the level of halal awareness among muslim and non-muslim young consumers in Malaysia. *Proceedings of Symposium on Technology Management and Logistics (STMLGoGreen)*, (December), 41–50. https://repo.uum.edu.my/id/eprint/19230/

Jalil, N. S. A., Tawde, A. V., Zito, S., Sinclair, M., Fryer, C., Idrus, Z., & Idrus, Z. (2018). Attitudes of the public towards halal food and associated animal welfare issues in two countries with predominantly Muslim and non-Muslim populations. *PLOS ONE*, *13*(10), 1–18. https://doi.org/10.1371/journal.pone.0204094

Khibran, M. (2019). An investigation toward purchase intention of halal beef from traditional market: A TPB perspective. *Asian Journal of Islamic Management (AJIM)*, *1*(1), 1–12. https://doi.org/10.1108/AJIM.vol1.iss1.art1

Kline, R. B. (2016). *Principles and practices of structural equation modelling* (4th ed.). Guilford Press.

Krishnan, S., Omar, C. M. C., Zahran, I., Syazwan, N., & Alyaa, S. (2017). The awareness of gen Z's toward halal food industry. *management*, *7*(1), 44–47. https://doi.org/10.5923/j.mm.20170701.06

Mahdi, S., Ghannam, O., Watson, S., & Padela, A. I. (2016). Predictors of physician recommendation for ethically controversial medical procedures: Findings from an exploratory national survey of American. *Journal of Religion and Health*, *55*(2), 403–421. https://doi.org/10.1007/s10943-015-0154-y

Malik, R. F., Hermawan, A., & Asnawi, Y. H. (2019). The effect of halal awareness, halal certification and halal marketing toward halal purchase intention of fast food among Muslim millenials generation. *Russian Journal of Agricultural and Socio-Economic Sciences*, *90*(6), 76–83. https://doi.org/10.18551/rjoas.2019-06.11

Mohayidin, M. G., & Kamarulzaman, N. H. (2014). Preferences toward attributes of manufactured halal food products consumers' preferences toward attributes of manufactured halal food products. J*ournal of International Food & Consumers*', 37–41. https://doi.org/10.1080/08974438.2012.755720

Mukhtar, A., & Butt, M. M. (2012). Religiosity intention to choose halal products: The role of religiosity. *Journal of Islamic Marketing*, *3*(2), 108–120. https://doi.org/10.1108/17590831211232519

Pahdepie, F. (2018). *Siapakah Muslim Milenial Indonesia itu?* Geotimes. https://geotimes.id/kolom/agama/siapakah-muslim-milenial-indonesia-itu-i/

Rahman, A. A., Asrarhaghigh, E., & Rahman, S. A. (2015). Consumers and halal cosmetic products: knowledge, religiosity, attitude and intention. *Journal of Islamic Marketing*, *6*(1), 148–163. https://doi.org/10.1108/JIMA-09-2013-0068

Rajagopal, S., Ramanan, S., Visvanathan, R., & Satapathy, S. (2011). Halal certification: Implication for marketers in UAE. *Journal of Islamic Marketing*, *2*(2), 138–153. https://doi.org/10.1108/17590831111139857

Saifudin, & Puspita, R. E. (2020). Predicting the intention of millennial moslems to visit halal tourism. *EQUILIBRIUM: Jurnal Ekonomi Syariah*, *8*(1), 129–142. https://doi.org/http://dx.doi.org/10.21043/equilibrium.v8i1.7322

Sekaran, U. (2003). *Research methods for business; Skills building approach, 4th edition*. John Wiley and sons.

Septiani, D., & Ridlwan, A. A. (2020). The effects of halal certification and halal awareness on purchase intention of halal food products in Indonesia. *Indonesian Journal of Halal Research*, *2*(2), 55–60. https://doi.org/10.15575/ijhar.v2i2.6657

Shaari, A. N., & Arifin, N. S. bt M. (2010). Dimension of halal purchase intention: A preliminary study. *International Review of Business Research Papers*, *6*(4), 444–456. https://eprints.um.edu.my/11147/1/Pages_from_Dimension_of_Halal_Purchase.pdf

Sudarsono, H., & Nugrohowati, R. N. I. (2020). Determinants of the Intention to Consume Halal Food, Cosmetics and Pharmaceutical Products. *The Journal of Asian Finance, Economics and Business*, *7*(10), 831–841. https://doi.org/10.13106/JAFEB.2020.VOL7.NO10.831

Sudarsono, H., Ash Shidiqie, J. S., & Tumewang, Y. K. (2021). The impact of religiosity and knowledge on the intention of young Muslim generation toward halal tourism in Indonesia. *Tourism and Hospitality Management, 27*(2), 255–272. https://doi.org/10.20867/thm.27.2.2

Verma, V. K., & Chandra, B. (2018). An application of theory of planned behavior to predict young Indian consumers' Green hotel visit intention. *Journal of Cleaner Production*, *172*(November), 1152–1162. https://doi.org/10.1016/j.jclepro.2017.10.047

Widyanto, H.A. and Sitohang, I.A.T. (2022), Muslim millennial's purchase intention of halal-certified cosmetics and pharmaceutical products: the mediating effect of attitude. *Journal of Islamic Marketing*, *13*(6), 1373–1394. https://doi.org/10.1108/JIMA-04-2020-0117

Wirakurnia, A. B., Nuanmark, P., Sudarsono, H., & Ramadhana, A. (2021). Do religiosity, halal knowledge, and halal certification affect Muslim students' intention to purchase halal packaged food? *Asian Journal of Islamic Management*, *3*(2), 97–110. https://doi.org/10.20885/ajim.vol3.iss2.art3.

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