

Factors that Influence on Acceptance Covid 19 Vaccination; Cross Sectional Study in Indonesia

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Abstract

Background: Indonesia accelerated the COVID-19 vaccination program in January 2021 to achieve herd immunity. The acceptance of the COVID-19 vaccination by the community is influenced by various factors that shape health behavior.

Destination: Knowing the factors that influence the acceptance of covid 19 vaccination in Indonesia. Method: Studies cross sectional survey with the Indonesian population aged 17 years, namely 529 respondents. Data collection was carried out for 4 months online. Result: Bivariate analysis on gender variable, obtained p value = 0.038 ($p < 0.05$) meaning that statistically it is believed that there is a significant relationship between gender and acceptance of covid 19 vaccination. Based on education, p value = 0.000 ($p > 0, 05$) it means that there is a significant relationship between education and acceptance of the covid 19 vaccination. In the knowledge variable, a p value is obtained = 0.009 ($p < 0.05$) meaning that it is believed that there is a significant relationship between knowledge and acceptance of the covid 19 vaccination. In the attitude variable, a p value is obtained. = 0.000 ($p < 0.05$) meaning that there is a significant relationship between attitude and acceptance of the covid 19 vaccination. 17,463 CI 95% 7,458-40,886. Variable knowledge p-value = 0.011, OR= 3.21995% CI 1.341-7.728 and attitude variable with p-value= 0.000, OR= 2.01295% CI 1.358-2.981. The equation obtained is $y = -0.513$ (constant) +2,860(education)) +1,169 ((knowledge) +0,699(atittude) so that $p = 1 / (1 + 2.74.22) = 0.9850$, it means that respondents with good education, knowledge and attitudes have a probability of receiving a covid vaccination 98.5%.

Conclusion. Factors that influence the acceptance of COVID-19 vaccination are age, education, knowledge and attitude.

Keywords: vaccination, covid 19

preliminary

The COVID-19 pandemic has changed the world order. Since December 2019 until early 2021 this problem has not found the best solution. At the time of writing, the number of cases of covid in the world as of January 11, 2021, is 89,048,345 cases, 1,930. 265 died. In Indonesia, there were 836,7218 positive cases, 688739 recovered and 24,343 people died. The government's efforts to reduce the pandemic are socializing, namely wearing masks correctly, maintaining distance and avoiding crowds, washing hands with soap, carrying out 3T (testing, tracing, treatment) and vaccinations that have been found and have been given since January 2021.¹²

Some research results³conducted a survey of the general United States non-health care population regarding their knowledge and attitudes about the COVID-19 pandemic. Almost everyone maintains social distance. Women were significantly more likely to be concerned about contracting the virus than men ($p = 0.0272$). Other findings about covid vaccination⁴ shows that out of 26,852 respondents, two thirds of respondents are quite worried about the widespread outbreak. The difference in acceptance rates ranges from almost 93% (in Tonga) to less than 43% (in Egypt). Respondents who reported a higher level of confidence in information from the government were more likely to accept the vaccine and follow government advice.

Research in Congo⁵stated that they would receive a COVID-19 vaccine if it was available. From the logistic regression analysis, male health workers ($ORa = 1.17$, 95% CI: 1.15– 2.60), mainly doctors ($ORa = 1.59$; 95% CI: 1.03– 2.44) and having a positive attitude towards the COVID-19 vaccine ($ORa = 11.49$; 95% CI: 5.88-22.46) was significantly associated with willingness to be vaccinated.

Vaccine acceptance survey results in Indonesia³shows that most people (74%) are aware of the government's plan to carry out the COVID-19 vaccination. As many as 65 percent are willing to be vaccinated, about 27% are still unsure. Only a small percentage or around 8% stated that they refused on the grounds that they were worried about the safety, effectiveness and halalness of the vaccine. The survey results also show that those who have information about COVID-19 vaccinations are more likely to receive COVID-19 vaccinations. This shows the importance of ensuring that the entire community has access to accurate information about handling COVID-19, including about COVID-19 vaccinations.¹.

Along with the government's incessant promotion of the importance of vaccination, the public gets various kinds of negative information about vaccines from various social media and various other information that can affect people's readiness to receive vaccinations. Government socialization which is indirectly an effort to provide education to the community through television media, social media can be evaluated for its effectiveness in the form of community behavior towards the covid 19 vaccination program. The behavior of the community is influenced by various behavioral-forming factors which can be reflected in the receipt of the covid 19 vaccination.

Method

Studiescross sectional surveywith a population of Indonesian people with an age limit of 17 years, namely 529 respondents for 4 months from March 26, 2021 to July 31, 2021. Data is collected online using google forms and distributed via Whatsapp, Facebook and other applications. Measurement of knowledge using 20 questions about covid vaccination (definition, purpose and type of vaccine, relationship between vaccines, immunization and herd immunity, post-immunization co-occurrence (AEFI), immunization targets, vaccination schedule, vaccination costs, vaccine safety and effectiveness. Attitude measurement using 10 statements (public trust in various information about covid 19, benefits of vaccination, safety and effectiveness of vaccines, trust in the halalness of vaccines, vaccine costs, public acceptance of the vaccination program and information about covid 19 vaccination). Receipt

of covid 19 vaccination using questions (acceptance of vaccination implementation). Data analysis was univariate, bivariate with chi-square test and multivariate with Backward logistic regression statistical test.

Research result

Table 1.
Respondent Characteristics (N 529)

Variable	f	%
Age (years)		
18-25 years	172	32.5
> 25-35 years	122	23.1
> 35- 45years	108	20.4
> 45-55years	93	17.6
> 55-65years	34	6.4
Gender		
Male	168	31.8
female	361	68.2
Religion		
The Hindu	4	0.8
Islam	489	92.4
Catholic	24	4.5
Christian	12	2.3
Residence Area		
Sub District	238	45.2
Regency / the city	291	54.8
Education		
higher	401	75.8
secondary primary	128	24.2
Occupation		
Not yet working	140	26.5
Not a health worker	165	31.2
Health workers	224	42.3

Based on the table above, it can be explained that of the 529 respondents, most (32.5%) are aged 18-25 years. The most gender is female (68.2%). Most of the respondents are Muslim (92.4%). When viewed from the area of residence, most (54.8%) are in the district/city. Most of the education levels (75.8%) are higher education and (42.3%) are health workers.

Table 2.
Knowledge, Attitude and Covid 19 Vaccination Acceptance (N 529)

Variable	f	%
Knowledge		
good	471	89
Lack	58	11
Attitude		
Positive	234	44.2
negative	295	55.8
Vaccination		
Already	216	40.8
Not yet	313	59.2

Table 2 shows that most of the respondents (89%) have good knowledge about the covid 19 vaccination. A small portion (44.2%) have a positive attitude about the covid 19 vaccination and a small portion (40.8%) have received the covid 19 vaccination. .

Table 3

Association between Gender, Education, Knowledge, Attitude toward Covid 19 Vaccination acceptance in Indonesia

Variables	Covid 19 Vaccination acceptance				P
	Already		Not yet		
	n	%	n	%	
Gender					
Male	80	47.6	88	52.4	0.038*
female	136	37.7	225	62.3	
Education					
higher	210	52.4	191	47.6	0.000*
secondary primary	6	4.7	122	95.3	
Knowledge					
good	209	44.4	262	55.6	0, 009*

Variables	Covid 19 Vaccination acceptance				P
	Already		Not yet		
	n	%	n	%	
Lack	7	12.1	51	87.9	
Attitude					
Positive	128	54.7	106	45.3	
negative	88	29.8	207	70.2	0.000*

Note: The significance value of p* is obtained from the continuity correction . test

The results of the bivariate analysis above show that in the gender variable, out of 168 males, a small proportion (47.6%) have received vaccinations. Meanwhile, out of 361 women, a small proportion (37.7%) had received vaccinations. The results of the statistical test obtained a value of $p = 0.038$ ($p < 0.05$) meaning that statistically it was believed that there was a significant relationship between gender and acceptance of the covid 19 vaccination.

Based on education, out of a total of 401 respondents with higher education, most (52.4%) had received vaccinations. Meanwhile, out of 128 respondents with primary and secondary education, only a small percentage (4.7%) have received vaccinations. The results of the analysis of the difference in proportion test obtained a value of $p = 0.000$ ($p > 0.05$), so statistically it is believed that there is a significant relationship between education and receipt of the covid 19 vaccination.

In the knowledge variable, of the 471 respondents who have good knowledge, only a small proportion (44.4%) have received the covid 19 vaccination. Meanwhile, of the 58 people with less knowledge, only a small percentage (12.1%) have received the covid 19 vaccination. The statistical test results obtained a value of $p = 0.009$ ($p < 0.05$) meaning that statistically it is believed that there is a significant relationship between knowledge and acceptance. covid 19 vaccination.

On the attitude variable, of the 234 respondents who had a positive attitude, most (54.7%) had received the vaccine, while of the 295 respondents who had a negative attitude, only a small proportion had received the vaccine (29.8%). The results of the statistical test obtained a value of $p = 0.000$ ($p < 0.05$), meaning that statistically it was believed that there was a significant relationship between attitude and acceptance of the covid 19 vaccination.

After the bivariate analysis, a multivariate analysis was carried out to find out how much of the total contribution of all the factors that influence the acceptance of the covid 19 vaccination. This analysis used the Logistics Regression test with the Backward method, which included all predictor variables and then the insignificant predictor variables were excluded from model

until the most significant predictor remains. The variables used as candidates in this logistic regression test are variables that have a p value of <0.25 in bivariate analysis, namely gender, education, knowledge and attitudes, which have previously been done by dummy. The results of multivariate analysis can be seen in the following table:

Table 3
Logistic Regression Analysis of Influential Factors
Covid 19 Vaccination Acceptance

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Step 1a Education	2,841	,434	42,787	1	,000	17,136	7,315	40,147
Gender (1)	-,277	,212	1,704	1	,192	,758	,500	1,149
Knowledge	1.132	,447	6,414	1	,011	3.103	1,292	7,455
Attitude	,709	,201	12,413	1	,000	2.032	1.370	3.013
Constant	-,422	,159	7.006	1	,008	,656		
Step 2a Education	2,860	,434	43,418	1	,000	17,463	7,458	40,886
Knowledge	1,169	,447	6,844	1	,009	3,219	1.341	7,728
Attitude	,699	,200	12,160	1	,000	2.012	1.358	2,981
Constant	-,513	,144	12,769	1	,000	,599		

a. Variable(s) entered on step 1: Education, Sex, Peng, Attitude.

Based on the results of the multivariate analysis as shown in Table 3 above, it can be seen that by using the backward method, there are two steps to arrive at the final modeling result. In the first step, the gender variable has a p value > 0.05 (sig. 0.192) so that the gender variable is excluded from the model. In the second step after the gender variable was removed from the model, there was no change in OR exceeding 10% in the active variables (education, knowledge and attitude) having a p value <0.05 so that the modeling has been completed and it can be concluded that the variables that are significantly proven are the most significant. dominantly influencing the acceptance of covid vaccination, namely education p-value = 0.000, OR = 17,463 CI 95% 7,458-40,886. The next variable is knowledge with p-value = 0.011, OR = 3.21995% CI 1.341-7.728 and the last variable is attitude with p-value = 0.000, OR = 2.01295% CI 1.358–2.981. The equation obtained is $y = -0.513$ (constant) $+2,860$ (education)) $+1,169$ ((knowledge) $+0,699$ (attitude) so that $p=1/(1+2.7-4.22) = 0.9850$, it means that respondents with good education, knowledge and attitudes have a probability of receiving a covid vaccination 98.5%.

Discussion

The COVID-19 vaccination is a further step to overcome the COVID-19 pandemic throughout the world, including in Indonesia. The aim of vaccination to achieve herd immunity continues to be intensified by the Indonesian government. The provision of the covid 19 vaccination starting on January 13, 2021 was given to the President of the Republic of Indonesia "Joko Widodo" with the Sinovac vaccine type. When this research was conducted from March 26, 2021 to July 7, 2021, several vaccines had entered Indonesia, namely Sinovac, Astra Zeneca, and Sinopharm. The findings from research related to knowledge about COVID-19 vaccination were higher than previous studies, which were mostly in the good category (89%), but in contrast to the attitude that a small portion had a positive attitude towards vaccines (44.2%). Meanwhile, only a small proportion of respondents have received the vaccine (40.8%).⁶who reported a good knowledge level of 74%, but only 44.7% positive attitude and 62.6% ready to receive vaccines. Findings in Nigeria⁷also shows that a good level of knowledge is inversely proportional to a low attitude towards COVID-19 vaccination.

This finding contradicts the research in Bangladesh⁸, India⁹, Malaysia¹⁰who reported a low level of knowledge with a positive attitude about covid 19 vaccination. In Bangladesh, knowledge about covid vaccination was still low (57%) but most had a positive attitude (78%). In India⁹, the level of knowledge of respondents aged 18-40 years about covid vaccination is still lacking (64.5%), but most (79%) have a positive attitude towards the covid 19 vaccine. Meanwhile in Malaysia the level of knowledge about covid vaccination is also low at 62 % but the attitude to receive vaccination is high, namely 64.5%.

The findings of this study are similar to those in Saudi Arabia¹¹that education can affect the intention to receive covid 19 vaccination. Similar findings in Bangladesh⁸, Ethiopia⁶stated that a high level of education was significantly associated with more knowledge about the covid vaccination and increased intention to receive the covid 19 vaccination. Good education and knowledge allows for wider insight and access to information.

In addition, in the same study in Bangladesh⁸, attitude is related to female sex being more positive about the covid 19 vaccination. However, other research shows that women's doubts about the covid vaccine are higher than men^{12 13}. In this study, the finding of a lower positive attitude towards vaccination may be due to the lack of socialization about vaccination by the government at that time, various positive and negative information from social media circulating regarding the covid 19 vaccination which caused doubts about the effectiveness and impact of the covid 19 vaccination.

The results of this study are in accordance with the behavioral theory of Lawrence Green's Theory (1980)¹⁴that human behavior is influenced by behavior causes and non behavior causes. Furthermore, the behavior itself is determined or formed from 3 factors. First, predisposing factors which include knowledge, attitudes, beliefs, values and so on. Second, enabling factors, which include the physical environment, the availability or unavailability of work safety facilities or facilities, such as the availability of PPE, training and so on. Third, reinforcement factors, these factors include laws, regulations, supervision and so on.

The acceptance of the COVID-19 vaccination in Indonesian society is also made possible by the driving factor, namely regulations and supervision from the government. It is possible for the community to vaccinate if the government implements binding regulations so that the public is aware or forced to receive the covid 19 vaccination. Until this research data collection is completed, the government will carry out more intensive vaccinations. The government involves almost all other ministries and institutions including the Indonesian National Army and the Police in accelerating the COVID-19 vaccination¹⁵. In addition, to accelerate the achievement of the vaccination program, the government enforces various regulations, such as vaccination requirements for paperwork administration¹⁶, traveler¹⁷, travel, shopping, school and so on.

LIMITATIONS

This study has several limitations, first of all, this research cannot be generalized from time to time. Second, the provisions for the use of the covid vaccine are still developing, so there are some questions that are less relevant as information about vaccines develops. Third, online data collection methods can lead to bias. Fourth, this survey was conducted before vaccination reached all levels of society in various regions of Indonesia so that vaccination acceptance was still relatively low.

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