

# Attitudes, Acceptance, and Willingness to Pay for The Covid-19 Vaccine: A Case Study of Magelang, Indonesia

Aqila P H, Efendi<sup>1</sup>, Setiyo Budi Santoso<sup>1</sup>, Prasajo Pribadi<sup>1\*</sup>

<sup>1</sup>Department of Pharmacy, Faculty of Health Science, Universitas Muhammadiyah Magelang, Indonesia

\*Corresponding author. Email: [prasajopribadi@unimma.ac.id](mailto:prasajopribadi@unimma.ac.id)

**Abstract.** Various efforts have been made to suppress the spread of Covid-19, one of which is creating a vaccine. However, as this vaccination progresses, there is still a lot of debate among the public regarding the safety and efficacy promised by vaccine manufacturing companies, which cannot necessarily make people accept and be willing to pay for the vaccine. This research was conducted to determine and measure the attitude of the people of Magelang Regency in accepting and their willingness to pay for the Covid-19 vaccine if the vaccine is not provided free of charge by the government. Sampling was carried out on 400 respondents from the people of Magelang Regency using non-probability sampling using the convenience sampling method. Based on this research, it is known that the attitude of the respondents in this study is positive, but there are still people who are hesitant about getting the Covid-19 vaccination, especially if the vaccination is carried out every year. Likewise, the acceptance of the Covid-19 vaccine is quite good. In this research, it was also discovered that the majority of respondents did not agree that payment for vaccination was made individually or by insurance, and chose to do it for free/without paying. Lack of health education by medical personnel is the main factor causing respondents' hesitation in responding and receiving vaccines.

**Keyword:** Attitude, Acceptance, Willingness to Pay, Covid-19, Vaccine

## 1 Introduction

The WHO determined the status of the Covid-19 pandemic after the spread of the virus increased to 13 times the number of cases reported outside China for several weeks. In the period July 11 2021, WHO reported that there were 186,232,998 confirmed cases with a global death toll of 4,027,858 people [1]. In Indonesia, on July 13 2021, there were 2,679,046 confirmed positive cases and 69,210 reported deaths. Central Java Province occupies the third position with the highest number of Covid-19 cases with 297,739 confirmed cases, while Magelang Regency occupies the fifth position with the highest number of Covid-19 cases in Central Java with 11,824 confirmed cases [2].

Various efforts have been made to suppress the spread of Covid-19, one of which is creating a vaccine [3]. On December 15 2021, it is known that there are 208,265,720 people who have been targeted for vaccination by the government with the number of people who have been vaccinated with the first dose of 148,344,215, 104,522,156 people with the second dose of vaccine, and 1,263,846 people with the third dose of vaccination in Indonesia [4]. However, as this vaccination progresses, there is still a lot of debate

among the public regarding the safety and efficacy promised by vaccine manufacturing companies which cannot necessarily make people accept and be willing to pay for the vaccine. Harapan et al (2020) explain that >70% of Indonesian people have a high probability willing to pay for the vaccine with an average WTP (willingness-to-pay) of around US \$57 or around IDR. 796,000. The results of this research are a hypothesis at a time when the Covid-19 vaccine had not yet been presented in Indonesia [5].

Other research explains that acceptance of Covid-19 vaccination is mostly found among adults in China [6]. Other research conducted in China stated that the time, efficacy and location of vaccine administration influence the public's willingness to vaccinate, so public direction efforts will likely increase the use of vaccines in controlling Covid-19 [7]. In the city of Semarang, Central Java, it is known that people in the area respond negatively to questions regarding safety, effectiveness, halal, belief that they cannot reduce the rate of spread of the virus, vaccines are a propaganda tool, the government's lack of confidence in overcoming Covid-19, humans do not need vaccines, Covid can be prevented with 3M, and it is believed that Covid-19 can be cured with herbal medicine. Based on

previous research, this research was conducted to find out and measure the attitude of the people of Magelang Regency in accepting and their willingness to pay for the Covid-19 vaccine if the vaccine was not provided free of charge by the government. The difference between this research and the previous one is that this research was measured after the Covid-19 vaccination program had been implemented in Indonesia, whereas in previous research the vaccination program had not been implemented by the government. Apart from that, this research was also carried out because the Magelang Regency area is a transportation and economic intersection between Semarang-Magelang-Yogyakarta-Purworejo, which causes a higher level of community heterogeneity compared to other districts in Central Java. Seeing this diversity, researchers are interested in conducting this research.

## 2 Methods

### 2.1 Research Design

This research is an analytical observational study with a cross sectional approach where the variable are measured over the same time period [9]. Sampling was carried out on 400 respondents from the people of Magelang Regency who were calculated using the Slovin formula. The criteria set in this research are that the respondent is >18 years old, has worker and independent income, and is domiciled or lives in the Magelang Regency area.

### 2.2 Research Instrument and Collecting Data

**Table 1.** Research instrument.

No	Variable	Definition	Measurement Scale	Source
1	Attitude	This dimension is to measure people's attitudes towards vaccines (5 items)	Ordinal: 3 point likert scale (Agree, Not sure, Disagree)	[5-9]
2	Acceptance	Possible support in vaccine use (12 items)	Ordinal: 3 point likert scale (Agree, Undecided, Disagree)	
3	Willingness to pay	This dimension is to measure the willingness of the nominal amount of rupiah that the public is willing to spend to pay for vaccination (5 items)	Nominal	

The sample in this study was taken by snowball sampling. A recruitment technique in which research participants are asked to assist researchers in identifying other potential subjects. Apart from that, this method was also chosen on the basis of the researcher's inability to cover the entire area of Magelang Regency in during a pandemic. This research was conducted from December 2021-January 2022 using an online questionnaire distributed via short message (WhatsApp).

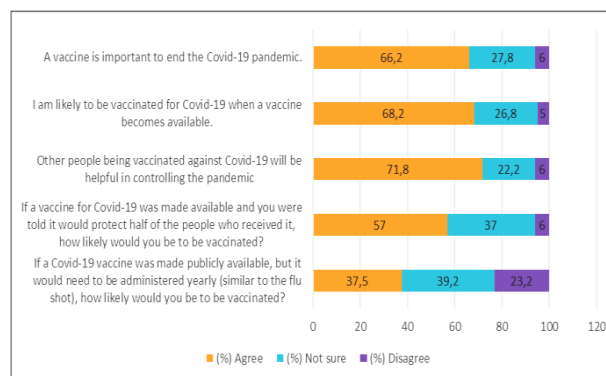
## 2.3 Data Analysis

This research data was analyzed using the descriptive analysis method, where the data that has been obtained will be analyzed to determine the value of each research variable without making comparisons with each variable. This analysis was carried out by looking at the frequency and percentage values of respondents' answers to each question item asked in this research.

## 3 Results

**Table 2.** Sociodemographic characteristics of respondents.

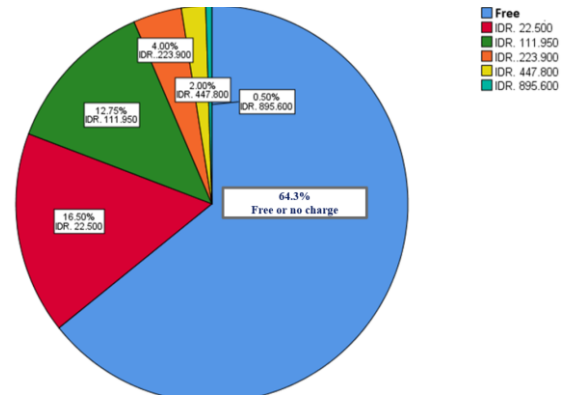
Characteristics of Respondents	n (%)
<b>Age (year)</b>	
18-24	204 (51)
25-31	98 (24.5)
32-38	32 (8.0)
39-45	31 (7.8)
46-52	20 (5.0)
53-59	15 (3.8)
<b>Gender</b>	
Male	133 (33.2)
Female	267 (66.8)
<b>Educational level</b>	
Elementary school graduate	2 (0.5)
Junior high school graduate	6 (1.5)
Senior high school graduate	136 (34)
Diploma graduate	80 (20)
University graduate/post graduate	176 (44)
<b>Occupation</b>	
Civil servant	59 (14.8)
Private employee	94 (23.5)
Entrepreneur	247 (61.8)
<b>Religion</b>	
Islam	367 (91.8)
Christian	18 (4.5)
Hinduism	3 (0.8)
Budhaism	0 (0.0)
Chatolic	12 (3.0)
<b>Marital Status</b>	
Married	122 (30.5)
Single	278 (69.5)
<b>Monthly Income (Indonesian Rupiah)</b>	
<1 million	34 (8.5)
1-1,5 million	65 (16.2)
1,6-2 million	71 (17.8)
2,1-2,5 million	61 (15.2)
2,6-3 million	74 (18.5)
>3 million	95 (23.8)
<b>Are you a Covid-19 survivor?</b>	
Yes	105 (26.2)
No	295 (73.8)
<b>Have you received vaccination Covid-19?</b>	
Yes (firts dose)	34 (8.5)
Yes (second dose)	366 (91.5)
<b>What kind of vaccine do you receive?</b>	
Sinovac	289 (72.2)
AstraZeneca	52 (13.0)
Pfizer	4 (1.0)
Moderna	51 (12.8)
Sinopharm	4 (1.0)



**Figure 1.** Public attitudes towards Covid-19 vaccine.

**Table 3.** Public acceptance of the Covid-19 vaccine.

Items Statement	n (%)		
	Agree	Undecided	Disagree
I feel that the Covid-19 vaccine is safe to use	239 (59,8)	138 (34,5)	23 (5,8)
I feel that the Covid-19 vaccine can suppress the spread of the virus.	226 (56,5)	144 (36)	30 (7,5)
The clinical trials for the Covid-19 vaccine were too short, making me doubt its ability.	127 (31,8)	183 (45,8)	90 (22,5)
I feel that the effectiveness of the Covid-19 vaccine provided by the government is very low compared to other vaccine brands	102 (25,5)	217 (54,2)	81 (20,2)
I feel that the Covid-19 vaccine can cause side effects such as heat and pain after being injected	231 (57,8)	113 (28,2)	56 (14)
I still question the halalness of the Covid-19 vaccine because it was made by another country.	149 (37,2)	148 (37)	103 (25,8)
Actually, humans do not need a vaccine because Covid-19 will disappear by itself	90 (22,5)	121 (30,2)	189 (47,2)
In the religion that I follow, every difficulty has a way out, so you only need to surrender to God so that Covid-19 will pass quickly.	110 (27,5)	119 (29,8)	171 (42,8)
I think that 3M prevention (wearing a mask, washing hands and maintaining distance) is enough to suppress the spread of Covid-19.	127 (31,8)	152 (38)	121 (30,2)
In my opinion, Covid-19 can be cured with typical Indonesian herbal concoctions / rhizomes so there is no need for a Covid-19 vaccine.	75 (18,8)	172 (43)	153 (38,2)
I feel that Covid-19 is a product of propaganda, conspiracies, HOAKS and so on which aim to benefit certain parties	81 (20,2)	169 (42,2)	150 (37,5)
You believe that the government is able to overcome the Covid-19 Pandemic well	149 (37,2)	198 (49,5)	53 (13,2)



**Figure 4.** The maximum amount of payment for the Covid-19 vaccine program

## 4 Discussions

### Sociodemographic Characteristics

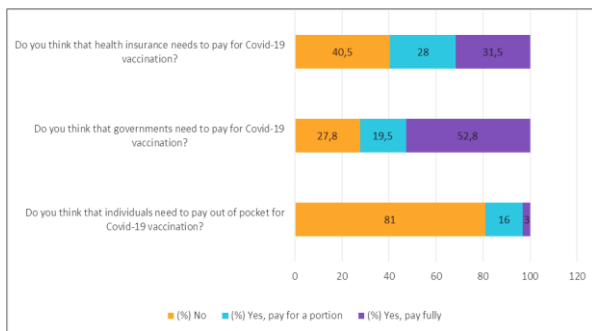
This research collected data from 400 respondents who are domiciled or live in the Magelang Regency area, Central Java. The majority of respondents were female (66.8%), aged 18-24 years, had a Bachelor's/S2/S3 degree (44%), had a monthly income of >3 million (23.8%), and had been vaccinated against Covid-19 second dose (91.5%). Other complete socio-demographic characteristics are presented in Table 1. The respondents in this study had received both the first and second dose of Covid-19 vaccination, with the most widely received type of vaccine being the Sinovac vaccine (72.2%). This result is in accordance with the number of Covid-19 vaccination data on January 28 2022, Magelang Regency which has reached >50%, both the first dose and the second dose [10]. Putri et al., (2021) stated that 81.2% of the people of Central Java were willing to accept vaccination.

### Public Attitudes towards the Covid-19 Vaccine

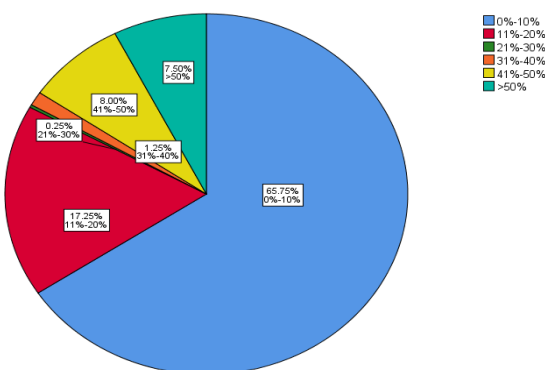
Figure 1 shows that many respondents answered that they were unsure about the public's willingness to give the Covid-19 vaccine every year, similar to the flu vaccine. This hesitation is caused by side effects, fear of being injected, and other supporting factors [12]. A study in Finland revealed that the main factor in people's hesitation and reluctance to vaccinate is concern about the side effects they will receive after vaccination [13]. Apart from the many variations in the types of vaccines available, demographic factors, attitudes and beliefs regarding Covid-19 virus infection, as well as people's political views can influence decision making regarding Covid-19 vaccination [14]. In research conducted on some HBCU students in the USA, it was found that the appropriate response to combat vaccination hesitancy can be done by providing communicative public health information to build public confidence in vaccinating [12].

### Public Acceptance of the Covid-19 Vaccine

Respondents' acceptance of the Covid-19 vaccine is quite good, this can be seen from the many respondents who answered agreeing with the statement proposed in Table 3. However, there were respondents who answered undecided and disagreed. Questions



**Figure 2.** Perception of the Covid-19 vaccine payment mechanism.



**Figure 3.** Maximum percentage of public income used to pay for Covid-19 vaccines.

answered undecided by respondents included regarding clinical trials of the Covid-19 vaccine (45.8%), effectiveness of the Covid-19 vaccine (54.2%), halalness of the Covid-19 vaccine (37.2%), implementation of 3M (Wearing masks, washing hands, and maintaining distance) as measures to prevent virus transmission (38%), Covid-19 as a product of propaganda, conspiracies, HOAKS and so on (42.2%), as well as the government's ability to overcome the Covid-19 pandemic (49, 5%). The speed of the clinical trial process led respondents to regarding the capability and effectiveness of the Covid-19 vaccine provided by the government. However, the BPOM interim report on January 8 2021 stated that one type of Covid-19 virus vaccine "Sinovac" made by a Chinese company showed an efficacy of 65.3%, this value is in accordance with the standard threshold set by WHO of at least 50% [15].

The halalness of the Covid-19 vaccine has been determined by MUI (Indonesian Ulama Council) fatwa no. 02 of 2021 and the decision of the Fatwa Commission meeting on January 8 2021 which stated that the type of vaccine from Sinovac Life Sciences Co. Ltd. China and PT. Bio Farma (Persero) does not use pork or its derivative ingredients, and does not use human body parts in its production process [16]. In another fatwa no. 14 of 2021 states that the AstraZeneca vaccine product is haram because it uses trypsin from pigs. This vaccine is used because of urgent conditions and there is expert information regarding the danger (fatal risk) if vaccination is not carried out immediately. This legal determination also applies to Moderna, Pfizer and Sinopharm Covid-19 vaccine products [17].

Respondents' doubts regarding the implementation of 3M can reduce the spread of the virus due to a lack of education by health workers. The implementation of 3M has been recommended by WHO as an implementation of healthy living. Hands are one of the main agents that cause viruses or microbes. Using masks and maintaining distance is an effort to prevent transmission of viruses or microbes through droplets, considering that this virus can spread through air and droplets [18].

Doubts regarding Covid-19 as a product of propaganda, conspiracy, HOAKS and so on, to the point of doubting the government's performance in overcoming the Covid-19 pandemic, are based on the rapid spread of the Covid-19 virus with the situation and the large number of HOAKS news which leads the opinions and perceptions of the general public to define propaganda for negative actions. However, government propaganda regarding Covid-19 is very necessary, this is important to educate the public in understanding the content circulating in the media, so that it can increase public awareness about the epidemic that is being faced [19].

#### **Public Willingness to Pay for the Covid-19 Vaccine**

In Figure 2, it is known that 81% of respondents are not willing to pay for the Covid-19 vaccination themselves and consider that the cost of the Covid-19 vaccination is entirely the responsibility of the

government (52.8%). As many as 40.5% of the public also agree that insurance is not needed to fund vaccination. This finding is supported by the results related to the maximum percentage of public income used to pay for Covid-19 vaccines where 65.8% of respondents answered that they were willing to pay 0%-10%, which means that these respondents want the vaccination to be free or free. However, 7.5% of respondents are willing to pay vaccination costs >50% of the total vaccination costs that have been set (Figure 3).

Research on the percentage of people's willingness to pay has been conducted in various countries, in China 90.9% of respondents stated that the government and insurance needed to pay for Covid-19 vaccination, but 84.3% accepted the obligation to pay some or all of the vaccination costs [6]. Meanwhile in Japan, people with low incomes show lower acceptance of vaccines [20]. A high regional population has the possibility of having a high number of Covid-19 cases, but does not indicate a high level of public willingness to vaccinate [21].

The nominal payment amount is determined based on the conversion of Chinese currency (CNY) to Indonesian currency (IDR) in research conducted by Wang, Lyu, et al [6]. The majority of respondents chose to get free/no-pay vaccinations (64.3%). The community's ability to determine the percentage and maximum amount of vaccination payments is influenced by income, occupation, and the type of vaccine given (Figure 4). This result is in accordance with the results obtained in Table 1 if the majority of respondents' income is >3 million (23.8%). This result is different from the hypothesis of Harapan et al (2020) which explains that >70% of Indonesian people are likely to be willing to pay for the vaccine with an average WTP (willingness-to-pay) of around US \$57 or IDR. 796,000. Individuals with higher incomes may have a better understanding of the benefits arising from vaccination [5]. Apart from that, there are knowledge and education factors that influence people's decisions in paying for and carrying out vaccinations [5]. Although the knowledge variable was not measured in this study, Cerda & García stated that it is important to carry out literacy in communities with low levels of education, because these community groups tend to be unwilling to be vaccinated and are not aware of the risks of disease that arise [22].

In this research, it was found that many people are still hesitant about responding to and receiving Covid-19 vaccination due to a lack of education by medical staff. This education is important as a form of providing information about vaccination transparently in simple and easy to understand language, with the aim of changing people's perceptions and beliefs regarding Covid-19 vaccination. The education is an effort to enable the community to improve control of the determinants of health so that it can improve the quality of the community's own health [23, 24]. Apart from that, practically this research can be used as a study by the government in determining the nominal price of vaccines taking into account the regional minimum wage (RMW) for each region so that later

the price is set in accordance with the ability to pay for each individual in that region.

Several limitations of this research need to be noted, such as research conducted online using short messages (WhatsApp) cannot reach a wider research area, especially in low-income communities living in rural areas, as well as in groups of people aged >40 years. so that it has an impact on the research results, so sampling must be done carefully so as not to cause bias in the resulting research.

## 5 Conclusion

Based on this study, it is known that the respondents' attitudes towards the Covid-19 vaccine program are positive. However, there are still people who are hesitant to get vaccinated against Covid-19, especially if vaccination is carried out every year. Likewise, the acceptance of the Covid-19 vaccine is quite good. The lack of education in the community is the main cause of respondents' hesitation in responding and accepting the vaccine. This study also found that the majority of respondents did not agree if vaccination payments were made individually or through insurance, and chose to do it for free/without paying.

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