

# Student Vaccine Knowledge and Willingness to Receive Covid-19 Vaccines in School

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## Abstract

Vaccination against COVID-19 has become mandatory for all educational institutions in Indonesia. The vaccine can help instructors, education staff, and students prevent the spread of COVID-19 in schools. However, awareness and willingness to get the covid-19 vaccine may be influenced by their knowledge of vaccines and several other factors. For instance, the spread of rumors about vaccines makes people fear the vaccine's side effects and make them reluctant to get the covid-19 vaccine. This study aims to analyze the relationship between knowledge and willingness to obtain COVID-19 vaccination in high school students. The research method employed involved an initial observation, 122 students receiving questionnaires, and seven students being interviewed. Using the Spearman Rho correlation test, the data analysis was evaluated to identify the level of knowledge of attitudes and attitudes toward vaccination doses. The outcomes of the interviews were then described, followed by data analysis. The result shows that 117 (94.9%) of the 122 participants in this study had a good level of awareness, and 40 (32.8%) had a favorable attitude toward their willingness to get the vaccine. The Spearman correlation test revealed a significant correlation between attitudes and knowledge ( $r = 0.296$ ,  $p\text{-value} = 0.001$ ) as well as a positive correlation between attitudes and vaccination doses ( $r = 0.183$ ,  $p\text{-value} = 0.044$ ). It shows there is a considerable correlation between these two relationships. Finally, the study concluded a significant correlation between knowledge and willingness to get covid-19 vaccination in students of Private Senior High School (MAS) Ulumul Quran Banda Aceh.

**Keywords:** Vaccine Knowledge; Willingness; Covid-19; School

## Introduction

Corona Virus Disease 2019, often referred to as covid-19, first spread in Indonesia on March 2, 2020. There are so many impacts of covid-19 that Indonesian citizens feel, one of which is on the country's educational institutions. According to government regulations regarding the Implementation of Education Policies in the Emergency Period for the Spread of Corona Virus Disease (COVID-19), circular letter number 4 of 2020 states that learning activities are not carried out face-to-face but rather online in order to prevent the transmission of Covid-19 cases (Nafirin & Hudaidah, 2021; Nurmalahayati et. al. 2022).

As many as 534,259 education units in Indonesia do not conduct face-to-face learning activities, according to the assessment of the COVID-19 condition and the COVID-19 risk zone as of August 3, 2021. Only 6,720 educational units (1.2%) are permitted to conduct face-to-face learning (FTF). National data reveals that 99% of educational institutions implement distance learning (DL), and 1% employ limited face-to-face (FTF) instruction while looking into the learning process on August 9, 2021, the day of the Covid-19 epidemic. Aceh has a percentage of 80% for the DL implementation procedure and a maximum of 20% for the FTF implementation process (Kemendikbudristek, 2021).

The Ministry of Education and Culture stated that the online learning system implemented during the Covid-19 pandemic caused a significant decrease in the achievement of student learning outcomes (learning loss). In an investigation conducted by INOVASI and the Center for Policy Research, Ministry of Education, Culture, Research,



and Technology, the learning process has to be done online for more than 5-6 months per year in Indonesia. An investigation by the World Bank also said that as many as 118,000 children in Indonesia who are primary school age have dropped out of school. This number has increased five times since 2019.

Therefore, in order to increase these accomplishments, efforts must be made to ensure that learning takes place face-to-face while minimizing Covid-19 transmission. One of the preventive measures intended to lower the number of deaths and COVID-19 transmission is vaccination. According to Ophinni et al. (2020), Indonesia has to reach herd immunity of roughly 67% to stop Covid-19 outbreaks nationwide. It implies that a vaccine supply of 350 million stocks and up to 175 million vaccinations are required. However, many ambiguous concerns about vaccinations are going around, which is why many people reject vaccination programs.

Covid-19 vaccination is essential in every education unit. Prof. Nizam, The Director General of Higher Education at the Ministry of Education and Culture, said that giving vaccinations to education units could speed up the process of re-taking face-to-face schools. In addition to implementing the 5M health protocol (washing hands, wearing masks, maintaining distance, avoiding crowds, and reducing mobility), covid vaccination also plays a vital role in preventing and transmitting COVID-19. Giving vaccinations in schools will form community group immunity (herd immunity) in schools. So that it can minimize the occurrence of Covid-19 transmission because some people already have good immunity (KPCPEN & Kemenkes RI, 2021).

Based on the Joint Decree of the 4 Ministers in March 2021 regarding the acceleration of limited face-to-face learning, it is stated that if educators and education personnel have carried out the Covid-19 vaccination, all relevant agencies such as the central government, regional governments, regional offices and the Ministry of Religion are required to provide services to educational units, such as face-to-face learning is limited by continuing to apply health protocols and distance learning. This learning activity is non-coercive, which follows the parents' willingness. Parents concerned about limited face-to-face learning can choose to conduct distance learning for their children. Additionally, educational institutions that have not yet implemented vaccinations or are in the process of doing so are still permitted to conduct limited face-to-face learning activities as long as they obtain permission from the local government and continue to adhere to health protocols. It is clear how vital face-to-face learning activities are (Kemendikbudristek, 2021).

The significance of understanding the covid-19 vaccine can alter one's perspective on vaccination. Knowledge is similar to experience in that it can increase interest and attention. If one's understanding of health grows, it will be advantageous to prevent health issues. Information can influence a person's attitude toward doing something; therefore, as knowledge grows, so will interest in vaccinating someone (Saprudin et al., 2016). Specific factors may influence a person's knowledge. Education, age, informational sources, mass media, social, cultural, and economic contexts, as well as experience, are elements that affect knowledge. Similar to behaviour, attitudes can be influenced by various factors, including personal experiences, the opinions of those valued as important, culture, the media, educational and religious institutions, and emotional aspects (Budiman & Riyanto, 2013).

National data reveals that 39% of educators and education personnel (PTK) have received the first dose of the Covid-19 vaccination (2,231,416 people). As many as 31% (1,753,242 people) had obtained their second dose by the time the Covid-19 vaccination was implemented in the educational process during the Covid-19 pandemic on August 4, 2021. In the meantime, Aceh implemented the Covid-19 vaccination in the educational process during the Covid-19 pandemic. Up to 12% of educators and education workers (PTK) have got the first dose of the vaccine, and up to 6% have obtained the second dosage (Kemendikbudristek, 2021). There is no doubt that both internal and external variables might influence this low level of participation.

Based on these data and the outcomes of preliminary observations made on September 28, 2021, during vaccination procedures at the Private Islamic Senior High School (MAS) Ulumul Quran in Banda Aceh, it shows

that there is a lack of student enthusiasm for vaccination procedures. Therefore, this lack of student interest in participating in vaccination activities has intrigued researchers' interest in conducting a study titled "Student Vaccine Knowledge and Willingness to Receive Covid-19 Vaccines in Schools".

## Methods

This study involved 122 students of Ulumul Quran, Banda Aceh City, one of the integrated Islamic boarding schools in Aceh located in Bineh Blang Village, Ingin Jaya, Aceh Besar District, as a case study. The selection of MAS Ulumul Quran was based on initial observations by researchers who said that most of them were vaccinated because they had to without their own will. The initial stage was the distribution of questionnaires followed by interviews with seven students to determine the factors that influence the willingness of students to vaccinate.

The first part of the questionnaire contains data on the characteristics of the respondents in the form of gender and vaccination dose. The data were analyzed using the chi-square test. Furthermore, the second part of the questionnaire consisted of 21 statements consisting of 10 statements about knowledge related to vaccination and 11 statements about willingness to receive vaccinations. The statements contained in the questionnaire were measured using the Likert scale. The data was analyzed using the Spearman Rho correlation test to determine the relationship between knowledge and willingness to receive vaccines and willingness to receive vaccines on vaccine doses. The data analysis used the chi-square relationship test and Spearman Rho. Then qualitative data analysis was carried out by describing the results of the interviews.

## Results

### Univariate Analysis

Univariate analysis is used to explain or describe the characteristics of each variable studied. In general, this analysis only produces the distribution of the frequency and percentage of each variable.

**Table 1.** Frequency Distribution by Gender of Respondents at MAS Ulumul Quran Banda Aceh.

Gender	n	%
Male	61	50
Female	61	50
Total	122	100

Based on table 1 above, data was obtained from 61 respondents (50%) male respondents and 61 respondents (50%) females.

**Table 2.** Distribution of Frequency Based on Respondents' Vaccination Doses at MAS Ulumul Quran Banda Aceh.

Vaccination Dosage	n	%
Not vaccinated	35	28,7
1 time	42	34,4
2 times	45	36,9
Total	122	100

Based on table 2 above, data was obtained from respondents who have not vaccinated as many as 35 respondents (28.7%), the first vaccination was 42 respondents (34.4%), and the second vaccination was 45 respondents (36.9%).

The distribution of the level of knowledge on the willingness to get the covid-19 vaccination in students of MAS Ulumul Quran Banda Aceh can be seen in tables 3 and 4 below:

**Table 3.** Distribution of Frequency Based on Respondents' Knowledge at MAS Ulumul Quran Banda Aceh.

<b>Knowledge</b>	<b>n</b>	<b>%</b>
Good	117	95,9
Not Good	5	4,1
Total	122	100

Based on table 3 above, data obtained from respondents with good knowledge comprised 117 respondents (95.9%), while respondents with poor knowledge five (4.1%).

**Table 4.** Distribution of Frequency Based on Willingness to Get the Covid-19 Vaccination of Respondents at MAS Ulumul Quran, Banda Aceh.

<b>Attitude</b>	<b>n</b>	<b>%</b>
Positive	40	32,8
Negative	82	67,2
Total	122	100

Based on table 4 above, data was obtained from respondents on the willingness to receive vaccinations, with a positive attitude of 40 respondents (32.8%) and a negative attitude from 82 respondents (67.2%).

#### *Bivariate Analysis*

Bivariate analysis was conducted to determine the relationship between two variables that were thought to be related or correlated. In this analysis, a correlation test was performed using the chi-square correlation test and the Spearman rho correlation test. The first part of the questionnaire contained data about the subject's characteristics, gender, and vaccine dose and was carried out by statistical tests using the Chi-Square test with a p-value <0.05.

**Chi-Square Test for Association: Gender; Number of Vaccine**

Rows: Gender	Columns: Number of Vaccine			
	0	1	2	All
Female	19 17,50	20 21,00	22 22,50	61
Male	16 17,50	22 21,00	23 22,50	61
All	35	42	45	122
Cell Contents:	Count Expected count			

Pearson Chi-Square = 0,375; DF = 2; P-Value = 0,829  
Likelihood Ratio Chi-Square = 0,375; DF = 2; P-Value = 0,829

**Figure 1.** The Relationship between Gender and Vaccine Dose.

Figure 1 shows that 19 females have not been vaccinated, 20 have received the first dose of vaccine, and 22 have received the second dose of vaccine. While for the male, there were 16 who had not been vaccinated, 22 had the first dose of vaccine, and 23 had the second dose of vaccine. The chi-square test obtained a p-value of 0.829 (p-value > 0.05), stating that there was no significant relationship between gender and the number of vaccines taken.

Furthermore, in the second part of the questionnaire, statistical tests were carried out using the Spearman-Rho correlation test. This analysis was conducted to determine the correlation between knowledge of the willingness to get the vaccine and the willingness to obtain the vaccine to the dose of the vaccine.

**Spearman Rho: Knowledge; Attitude**

Spearman rho for Knowledge and Attitude = 0,296  
P-Value = 0,001

**Spearman Rho: Attitude; Number of Vaccine**

Spearman rho for Attitude and Number of Vaccine = 0,183  
P-Value = 0,044

**Figure 2.** The relationship between knowledge and willingness to get vaccines and willingness to receive vaccines on vaccine doses.

Figure 2 above shows the relationship between knowledge and willingness to get vaccines. Based on the spearman rho test obtained, p-value = 0.001 ( $p < 0.05$ ) states a significant relationship between the level of knowledge on attitudes or willingness to get vaccines. Students who have good knowledge tend to have better attitudes toward vaccines.

Meanwhile, based on the spearman rho test, the relationship between willingness to get a vaccine or attitude towards vaccination dose obtained p-value = 0.044 ( $p < 0.05$ ), which stated that there was a significant relationship between attitudes towards vaccination. Students with a good attitude towards vaccines tend to have a better number of vaccine doses.

**Interview**

Based on the results of interviews conducted at MAS Ulumul Quran, Banda Aceh, most already believe in the existence of covid-19. They also have good knowledge of one of the efforts in preventing covid-19, namely vaccination. However, in the process of implementing the vaccination, many of them refused to be vaccinated. The main factors they refuse to get vaccines include the many issues they get from social media, family, and communities, which say that the covid-19 vaccination has dangerous side effects such as fever, headache, muscle aches, diarrhoea, and so on. Other factors include because they have a history of the disease and their parents do not permit some to vaccinate.

## **Discussion**

### *Covid-19 Vaccine Knowledge Level*

According to Donsu (2007), as cited in Yusmanijar (2019), knowledge results from human sensing through a sensory process of particular objects. The importance of knowledge about covid-19 vaccination can change the way a person views vaccination. Knowledge is like experience that can increase one's interest and attention. A person's knowledge dramatically influences the level of education, occupation, interests, experience, and information.

Elicited from the study's results, it was found that respondents' knowledge level about covid-19 vaccination was quite good (95.9%). From the results obtained, the students of MAS Ulumul Quran in Banda Aceh tend to know how the covid-19 vaccination works, the ingredients contained in the covid-19 vaccine, the types of vaccines distributed by the government, and who are the priorities in getting the covid-19 vaccine.

The importance of knowledge about covid-19 vaccination can change the way a person views vaccination. Knowledge is like experience that can increase one's interest and attention. Prevention of health problems will be beneficial if one's knowledge of health increases. Knowledge can shape a person's attitude to do something, meaning that interest in vaccinating someone will increase as a person's knowledge increases (Saprudin et al., 2017). Certain factors can influence a person's knowledge. The factors influencing knowledge include education, age, information or mass media, social, cultural, economic environment, and experience. Likewise, in attitudes, several factors can influence attitudes, including personal experience, the influence of other people who are considered critical, the influence of culture, mass media, educational and religious institutions, and emotional factors (Budiman & Riyanto, 2013).

Akarsu et al. (2021) in Keytimu et al. (2021) have researched parents' knowledge of receiving vaccinations for their children. Before the socialization regarding the covid-19 vaccine, they did not give permission to vaccinate their children because they still had little knowledge of vaccine side effects. However, when they were given socialization related to the knowledge about vaccine side effects, they agreed to vaccinate their children. It shows that this knowledge can change a person's perspective on vaccination.

### *Willingness to Get Covid-19 Vaccination*

In this context, willingness can also be viewed as attitude. An individual's mindset can impact whether or not they choose to accomplish something. A person's willingness is their openness to something, namely their readiness to act independently of outside pressure. One way to think of willingness is a person's disposition toward receiving something (Feby, 2021). According to the knowledge-attitude-behaviour theory, information and knowledge are essential for anyone who wishes to take action in the health sector. It indicates that a person who is sufficiently knowledgeable about their automatic vaccine is more conscious of the advantages and significance of the vaccination. Therefore, they have good faith in vaccines and believe that using vaccines to prevent COVID-19 is justified (Keytimu et al., 2021).

The study's findings revealed that students' willingness to undergo the COVID-19 vaccination fell into the low category. It is demonstrated that 40 (32.8%) respondents have a positive attitude, compared to 82 (67.2%)

respondents who have a negative attitude. Due to their lack of belief in the advantages of the COVID-19 vaccine, which can boost the immune system, about 67.2% of respondents indicated that they would not be open to receiving vaccinations. They believe the government's vaccination program has very low vaccine efficiency compared to other nations. They assume that applying 3M (wearing masks, washing hands, and maintaining distance) is sufficient to stop the spread of covid-19 and that covid-19 can be treated naturally without a vaccine.

Pramesti et al. (2021) assert that people's varying opinions on the COVID-19 vaccination were caused by a lack of knowledge about the vaccines given in the community, such as when the vaccine was accessible and how the vaccine's safety profile was. It discourages people from wanting vaccinations. Additionally, some have chosen to delay or deny vaccination because of the numerous unfavourable COVID-19-related news stories that have been making the rounds in the media. The government faces a hurdle in carrying out the immunization campaign so herd immunity can develop in Indonesia. Therefore, in order for the general public to be open to vaccination, it is necessary to implement a public communication strategy to support information related to COVID-19 vaccination. This strategy should involve essential individuals such as religious leaders, professional organizations, and civil society organizations to improve Indonesia's vaccination program's effectiveness.

According to data from the Indonesian Covid-19 Vaccine Acceptance Survey, the most common justifications for not obtaining the COVID-19 vaccine were concerns about safety (30%), ineffectiveness in preventing covid (22%), fear of side effects (12%), mistrust of vaccines (13%), lack of adherence to religious beliefs (8%), and other effects (15%). (Kemenkes et al., 2020).

#### *The relationship between the level of knowledge related to the vaccine and the willingness to get the Covid-19 vaccine*

Based on the results of the study using the Spearman Rho test, a p-value of 0.001 ( $p < 0.05$ ) showed a significant relationship between knowledge and willingness to get Covid-19 vaccination in MAS students Ulumul Quran in Banda Aceh. Knowledge can be said to be an essential factor in a person's willingness to vaccinate. However, knowledge is not the only significant factor. Students who have good knowledge tend to have better attitudes toward vaccines.

The findings of this study are consistent with those of Febriyanti et al. (2021), Relationship between Knowledge Levels and Availability of Covid-19 Vaccination Among Residents of Dukuh Menanggal Village, Surabaya, which found that residents of Dukuh Menanggal were highly knowledgeable about and prepared for the Covid-19 vaccine, with significance levels of 0.000 (0.05). The residents of Dukuh Menanggal Village in Surabaya can therefore be inferred to have a relationship between knowledge and willingness to get vaccinations. The findings of this study also indicate that students with great understanding are more likely to be willing to be vaccinated than students with poor knowledge and low willingness to be vaccinated. This outcome is consistent with Nugroho's research (2021), which found a strong correlation between student confidence in getting the COVID-19 vaccine and their level of knowledge.

Someone who is well-informed might have a positive attitude, but it is also possible they have a negative attitude. Therefore, having a positive outlook and being well-informed about the COVID-19 vaccination does not guarantee that a person will be eager to get it. It is consistent with Notoatmodjo's (2010) theory in Rachmani et al. (2020) that attitude refers to personal responses that influence the ideas, feelings, and concerns connected to agreeing or disagreeing with a situation. A person's attitude toward something might be influenced by their level of understanding (Grishela et al., 2020).

Students' excellent knowledge will indeed have an impact on their attitude toward the covid-19 vaccination and their willingness to accept it. Of course, students are already familiar with the covid 19 vaccination, including what it is, how it functions, what its ingredients are, and its advantages and disadvantages. This indicates that the

community's sound knowledge can be used in practical ways, including preparing the local population for the COVID-19 vaccination. People are motivated to be prepared to provide immunizations when they know information about the covid-19 vaccine. Conversely, those with less understanding are more likely to be unconcerned with COVID-19 and unwilling to get the COVID-19 vaccine (Kartika et al., 2021).

Based on the study's results using the Spearman Rho test, a  $p$ -value of 0.044 ( $p < 0.05$ ) showed a significant relationship between the willingness to receive the covid-19 vaccination and the dose of the covid-19 vaccine in the students of MAS Ulumul Quran, Banda Aceh. Students with a positive attitude toward getting the covid-19 vaccine tend to have a good number of vaccine doses. Vice versa, students with a negative attitude towards the willingness to get vaccines to have a small number of vaccine doses (figure 2). This research also found that gender had no effect on decision-making (figure 1). Based on the study's chi-square test results, the  $p$ -value was 0.829 ( $p$ -value  $> 0.05$ ), which stated that there was no significant relationship between gender and vaccination dose. This means that gender does not influence a person's willingness to vaccinate. This research is in line with Sari's (2021), which states that there is no difference between female and male students in the motivation to vaccinate against COVID-19.

The low correlation between knowledge and willingness to obtain the Covid-19 vaccination in students is due not only to the knowledge factor but also to other influencing factors like personal experience, the sway of information or the media, the social, cultural, and economic environment, as well as the deemed-important sway of others. Participants' fears of vaccination side effects, such as fever, shortness of breath (dyspnea), numb arms, nausea, and vomiting, were some topics covered during interviews with participants. Other topics covered included not being allowed to by their parents, having a history of illness or a record of illness, and not being allowed because of these factors. They also take information from social media, the news, and their nearest relatives about vaccination side effects into account when getting vaccines.

In essence, it is consistent with data from the Covid-19 Vaccine Acceptance Survey in Indonesia, which discovered that the most common justifications for refusing the COVID-19 vaccine included doubts about its safety (30%), the fact that it was not effective in preventing covid (22%), fear of side effects (12%), a lack of belief in vaccines (13%), not being in line with religious beliefs (8%), and other effects (15%). (Kemenkes et al., 2020).

## Conclusions

A significant result was obtained with a  $p$ -value of 0.001 ( $p < 0.05$ ), indicating a significant relationship between knowledge and willingness to get a COVID-19 vaccination for students at MAS Ulumul Quran, Banda Aceh. According to research on the relationship between the level of knowledge and the willingness to receive the COVID-19 vaccine in students of MAS Ulumul Quran, Banda Aceh, the findings of the interviews indicated that the school's students supported COVID-19. They are also well-versed in vaccinations. However, because of the negative information they get about the risks associated with vaccination, they are not motivated to vaccinate.

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