

## Assessing the Willingness of Indonesian and Malaysian University Students to Receive the Covid-19 Vaccine: Implications for Public Health Sustainability

Hendra Lukito<sup>1\*</sup>  | Harif Amali Rivai<sup>2</sup>  | Nor Azilah Husin<sup>3</sup>  |

Norfadzilah Abdul Razak<sup>4</sup> 

<sup>1</sup>Universitas Andalas, Faculty of Economics and Business, Department of Management, Padang, Indonesia

<sup>2</sup>Universitas Andalas, Faculty of Economics and Business, Department of Management, Padang, Indonesia

<sup>3</sup>Universiti Selangor, Faculty of Business and Accountancy, Department of Management, Selangor, Malaysia

<sup>4</sup>Universiti Teknologi MARA, Faculty Business and Management, Department of Management, Selangor, Malaysia

\*Correspondence to: Hendra Lukito, Universitas Andalas, Faculty of Economics and Business, Department of Management, Padang, Indonesia.

E-mail: [hendralukito@eb.unand.ac.id](mailto:hendralukito@eb.unand.ac.id)

**Abstract:** This study investigates the factors influencing university students' willingness to receive Covid-19 vaccinations in Indonesia and Malaysia, with a focus on sustainability. Vaccination is essential for pandemic management and contributes to social and economic sustainability by reducing healthcare burdens and enhancing public health as human capital. However, vaccine hesitancy among young adults remains a concern. This study analyzes four key determinants—trust, attitudes, religiosity, and social media influence—using survey data and Structural Equation Modeling (SEM) with Partial Least Squares (PLS). The findings reveal differences between the two countries: religiosity and social media were not significant for Indonesian students, while social media and trust were insignificant for Malaysian students. These results emphasize the need for culturally tailored vaccination strategies. The study also underscores the role of educational institutions in promoting sustainability through effective vaccination communication. Mass vaccination supports public health, mitigates pandemic-related economic impacts, and fosters a healthier student population, contributing to long-term social and economic resilience. Educational institutions are encouraged to integrate vaccination efforts into their accountability and sustainability reporting frameworks, demonstrating their commitment to social responsibility and sustainable development. This research offers valuable insights for designing targeted, context-specific interventions to enhance vaccination uptake among university students in Southeast Asia.

**Keywords:** attitudes, covid-19 vaccine, religiosity, social media willingness, trust.

**Article info:** Received 2 June 2024 | revised 5 November 2024 | accepted 30 November 2024

**Recommended citation:** Lukito, H., Rivai, H. A., Husin, N. A., & Razak, N. A. (2024). Assessing the Willingness of Indonesian and Malaysian University Students to Receive the Covid-19 Vaccine: Implications for Public Health Sustainability. *Indonesian Journal of Sustainability Accounting and Management*, 8(2), 587–599. <https://doi.org/10.28992/ijSAM.v8i2.1009>

## INTRODUCTION

The Covid-19 pandemic that has hit the world has entered its 13th month, or it has been more than a year since this virus has infected the world (Marinković et al., 2023). Indonesia and Malaysia are no exception, where the latest mutation of this virus has occurred until now. All countries in the world are still trying hard to



overcome the Covid-19 pandemic with various preventive and corrective efforts, which are, of course, essential to overcome the spread of Covid-19 (Halperin et al., 2021). Preventive actions are carried out in related efforts to prevent the spread of Covid-19 itself, while corrective actions are to make efforts to overcome or treat people who have been infected or confirmed positive for Covid-19 (Tasnim et al., 2020). Preventive actions include giving vaccinations to the community to create immunity in the face of Covid-19, which is currently being actively carried out throughout the world (Balaban et al., 2023). As countries affected by this virus, Indonesia and Malaysia are also intensively carrying out a movement to provide Covid-19 vaccinations to all levels of society so that the number of virus spreads can be suppressed and the community has immunity in the face of attacks from Covid-19 (Nuzhath et al., 2020). Various efforts have been made to provide information and awareness to the public. The public to vaccinate them through advertising, socialization, and using artists or community leaders to provide information about the importance of vaccination. Amid the spread of Covid-19, literature shows that governments, organizations, and citizens' rational and long-term functioning will adjust drastically (Abdullah et al., 2020). Until now, the most corrective action taken by the government in each country has been to provide treatment facilities and provide full service for people who are positive for Covid-19. The average increase that occurs in confirmed positive people causes the government to provide more and more treatment facilities and wider services to the community in the treatment process, from pick-up to self-isolation at the hospital. The corrective action taken in addition to that is to provide funds for compensation for health workers and the community involved in these health services. Countries in the world are currently focusing more on preventive measures that are expected to suppress the spread of Covid-19 through mass vaccination of the public (Cvjetkovic et al., 2017). Gan et al. (2021) state the Covid-19 vaccine itself is still in the development stage, although there are also countries that make and claim to have created a vaccine that can increase the human immune system to avoid Covid-19. Various brands of vaccines that are currently being used by countries worldwide include Sinovac, AstraZeneca, Pfizer, and others who are still in existence until now controversial in the community. Until the end of October 2020, 44 Covid-19 vaccine candidates were being tested clinically, and 9 of these vaccine candidates had entered the third stage of clinical vaccine trials (Wang et al., 2021). Vaccinations carried out by governments in all countries globally, including in Indonesia, cover the entire community, including all groups, ages, and geographical locations wherever the community is located. In a similar situation in Malaysia, students as part of the community are also given vaccinations to create body immunity for all students.

The government's plan to conduct offline lectures soon certainly requires the readiness of the academic community to face lectures by paying attention to health aspects, especially those related to anticipation of Covid-19 (Karakula et al., 2022; Nossier, 2021). Indonesia and Malaysia face the same conditions where not all levels of society, including students, have the same understanding and willingness to vaccinate. Many factors influence the community, including students, to be willing to vaccinate so that face-to-face or offline lecture plans can be carried out by avoiding the spread of Covid-19. In general, this is reinforced by the growing controversy in the community about various matters relating to the importance of vaccination itself (Kawuki et al., 2023). Starting from the controversy over the accuracy of the vaccine used, the effect of vaccination, the halal of the vaccine, and so on, which affect the desire in terms of people's behavior to want to vaccinate themselves. Preliminary surveys conducted specifically for students of public and private universities in Indonesia and Malaysia showed that most of the students were willing to be vaccinated for various reasons, which of course, are separate considerations that have an impact on the desire to vaccinate.

The survey also provides a lot of initial information in terms of the characteristics of students who are willing to vaccinate, such as gender, country, type of college, and faculty of students who take vaccinations (Josiah et al., 2023). Take the survey, how long have you been in college, and whether or not you have the desire to vaccinate (Karashiali et al., 2023). Complete information about the demographics or characteristics of the respondents in this preliminary survey is described in the following table. The data illustrates that students at the economics and business faculties in Indonesia and Malaysia are mostly willing to vaccinate. However, various reasons need to be explored to determine the student's willingness to vaccinate in terms of behavior. Data obtained from the Indonesian government through the Ministry of Health (Utami et al. 2022) shows that 10,706,184 people have received the first dose of the Covid-19 vaccine. Of the total, 1,464,150 are health workers, 7,063,372 are public service officers and 2,177,923 are older adults over 60 years. While the recipients of the second dose of the Covid-19 vaccine were 5,819,946 people. Details of the recipients of the second dose of the Covid-19 vaccine are 1,322,930 health workers, 3,599,727 public service officers, and 897,289 elderly. Covid-19 vaccination in Indonesia is divided into four stages. In the first stage for health workers, the target is to reach 1,468,764 people.

The second stage is for public service officers and the elderly, with 17,327,167 and 21,553,118 people, respectively. While the third stage is for vulnerable communities in areas with a high risk of transmission, the target is to reach 63.9 million people. The last stage is for the general public with a cluster approach; the total target is 77.7 million people. The public's willingness to vaccinate is critical in implementing the vaccination program and taking preventive measures against the spread of Covid-19 in China (Gan et al., 2021). Furthermore, exploring the factors that influence willingness to vaccinate and why refusing to vaccinate will be important to confirm the ethical and scientific decision to carry out the next vaccination. Research conducted by Gan et al. (2021) shows that a large proportion of people of all levels of education and age in China are willing to vaccinate. This study also shows that people who have high education have a high awareness of vaccination. Another study conducted by Wang et al. (2021) who also examined the factors that influence people's willingness to vaccinate, concluded that people already working have a high awareness of vaccinating. Meanwhile, people who work as marketing personnel tend to refuse to vaccinate. This study also shows that age and gender affect people's willingness to vaccinate.

Piltch-Loeb et al. (2021) concluded that public health communication is essential to provide a better understanding of the need for students to get vaccinated against Covid-19. Communication using various media, especially social media that can reach students, will strengthen students' understanding of the importance of vaccination for their health and the surrounding community. The pros and cons of the community regarding the importance of getting vaccinated against Covid-19 require the role of the government, public health workers and advocacy groups to provide a better understanding of the importance of vaccination to ensure public health (Lazarus et al., 2021).

Self-confidence is a unique and valuable part of life. With the confidence possessed, it is expected that students will believe in their abilities when completing assignments or exams at school so that cheating can be avoided (Ghozali & Latan, 2015). Trust is a person's behavior to rely on the reliability and integrity of others in fulfilling their expectations in the future (Moorman & Deshpande, 1992). In realizing a commitment, trust becomes an important thing. Trust is the result of collaborative development between two parties. Various factors influence a person's level of trust according to his development. One must be able to recognize the factors that affect the level of trust. This ability is needed to create, regulate, maintain, support, and enhance the level of relationships with other parties.

Attitudes influence behavior through a careful and reasoned decision-making process and have the following impacts: 1) Behavior is not primarily determined by general attitudes but by specific attitudes towards something. 2) Behavior is influenced by attitudes and subjective norms, namely our beliefs about what other people want us to do. 3) Attitudes toward behavior and subjective norms form an intention behave in a certain way (Suharyat, 2009).

Handling the grip of religion is the grip of the principle of life regarding the creator of nature and humans. The hold of religion is the level of one's conception of religion and one's commitment to his religion (Sari et al., 2012). Religion is the feeling and experiences of individual humans who think they are related to God. According to him, God is the first truth that causes people to be compelled to react wisely and earnestly. Religion refers to the formal aspects related to the rules and obligations, while the religious grip refers to the individual's characteristics.

Influence a popular social media platform, Twitter, can be a reliable source for assessing public knowledge, personal experience, and identifying health and information needs (Sinnenberg et al., 2017). Analyzing Twitter data provides an overview of health knowledge and informs targeted health information communication. Its interactive nature can also be used as an effective educational tool for health-related interventions. Social media is often used to spread vaccine-related information; however, it also provides easier access to misinformation and opinions, making families vulnerable to misleading views strongly voiced in the media (Dubé et al., 2014). Misinformation and rumors about the current pandemic have also spread rapidly on social media platforms, including Twitter, and negatively affected health behavior related to Covid-19 (Tasnim et al., 2020). In addition, there are many anti-vaccine advocates on social media, particularly on Twitter, where anti-vaccine beliefs comprise a large number of vaccination-related tweets (Tomeny et al., 2017). Several studies suggest that exposure to negative sentiments, misinformation, and rumors about vaccinations on Twitter has increased vaccine doubt and rejection and decreased vaccination uptake (Dyda et al., 2019).

Research conducted in several countries shows that the desire to get vaccinated differs between countries, differences in education level and age of respondents who are the objects of research. In several countries, it was found that the population has a high desire to get vaccinated against Covid-19 because they understand the importance of vaccination to maintain public health. Residents in other countries have low awareness of getting this vaccination which may be due to the lack of information received from health organizations and the government. The results of the study also showed that the male population has a greater desire to get vaccinated than the female population. The results of this study can help the government, policy makers, health professionals and international organizations to implement the Covid-19 vaccination program more effectively in order to maintain and improve public health.

## METHODS

This study uses a quantitative approach, namely research that performs data analysis processes with statistics starting from data collection, data input, data processing, interpretation of the results of data processing, and understanding of the results of data processing carried out. The purpose of this study is to test the hypothesis, which will explain the nature of certain relationships or determine the differences between groups or the independence of two or more factors in a situation (Sekaran & Bougie, 2016).

The research follows a deductive approach to test hypotheses regarding the relationships between trust, attitudes, religiosity, social media, and vaccination willingness, or determine the differences between groups or the independence of two or more factors in a situation. The data processing process carried out is expected to



produce conclusions that can be used by policy makers at universities to increase student awareness of getting vaccinated against Covid-19. The policies taken can increase awareness and the number of students who get vaccinated in the environment in order to create a healthy environment and society free from Covid-19.

Population refers to the whole group of people, events, or things of interest that the researcher wants to investigate (Sekaran & Bougie, 2016). The population in this study were: all students of the Faculty of Economics, Andalas University, Faculty of Economics and Business, Dharma Andalas University (Padang, West Sumatra, Indonesia), and the Faculty of Business and Accountancy Universiti Selangor, Faculty of Business and Management Universiti Teknologi MARA (Shah Alam, Selangor, Malaysia) who are active both studying in PTN and PTS. The population in this study consisted of each PTN and PTS in Indonesia and Malaysia, where data on the number of students at all these universities was 11,637 people. The sample is part of the number and characteristics possessed by the population (Sekaran & Bougie, 2016). The sample is part or representative of the population under study. To determine the number of samples in this study, a probability table or random sampling technique was used where all members of the population had an equal opportunity to be taken as a sample by using the sample size table from Krejcie and Morgan (Sekaran & Bougie, 2016), the total sample size of 400 people was obtained.

This study employed Structural Equation Modeling (SEM) with Partial Least Square (PLS) 3.0 software. PLS is a variant-based structural equation analysis that can simultaneously evaluate the measurement model and evaluate the structural model (Hair et al., 2010). The measurement model is used to test the validity and reliability of research instruments, while the structural model is used to test causality (testing hypotheses with predictive models). Ghazali & Latan (2015) Explains that PLS is an analytical method that is soft modeling because it is not based on the assumption that the data must be on a measurement scale, distribution of data (distribution-free), and a certain number of samples.

## RESULTS AND DISCUSSION

The software for data processing used in this study is SmartPLS 3.0, which explained the processing carried out to obtain results which are then analyzed to answer the formulation of the problem and hypothesis testing in this study. The reliability test was carried out to see which indicators are good for measuring each variable. In other words, to see the reliability of each indicator. A high factor loading value indicates that the indicator does explain the variables it measures. When performing this test, indicators with a factor loading value of  $< 0.70$  will be omitted from the model. The results of data processing using SmartPLS 3.0, as shown in Table 1, produce outer loading for each variable of each variable studied. The results of the outer loading value show that several variables measuring the variable have a loading value below 0.7. The invalid indicator will be dropped in this study because the value of outer loading  $< 0.7$ .

Based on data analysis, all outer loading values above 0.7 were further tested to perform internal consistency. An internal consistency is subject to determine the extent to which the measurement tool has consistent measurement accuracy and precision from time to time, a reliability test is carried out. The instrument's reliability in this study was measured by two criteria, namely the value of composite reliability and Cronbach's alpha for each indicator block in the reflective construct. A construct is reliable if the composite reliability and Cronbach's alpha values are above 0.7 (Ghozali & Latan, 2015). Composite reliability and Cronbach's alpha of each variable studied are the final results after testing the outer loading. The composite reliability test and Cronbach's alpha showed that all variables have composite reliability and Cronbach's alpha values above 0.7 as indicated in Table 2.

Table 1 Outer Loading

	Trust (X1)	Attitudes (X2)	Religiosity (X3)	Social Media (X4)	Willingness to Vaccinate (Y)
T1	0.883				
T2	0.815				
T3	0.910				
T4	0.919				
T5	0.826				
T6	0.818				
T7	0.935				
T8	0.942				
ATT1		0.922			
ATT2		0.900			
ATT3		0.929			
ATT4		0.898			
ATT5		0.783			
ATT6		0.786			
ATT7		0.810			
ATT8		0.931			
RE1			0.889		
RE2			0.928		
RE3			0.716		
RE4			0.917		
RE5			0.901		
SM1				0.831	
SM2				0.796	
SM3				0.880	
SM4				0.892	
SM5				0.792	
SM6				0.837	
WC1					0.943
WC2					0.977
WC3					0.951
WC4					0.903
WC5					0.962

Source: Primary data processing, 2021

**Table 2 Construct Reliability**

Variables	Indonesia		Malaysia	
	Composite Reliability (CR)	Average Variance Extracted (AVE)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Attitude	0.952	0.715	0.963	0.765
Religiosity	0.943	0.768	0.935	0.745
Social media	0.917	0.649	0.943	0.733
Trust	0.973	0.817	0.965	0.776
Willingness to Vaccination	0.970	0.868	0.979	0.904

Source: Primary data processing, 2021

Therefore, the indicators used in this research variable are said to be reliable. A discriminant validity test is conducted to see how big the difference between variables is. The value seen in this test is the average variance extracted (AVE) value obtained as an estimation result where the value must be  $> 0.50$ . The AVE value of all variables has met the requirements where all variables have an AVE value above 0.5. The following condition that must also be met is the square root value of the AVE of each variable, which must be greater than the correlation value with other variables. If the value of the AVE square root of each construct is greater than the correlation value between the construct and other constructs in the model, it is said to have a good discriminant validity value. The comparative values of the AVE root values in this study show that each of these values is greater than the correlation between other variables. So, it can be concluded that all latent variables have good discriminant validity and construct validity as shown in Table 3.

**Table 3 Discriminant Validity**

Variables	1	2	3	4	5
1. Attitude (ATT)	0.846 (0.874)				
2. Religiosity (REL)	0.796 (0.776)	0.876 (0.863)			
3. Social media (SM)	0.769 (0.581)	0.712 (0.610)	0.806 (0.856)		
4. Trust (T)	0.879 (0.874)	0.779 (0.783)	0.709 (0.631)	0.904 (0.881)	
5. Willingness to vaccination	0.845 (0.92)	0.743 (0.791)	0.695 (0.564)	0.807 (0.824)	0.932 (0.951)

Source: Primary data processing, 2021

To test the hypothesis (See Figure 1), the t-values generated through the bootstrapping procedure in SmartPLS 3 were used to determine whether each proposed hypothesis was accepted. At a significance level of 0.05, a hypothesis is supported if the t-value exceeds the critical value of 1.96 and the p-value is below 0.05. For Indonesian students, the statistical analysis shows that the influence of trust (X<sub>1</sub>) on willingness to vaccinate

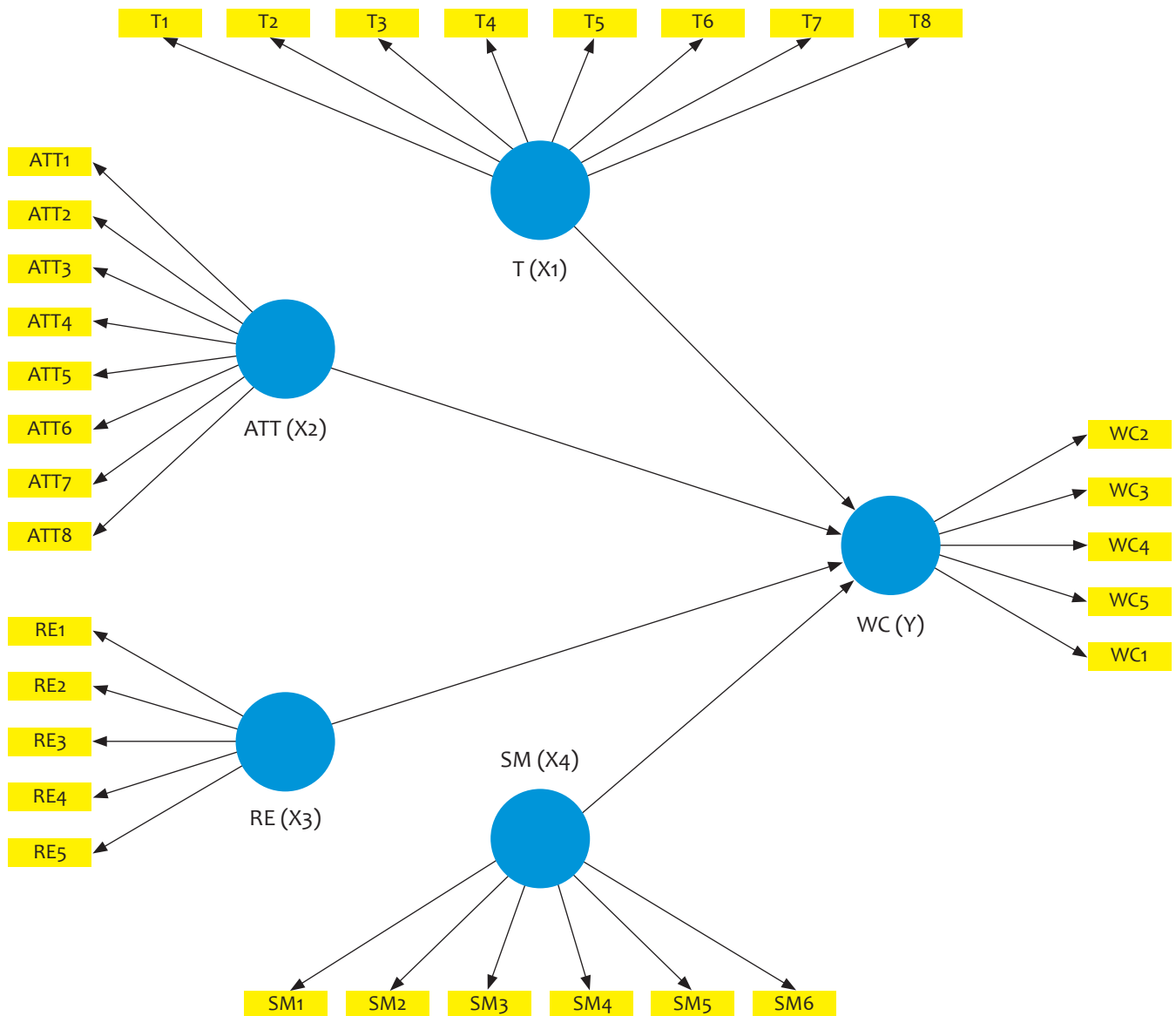
(Y) has a t-value of 1.064 and a p-value of 0.288, which are below the required thresholds (See Table 4). This indicates that trust does not have a significant effect on willingness to vaccinate. In contrast, the attitude (X2) variable shows a t-value of 12.981 and a p-value of 0.000, with a positive original sample value of 0.692, indicating a positive and significant influence on willingness to vaccinate. Similarly, religious beliefs (X3) demonstrate a t-value of 3.662 and a p-value of 0.000, with a positive coefficient of 0.179, indicating that religious beliefs also have a positive and significant effect on willingness to vaccinate. On the other hand, the influence of social media (X4) shows a t-value of 0.180 and a p-value of 0.857, which are far below the critical values, indicating that social media does not significantly affect willingness to vaccinate.

Table 5 shows that the Attitude (ATT) has a positive and significant effect on Students' Willingness to Vaccinate (WTV) ( $\beta$  0.498 and t-value 4.752 for Indonesia, and  $\beta$  0.773 and t-value 10.035 for Malaysia), meaning that the better the student's assessment of vaccination, the more willingness they are to vaccinate. Religious (REL) beliefs positively and significantly affect Students' Willingness to Vaccinate (WTV) ( $\beta$  0.125 and t-value 1.645 for Indonesia), and  $\beta$  0.195 and t-value 3.449, meaning that stronger religious beliefs will increase students' willingness to vaccinate. Social Media (SM) has a positive and significant effect on Students' Willingness to Vaccination (WTV) for Indonesia ( $\beta$  0.061 and t-value 0.711). It is contradicted by Malaysia that showed the negative effect ( $\beta$  -0.001 and t-value 0.027), meaning that the information circulating on Social Media (SM) does not affect Students' Willingness to Vaccination (WTV) in Malaysia. Trust (T) has a positive and significant effect on Students' Willingness to Vaccination (WTV) for Indonesia ( $\beta$  0.229 and t-value 2.726). It is contradicted by Malaysia with  $\beta$  -0.004 and t-value 0.051, meaning that students' belief or disbelief in the benefits of vaccination does not affect students' willingness to vaccinate in Malaysia.

Table 5 presents insightful findings regarding the factors influencing Students' Willingness to Vaccinate (WTV) in two distinct countries: Indonesia and Malaysia. The data indicates that Attitude (ATT) significantly enhances students' willingness to embrace vaccination. In Indonesia, a positive relationship is illustrated with a coefficient ( $\beta$ ) of 0.498 and a robust t-value of 4.752. Similarly, Malaysia also reflects this trend, with an even stronger  $\beta$  of 0.773 and a t-value of 10.035. These statistics highlight that as students' perceptions of vaccination improve, so too does their openness to receiving vaccines. Moreover, Religious beliefs (REL) emerge as another influential factor. In Indonesia, there is a notable positive effect on WTV, demonstrated by a  $\beta$  of 0.125 and a t-value of 1.645. Accordingly, in Malaysia, a similar trend is observed with a  $\beta$  of 0.195 and a t-value of 3.449, suggesting that a deep-rooted belief in one's faith correlates with a heightened willingness among students to vaccinate.

In terms of Social Media (SM), the results showcase a contrasting narrative between the two nations. For Indonesia, the impact is positive, with a  $\beta$  of 0.061 and a t-value of 0.711. This indicates that social media presence and information can bolster students' willingness to vaccinate. Conversely, in Malaysia, the data presents a negative correlation, with a  $\beta$  of -0.001 and a t-value of 0.027. This suggests that the information circulating on social media fails to influence Malaysian students' attitudes toward vaccination, highlighting a potential disconnect between online messaging and the perceptions of this demographic. Lastly, Trust (T) also plays a critical role in shaping WTV. In Indonesia, students exhibit a positive correlation with their willingness to vaccinate, marked by a  $\beta$  of 0.229 and a t-value of 2.726, underscoring the importance of trust in the vaccination process. In contrast, Malaysian students present a starkly different scenario, with a  $\beta$  of -0.004 and a t-value of 0.051, indicating a lack of influence of trust in vaccination benefits on their willingness to get vaccinated. This divergence across the two countries emphasizes the complex interplay of cultural and social factors affecting vaccination attitudes among students.





Source: Primary data processing, 2021

Figure 1 Hypothesis Analysis Model

Table 4 Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviasi (STDEV)	T Statistics (O/STERR)	P Values
X1 → Y	0.067	0.063	0.063	1.064	0.288
X2 → Y	0.692	0.692	0.053	12.981	0.000
X3 → Y	0.179	0.182	0.049	3.662	0.000
X4 → Y	0.007	0.007	0.037	0.180	0.857

Source: Primary data processing, 2021

**Table 5 Hypothesis Testing**

Country	ATT -WTV		REL -WTV		SM-WTV		T-WTV	
	$\beta$	t-value	$\beta$	t-value	$\beta$	t-value	$\beta$	t-value
Indonesia	0.498	4.752	0.125	1.645	0.061	0.711	0.229	2.726
Malaysia	0.773	10.035	0.195	3.449	-0.001	0.027	-0.004	0.051

Source: Primary data processing, 2021

This study found that the religiosity did not influence on willingness to vaccination for Indonesia, and this finding is contradicted with Malaysia's result has found that significant on willingness to vaccination. Next is trust has found that positively influence on willingness to vaccination for Indonesia while trust did not significantly influence on Malaysia studies. These results indicate that the vaccination program carried out for both students in Indonesia and Malaysia is important to pay attention to the determinants of the desire to vaccinate so that this program can run well and achieve the expected results. This is important to realize social and economic sustainability on campus as an educational institution in order to be able to create alumni who can be absorbed by the job market.

This study investigates the determinants influencing university students' willingness to receive Covid-19 vaccinations in Indonesia and Malaysia, revealing significant cultural and social nuances. Notably, religiosity significantly impacts Malaysian students' vaccination decisions but does not hold the same influence among Indonesian students. This disparity suggests that religious beliefs are more deeply intertwined with health behaviors in Malaysia. This finding aligns with previous research indicating that social environmental factors, including religious contexts, play a crucial role in shaping vaccination attitudes (Geng et al., 2022).

Conversely, trust emerges as a significant predictor of vaccination willingness among Indonesian students but not among their Malaysian counterparts. This indicates that Indonesian students' confidence in vaccine-related information and authorities is pivotal in their decision-making process. Such variations underscore the importance of trust in public health communications, as highlighted in studies emphasizing the role of trust in vaccine acceptance (Zilhadia et al., 2022).

Attitudes toward vaccination consistently influence students' willingness in both countries, underscoring the universal importance of fostering positive perceptions about vaccines. This observation is consistent with the Theory of Planned Behavior, which posits that attitudes significantly affect individuals' intentions to perform health-related behaviors (Alshagrawi, 2023).

Interestingly, social media does not significantly impact vaccination willingness in either context. This finding challenges the prevalent assumption that social media is a primary driver of health behaviors among young adults. It suggests that alternative communication channels may be more effective in influencing vaccination decisions within these populations.

These insights highlight the necessity for culturally tailored vaccination strategies. In Malaysia, integrating religious leaders and faith-based messaging could enhance vaccine acceptance, while in Indonesia, building trust through transparent and consistent communication may be more effective. Educational institutions play a crucial role in these efforts by implementing targeted communication strategies that resonate with their students' unique cultural and social contexts.

Theoretically, this study contributes to the understanding of health behavior by elucidating how cultural factors, such as religiosity and trust, differentially influence vaccination willingness. It also challenges the

assumed centrality of social media in shaping health behaviors among university students, suggesting that more traditional or direct forms of communication may hold greater sway in certain cultural settings.

In conclusion, addressing vaccine hesitancy among university students in Indonesia and Malaysia requires nuanced approaches that consider the distinct cultural and social determinants at play. By leveraging these insights, policymakers and educational institutions can develop more effective strategies to promote vaccination uptake, thereby contributing to public health and societal sustainability.

## CONCLUSION

Attitude significantly and positively influences students' willingness to vaccinate, indicating that a more favorable assessment of vaccination correlates with an increased likelihood of vaccination among students. Additionally, religious beliefs exert a positive and significant impact on students' willingness to vaccinate, suggesting that stronger religious convictions contribute to higher levels of willingness to vaccinate. Conversely, social media demonstrates a positive yet not significant effect on vaccination, implying that the information disseminated through these platforms does not meaningfully affect students' willingness to vaccinate. Moreover, trust presents a positive but not significant effect on students' willingness to vaccinate, denoting that students' faith or skepticism regarding the benefits of vaccination does not substantially influence their readiness to vaccinate. It is imperative for universities to implement strategies or methods that encourage students to engage in vaccination. Improving student perceptions regarding the importance of vaccination is essential to mitigating the dissemination of the Covid-19 outbreak. Furthermore, socialization through a religious framework should be promoted to enhance students' willingness to vaccinate. Intensive efforts to disseminate information about the importance of vaccination through alternative media, aside from social media, are necessary. Cultural and social factors within the Southeast Asian context play a crucial role in influencing the willingness to vaccinate, particularly the impact of religiosity on health decision-making. Educational institutions can enhance students' willingness to vaccinate by employing effective e-communication strategies related to vaccination. For higher education institutions, the findings of this study may serve as a framework for establishing key performance indicators pertinent to vaccination policies, which would mandate vaccination for all students. Such a vaccination policy may act as a commitment to the social responsibility of higher education institutions towards the surrounding community.

## ORCID

Hendra Lukito  <https://orcid.org/0000-0003-1260-5739>

Nor Azilah Husin  <https://orcid.org/0000-0002-1513-8550>

Norfadzilah Abdul Razak  <https://orcid.org/0000-0003-2151-1742>

## REFERENCES

- Abdullah, M., Husin, N. A., & Haider, A. (2020). Development of Post-Pandemic Covid-19 Higher Education Resilience Framework in Malaysia. *Archives of Business Research*, 8(5), 201–210. <https://doi.org/10.14738/abr.85.8321>
- Alshagrawi, S. S. (2023). Examining health sciences students' intention to uptake COVID-19 vaccination using the theory of planned behavior. *Human Vaccines & Immunotherapeutics*, 19(2), 2256044. <https://doi.org/10.1080/21645515.2023.2256044>

- Balaban, S., Milenković, I., & Joksimović, M. (2023). The Euro exchange rate's resistance to the exogenous shock caused by COVID-19. *Strategic Management*, 1–9. <https://doi.org/10.5937/straman2300059b>
- Cvjetkovic, S. J., Jeremic, V. L., & Tiosavljevic, D. V. (2017). Knowledge and attitudes toward vaccination: A survey of Serbian students. *Journal of Infection and Public Health*, 10(5), 649–656. <https://doi.org/10.1016/j.jiph.2017.05.008>
- Dubé, E., Vivion, M., & MacDonald, N. E. (2014). Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: Influence, impact and implications. *Expert Review of Vaccines*, 14(1), 99–117. <https://doi.org/10.1586/14760584.2015.964212>
- Dyda, A., Shah, Z., Surian, D., Martin, P., Coiera, E., Dey, A., Leask, J., & Dunn, A. G. (2019). HPV vaccine coverage in Australia and associations with HPV vaccine information exposure among Australian Twitter users. *Human Vaccines and Immunotherapeutics*, 15(7–8), 1488–1495. <https://doi.org/10.1080/21645515.2019.1596712>
- Gan, L., Chen, Y., Hu, P., Wu, D., Zhu, Y., Tan, J., Li, Y., & Zhang, D. (2021). Willingness to receive SARS-CoV-2 vaccination and associated factors among chinese adults: A cross sectional survey. *International Journal of Environmental Research and Public Health*, 18(4), 1–11. <https://doi.org/10.3390/ijerph18041993>
- Geng, H., Cao, K., Zhang, J., Wu, K., Wang, G., & Liu, C. (2022). Attitudes of COVID-19 vaccination among college students: A systematic review and meta-analysis of willingness, associated determinants, and reasons for hesitancy. *Human Vaccines & Immunotherapeutics*, 18(5), 2054260. <https://doi.org/10.1080/21645515.2022.2054260>
- Ghozali, I., & Latan, H. (2015). *Partial Least Squares: Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS 3.0 untuk Penelitian Empiris*. Semarang: Badan Penerbit Universitas Diponegoro.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). New York: Pearson.
- Halperin, D., Schor, A., Mashiach-Eizenberg, M., Satran, C., Ali Saleh, O., Inchi, L., & Bord, S. (2021). Evaluating adherence to future COVID-19 vaccination among elderly population in Israel. *European Journal of Public Health*, 31(Supplement\_3). <https://doi.org/10.1093/eurpub/ckab165.136>
- Josiah, B. O., Uzor, C. C., Duncan, B. A., Enebeli, E. C., & Otoboyor, N. L. (2023). Efficacy, safety, and public attitude toward COVID-19 vaccines: A systematic review. *Annals of African Medicine*, 22(4), 405–414. [https://doi.org/10.4103/aam.aam\\_13\\_23](https://doi.org/10.4103/aam.aam_13_23)
- Karakula, K., Forma, A., Sitarz, E., Rog, J., Baj, J., Juchnowicz, D., & Karakula-Juchnowicz, H. (2022). Viral topic about the COVID-19 vaccination: the attitudes towards it and the relationship with the well-being and religiosity in a group of Polish students. *European Psychiatry*, 65(S1). <https://doi.org/10.1192/j.eurpsy.2022.1262>
- Karashiali, C., Konstantinou, P., Christodoulou, A., Kyprianidou, M., Nicolaou, C., Karekla, M., Middleton, N., & Kassianos, A. P. (2023). A qualitative study exploring the social contagion of attitudes and uptake of COVID-19 vaccinations. *Human Vaccines and Immunotherapeutics*, 19(2). <https://doi.org/10.1080/21645515.2023.2260038>
- Kawuki, J., Chen, S., Fang, Y., Liang, X., Chan, P. S. fong, & Wang, Z. (2023). COVID-19 Vaccine Acceptance, Attitude and Perception among Slum and Underserved Communities: A Systematic Review and Meta-Analysis. *Vaccines*, 11(5), 886. <https://doi.org/10.3390/vaccines11050886>
- Lazarus, J. V., Ratzan, S. C., Palayew, A., Gostin, L. O., Larson, H. J., Rabin, K., Kimball, S., & El-Mohandes, A. (2021). A global survey of potential acceptance of a COVID-19 vaccine. *Nature Medicine*, 27(2), 225–228. <https://doi.org/10.1038/s41591-020-1124-9>

- Marinković, V., Lazarević, J., & Marić, D. (2023). Consumer ethnocentrism under the circumstances of the COVID-19 virus pandemic. *Strategic Management*, 28(3), 46–60. <https://doi.org/10.5937/straman2200031m>
- Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations. *Journal of Marketing Research*, 29(3), 314–328. <http://dx.doi.org/10.2307/3172742>
- Nossier, S. A. (2021). Vaccine hesitancy: the greatest threat to COVID-19 vaccination programs. *Journal of the Egyptian Public Health Association*, 96(1). <https://doi.org/10.1186/s42506-021-00081-2>
- Nuzhath, T., Tasnim, S., Sanjowal, R. K., Trisha, N. F., Rahman, M., Mahmud, F., Arman, A., Chakraborty, S., & Hossain, M. M. (2020). COVID-19 vaccination hesitancy, misinformation and conspiracy theories on social media: A content analysis of Twitter data. *OSF Papers*, 1–30. <http://dx.doi.org/10.31235/osf.io/vc9jb>
- Piltch-Loeb, R., Savoia, E., Goldberg, B., Hughes, B., Verhey, T., Kayyem, J., Miller-Idriss, C., & Testa, M. (2021). Examining the effect of information channel on COVID-19 vaccine acceptance. *PLOS ONE*, 16(5), 1–14. <https://doi.org/10.1371/journal.pone.0251095>
- Sari, Y., Akbar F., & Tanfidz, S. (2012). Religiusitas pada hijabers community Bandung. In *Prosiding Seminar Nasional Penelitian dan PKM: Sosial, Ekonomi, dan Humaniora* (pp. 311–318).
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach* (7th ed.). West Sussex: Wiley & Sons.
- Sinnenberg, L., Buttenheim, A. M., Padrez, K., Mancheno, C., Ungar, L., & Merchant, R. M. (2017). Twitter as a tool for health research: A systematic review. *American Journal of Public Health*, 107(1), 1–8. <https://doi.org/10.2105/AJPH.2016.303512>
- Suharyat, Y. (2009). Hubungan antara sikap, minat dan perilaku manusia. *Jurnal Region*, 1(3), 1–19. Available at: <https://www.academia.edu/download/37999753/article.php.pdf>
- Tasnim, S., Hossain, M. M., & Mazumder, H. (2020). Impact of rumors or misinformation on coronavirus disease (Covid-19) in social media. *Journal of Preventive Medicine and Public Health*, 53(3), 171–174. <https://doi.org/10.3961/jpmph.20.094>
- Tomeny, T. S., Vargo, C. J., & El-Toukhy, S. (2017). Geographic and demographic correlates of autism-related anti-vaccine beliefs on Twitter, 2009–15. *Social Science and Medicine*, 191, 168–175. <https://doi.org/10.1016/j.socscimed.2017.08.041>
- Utami, A., Margawati, A., Pramono, D., Nugraheni, A., & Pramudo, S. G. (2022). Determinant factors of COVID-19 vaccine hesitancy among adult and elderly population in Central Java, Indonesia. *Patient preference and adherence*, 16, 1559–1570. <https://doi.org/10.2147/ppa.s365663>
- Wang, K., Wong, E. L. Y., Ho, K. F., Cheung, A. W. L., Yau, P. S. Y., Dong, D., Wong, S. Y. S., & Yeoh, E. K. (2021). Change of willingness to accept covid-19 vaccine and reasons of vaccine hesitancy of working people at different waves of local epidemic in hong kong, china: Repeated cross-sectional surveys. *Vaccines*, 9(1), 1–15. <https://doi.org/10.3390/vaccines9010062>
- Zilhada, Z., Ariyanti, F., Nurmansyah, M. I., Iriani, D. U., & Dwirahmadi, F. (2022). Factors associated with Covid-19 vaccination acceptance among muslim high school students in Jakarta Metropolitan Area, Indonesia. *Journal of Multidisciplinary Healthcare*, 15, 2341–2352. <https://doi.org/10.2147/jmdh.s380171>