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Factors Associated With The Covid-19 Vaccination Participation In The Area Of Noyontaan Primary Healthcare Center Pekalongan City

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Abstract

This research article aims to analyze factors associated to participation in the COVID-19 vaccine in the Noyontaan Primary Healthcare Center area, Pekalongan City. This research is a type of analytical research and the design used in this research is case control. This research uses primary data and secondary data. Samples were 46 cases and 46 controls using random sampling technique. The instrument used was a structured questionnaire. Data were analyzed with chi-square test. Results showed that knowledge (OR=4.136; 95% Cl=1.692-10.110), perception towards vaccine safety (OR=2.46; 95% Cl=1.055-5.736) were associated to COVID-19 vaccine participation. Meanwhile attitude (OR=1.312; 95% Cl=0.569-3.026), history of comorbid disease (OR=0.54; 95% Cl=0.236-1.237), perception towards AEFI (OR=0.825; 95% Cl=0.35-1.949), perception towards COVID-19 impact (OR=1.192; 95% Cl=0.524-2.709) were not were associated to COVID-19 vaccine participation.

Abstract

This research article aims to analyze factors associated to participation in the COVID-19 vaccine in the Noyontaan Primary Healthcare Center area, Pekalongan City. This research is a type of analytical research and the design used in this research is case control. This research uses primary data and secondary data. Samples were 46 cases and 46 controls using random sampling technique. The instrument used was a structured questionnaire. Data were analyzed with chi-square test. Results showed that knowledge (OR=4.136; 95% Cl=1.692-10.110), perception towards vaccine safety (OR=2.46; 95% Cl=1.055-5.736) were associated to COVID-19 vaccine participation. Meanwhile attitude (OR=1.312; 95% Cl=0.569-3.026), history of comorbid disease (OR=0.54; 95% Cl=0.236-1.237), perception towards AEFI (OR=0.825; 95% Cl=0.35-1.949), perception towards COVID-19 impact (OR=1.192; 95% Cl=0.524-2.709) were not were associated to COVID-19 vaccine participation.

Keywords : Factors, COVID-19 , COVID-19 Vaccination

INTRODUCTION

The Indonesian government reports that the target achievement of the COVID-19 vaccination program in Indonesia has reached the target. As of March 30 2023, the number of people who had been vaccinated against the first dose of COVID-19 was 203.824.278 (86.86%) and for the second dose was 174.856.019 (74.51%). Central Java is in third place with the highest COVID-19 vaccination achievements in Indonesia. Pekalongan City is one of the cities/regencies with the highest COVID-19 vaccination achievements in Central Java (Kemenkes RI, 2023). However, this target has not been met in the Noyontaan Primary Healthcare Center area, Pekalongan City. According to data from the Noyontaan Primary Healthcare Center, as of March 2023 the number of people who had been vaccinated against the first dose of COVID-19 was 8,501 (68.73%) and for the second dose was 8.314 (67.22%). This figure does not meet the COVID-19 vaccination achievement target set by WHO in 2022, namely a minimum of 70%. As of March 2023, Noyontaan Primary Healthcare Center is the only primary healthcare center in East Pekalongan where the vaccine rate has not yet reached 70% of the total 4 primary healthcare center in East Pekalongan. The lack of vaccine achievement figures is due to the problem that there are some people who refuse to vaccinate against COVID-19, besides that the incidence of COVID-19 in this area is relatively small so people feel that vaccination activities do not need to be carried out.

Based on the results of a preliminary study at the Noyontaan Primary Healthcare Center, Pekalongan City, which was conducted from October to December 2022, around 10% of residents rejected the COVID-19 vaccination program. Interview by the Noyontaan Primary Healthcare Center COVID-19 vaccination team, the obstacle encountered was a lot of disinformation circulating among the public. The phenomenon found in society is that they do not want to vaccinate against COVID-19 because they do not believe in the impact of the COVID-19 virus, are afraid of adverse event following immunization (AEFI), are afraid that their disease history will get worse, and do not believe in the safety of the COVID-19 vaccine. The most common AEFI symptoms were pain at the injection site, fever, shoulder pain, and headache, some people do not want this symptoms to interfere their daily activities. This phenomenon is in line with research Reno (2021), Virgiana (2021), and Ririansyah (2022).

Even though in Indonesia the COVID-19 disease has entered an endemic era, COVID-19 vaccination cannot be ignored. The COVID-19 virus can continue to regenerate into new variants. The risk of COVID-19 remains from the newly emerging COVID-19 variant which can suddenly increase the number of cases and deaths (Kemenkes RI, 2023). On April 21 2023, the Ministry of Health reported an escalate cases of the Arcturus variant of COVID-19, recording 1,145 new COVID-19 cases, and an increase in the COVID-19 death rate to 13 cases from the previous 12 cases. Active cases of COVID-19 increased to 10.881 from the previous 10.448. COVID-19 patients treated on average in the last seven days have increased to 1.617, from 1.573 the previous day (Kemenkes RI, 2023). The latest COVID-19 variant that entered Indonesia is called EG. 5.1 or what is usually called Eris. According to data from the Indonesian Ministry of Health, the Eris variant has dominated Indonesia from July to August 2023, with a percentage of positive cases of more than 20 percent. The Eris type of COVID-19 is known to have faster transmission capabilities than previous variants (WHO, 2023). Based on these factors, researcher are interested in further understanding the factors associated to COVID-19 vaccination participation in the area of Noyontaan Primary Healthcare Center.

METHOD

This research is a type of analytical research because this research aims to determine factors associated to COVID-19 vaccination participation. The design used in this research was case control. In this case control study, the research began by identifying respondents who did not participated in COVID-19 vaccination (cases) and respondents who participated in COVID-19 vaccination (controls) and then retrospectively explored factors associated to the level of participation, while the controls did not. This research uses primary data and secondary data. Samples were 46 cases and 46 controls using random sampling technique. The instrument used was a structured questionnaire. Data were analyzed with chi-square test.

RESULT AND DISCUSSION

The Association between Knowledge and COVID-19 Vaccine Participatipation

Table 1. The Association between Knowledge and COVID-19 Vaccination Participation

Knowledge	Case		Control		Total		*p value*	OR (95% CI)
	N	%	N	%	N	%		
Not good	26	56,5	11	23,9			0,001	4,136 (1,692-10,110)
Good	20	43,5	35	76,1				
Total	46	100	46	100	92	100		

Table 1 shows that from 92 repondents, 26 respondents (56,5%) out of 46 case respondents do not have good knowledge. Meanwhile 20 respondents (43,5%) out of 46 control respondents have good knowledge. The results of the chi-square test show that the confidence interval is 1,692 - 10,110 (does not include the number 1) and the p value is 0,00 < a (0,05), which means there is a association between

knowledge and COVID-19 vaccine participation. The OR is 4,136, which means that respondents with not good knowledge have a 4,136 times risk of not participating in the COVID-19 vaccine compared to respondents with good knowledge. The analysis is because knowledge is one of the basics of a person's life taking action regarding whether someone will vaccinate against COVID-19 or not. So public knowledge needs to be provided quickly and easily understood. Socialization to the public needs to be carried out simultaneously and with correct information and based on facts so as not to give rise to negative perceptions and thoughts. Insufficient knowledge about an object results in a lack of understanding about that object, so that if someone does not know about the COVID-19 vaccination it will result in a lack of understanding in the use of the COVID-19 vaccination. Lack of knowledge will have a negative impact on maintaining one's health, thus reducing a person's health status. Vaccination against COVID-19 will prevent the possibility of transmission of the virus, and if infected, it will not have a dangerous impact.

This research in line with research that showed respondents with undergraduate education, medical graduates, postgraduate graduates have higher knowledge and acceptance of the COVID-19 vaccine (Hammour et al., 2022; (Haque et al., 2021). The lack of knowledge and understanding regarding the benefits and risks of vaccination is one of the causes of public distrust of the COVID-19 vaccine. Public distrust is due to different information. Apart from that, many issues, rumors and information circulating wildly through social media have also caused public confidence in the COVID-19 vaccine to become lower (Halimatusa'diyah, 2021).

The Association between Attitude and COVID-19 Vaccine Participatipation

Table 2. The Association between Attitude and COVID-19 Vaccination Participation

Attitude	Case		Control		Total		*p value*
	n	%	N	%	N	%	
Negative	20	43,5	17	37			0,524
Positive	26	56,5	29	63			
Total	46	100	46	100	92	100	

Table 2 shows that from 92 repondents, 20 respondents (43,5%) out of 46 case respondents have negative attitude. Meanwhile 26 respondents (56,5%) out of 46 control respondents have positive attitude. The results of the chi-square test show that the confidence interval is 0,569 - 3,026 (include the number 1) and the p value is 0,524 > a (0,05), which means there is no association between attitude and COVID-19 vaccine participation. The analysis is a person's attitude can influence actions. Actions are all human activities or actions, both those that can be directly observed and those that cannot be seen from outsiders. Human actions such as willingness to accept sincerely. Attitude is a person's closed response to a particular stimulus or object which already involves the relevant opinion and emotional factors. The factor that plays an important role in determining a person's attitude is knowledge. A good level of knowledge can influence a person in determining their attitude towards something.

This research in line with research that showed there is no relationship between attitudes with COVID-19 vaccine participation. This matter may occur because a person's behavior is operationally shaped by three factors that are associated to each other, namely predisposing factors, enabling factors, and reinforcing factors (Saadah et al., 2023). In another research showed the relationship between knowledge and attitudes in implementing COVID-19 vaccination has no association between attitudes in implementation of COVID-19 vaccination (Dwi et al., 2022; Windiyati & Fransiska, 2021).

A research at Gatot Soebroto Hospital Jakarta, it was found that the majority of respondents in the attitude category did not support the act of being willing to prevent COVID-19 by wearing a mask and the results shows there is no association between attitude and willingness to act. Thus, researchers can conclude that there is no relationship between attitude and willingness to receive COVID-19

vaccination (Yulliyanti, 2020). This proves that a person's positive attitude is not always directly proportional to a person's actions. This is in accordance with the theory which says that a person's attitude is not always directly proportional to a person's actions.

The Association between History of Comorbid Disease and COVID-19 Vaccination Participation

Table 3. The Association between History of Comorbid Disease and COVID-19 Vaccination Participation

History of Comorbid Disease	Case		Control		Total		*p value*
	N	%	n	%	N	%	
Yes	18	39,1	25	54,3			0,144
No	28	60,9	21	45,7			
Total	46	100	46	100	92	100	

Table 3 shows that from 92 repondents, 18 respondents (39,1%) out of 46 case respondents have history of comorbid disease. Meanwhile 28 respondents (60,9%) out of 46 control respondents do not have history of comorbid disease. The results of the chi-square test show that the confidence interval is 0,236 - 1,237 (include the number 1) and the p value is 0,144 > a (0,05), which means there is no association between history of comorbid disease and COVID-19 vaccine participation. The analysis is several respondents who had a history of comorbid disease chose not to get the COVID-19 vaccine out of concern that it may worsen their condition. This is in line with research that stated assumptions that the most vulnerable would automatically accept COVID-19 vaccination are erroneous and thus call for health care team members to initiate discussions focusing on the impact of the vaccine on an individual's underlying condition. Another research have different result, the presence of comorbid disease could escalate the regularity of doctor appoinment (Druss et al, 2008). On the other hand, this could indicate to more frequent explanations of and recommendaions for preventive vaccinations and therefore add higher vaccinations rates (Lawrence, 2020) . The more health problems people had and the more medication they used, the higher was the vaccination rate (Buchwald, 2000).

This research in line with research that showed comorbidity did not significantly affect COVID-19 vaccine acceptance (Nabavi et al., 2022). Another study showed older patients and people with comorbidities seem to be more ready to participate in COVID-19 vaccination. Also, men and people who are unable to walk independently were more likely to be intent in getting a COVID-19 vaccine but both results did not reach statistical significance (Serrazina et al., 2021).

The Association between Perception towards AEFI and COVID-19 Vaccination Participation

Table 4. The Association between Perception towards AEFI and COVID-19 Vaccination Participation

Perception towards AEFI	Case		Control		Total		*p value*
	n	%	n	%	N	%	
Negative	29	63	15	32,6			0,662
Positive	17	37	31	67,4			
Total	46	100	46	100	92	100	

Table 4 shows that from 92 repondents, 29 respondents (63%) out of 46 case respondents have negative perception towards AEFI. Meanwhile 17 respondents (37%) out of 46 control respondents have positive perception towards AEFI. The results of the chi-square test show that the confidence interval is 0,35 - 1,949 (include the number 1) and the p value is 0,662 > a (0,05), which means there is no association between perception towards AEFI and COVID-19 vaccine participation. The analysis is the

AEFI are reported to be mild symptoms such as pain and mild fever after vaccination, which are tolerable for those people supporting vaccination. This research in line with study that stated adverse events following immunization (AEFI) have no relationship with demand for the COVID-19 vaccine for elderly (Susilawati et al., 2021). Another study found that perceived severity to COVID-19 vaccine side effect does not exert any impact to vaccine intention (Zheng et al., 2022).

The Association between Perception towards Vaccine Safety and COVID-19 Vaccination Participation

Table 5. The Association between Perception towards Vaccine Safety and COVID-19 Vaccination Participation

Perception towards Vaccine Safety	Case		Control		Total		*p value*	OR (95% CI)
	n	%	n	%	n	%		
Disagree	25	54,3	15	32,6			0,035	2,46 (1,055-5,736)
Agree	21	45,7	31	67,4				
Total	46	100	46	100	92	100		

Table 5 shows that from 92 repondents, 25 respondents (54,3%) out of 46 case respondents disagree with perception towards vaccine safety. Meanwhile 21 respondents (45,7%) out of 46 control respondents agree with perception towards vaccine safety. The results of the chi-square test show that the confidence interval is 1,055 - 5,736 (does not include the number 1) and the p value is 0,035 < a (0,05), which means there is a association between perception towards vaccine safety and COVID-19 vaccine participation. The OR is 2,46, which means that respondents that disagree with perception towards vaccine safety have a 2,46 times risk of not participating in the COVID-19 vaccine compared to respondents that agree with perception towards vaccine safety. The analysis is there are still quite a lot of respondents who think that the COVID 19 vaccine is unsafe, contains poison, and can actually cause someone to be infected with the corona virus and even cause death, so the safetyness of the vaccine is still in doubt. Based on respondents' statements, this information can be trusted because it is widely discussed among the public and there is a lot of evidence spread on social media. This creates fear and leads to refusal to get vaccinated. People's perceptions which will ultimately provide an assessment and response to an object are very dependent on the stimuli in the environment, because these stimuli will be processed together with things that have been studied previously.

Similar results were obtained in a survey conducted by the Kemenkes RI in 2021 which stated that many people believe that the current pandemic condition is the product of propaganda, conspiracy, hoaxes, and/or deliberate efforts to obtain benefits for certain individuals. This information continues to circulate among the public, influencing public perception and acceptance of the COVID-19 vaccine (Kemenkes RI, 2020). A literature review showed that the level of public anxiety and doubt that causes bad perceptions regarding COVID-19 vaccination activities stems from the absence of effective communication or education from health services for the public so that there is a lot of hoax news circulating and making people afraid to get the vaccine (Astuti et al., 2022).

The Association between Perception towards COVID-19 Impact and COVID-19 Vaccination Participation

Table 6. The Association between Perception towards COVID-19 Impact and COVID-19 Vaccination Participation

Perception towards COVID-19	Case		Control		Total		*p value*
	n	%	N	%	N	%	
Negative	22	47,8	20	43,5			0,675
Positive	24	52,1	26	56,5			
Total	46	100	46	100	92	100	

Table 6 shows that from 92 repondents, 22 respondents (47,8%) out of 46 case respondents have negative perception towards COVID-19. Meanwhile 24 respondents (52,1%) out of 46 control respondents have POSITIVE PERCEPTION TOWARDS COVID-19. The results of the chi-square test show that the confidence interval is 0,524 - 2,709 (include the number 1) and the p value is 0,675 > a (0,05), which means there is no association between perception towards COVID-19 impact and COVID-19 vaccine participation. A possible interpretation of these results is linked to the fact that, at least initially, COVID-19 was often associated with flu by mass media, experts, and politicians, having made it probably perceived as less frightening. This assumption changed during the national lockdown, which clearly defined the state of emergency. This result is consistent with the risk as feeling theory (Slovic et al., 2002; Slovic and Peters, 2006), according to which the perception of risk depends on specific characteristics of a hazard. In the case of COVID-19, in the transition from pre-lockdown to lockdown, this has become a physically and psychologically close threat.

This research in line with study that found the judgements of concern, likelihood of infection, and disease severity changed over time, in line with the dynamic nature of the process (Schneider et al., 2021). Another study stated that (i) participants did not find they were at notably high risk of infection and (ii) that this perception was not a strong factor of vaccine hesitancy, prompting that the vaccination decision-making process is influenced by reasoning of both personal and societal health benefits (Baccolini et al., 2021).

This research in line with study suggesting that perceived risk of infection and precautionary behavior can vary through time, impacting the effectiveness of disease control measures (Marta, 2021). Results indicated that even if the perceived likelihood of getting infected increased over time, the interest in preventive pharmaceutical interventions and commitment to certain precautionary activities decreased over time (Ibuka et al., 2010).

Multivariate Analysis

Multivariate analysis was carried out to determine the contribution of all factors that associated with the COVID-19 vaccine participation. Independent variables that have no association will automatically be removed from the calculation. The variables included in the logistic regression test are variables that in the bivariate analysis have a p-value <0.25, namely the knowledge and perception towards vaccine safety. Based on the logistic regression test carried out, the results obtained are as in Table 7 :

Table 7. Results of Multivariate Analysis using the Logistic Regression

Variable	B	S.E.	Wald	df	p-value	Exp (B)	95% Cl	
							Lower	Upper
Knowledge	0,057	0,436	0,017	1	0,897	1,058	0,450	2,488

Perception towards Vaccine Safety	0,898	0,432	4,319	1	0,038	2,455	1,052	5,728
Contant	-1,498	0,980	2,338	1	0,126	0,223		

Based on table 7, it is known that the variable that had a significant association as factors associated with the COVID-19 vaccine participation are perception towards vaccine safety. Perception towards vaccine safety p-value (0,038) and the largest Wald value (4,319). Exp (B) value for the perception towards vaccine safety variable is 2,455, which means that after controlling for other variables, respondents with perception towards vaccine safety are 2,455 times more likely not to participate in the COVID-19 vaccination. The results of the multivariate analysis showed that the variable that has the greatest association with COVID-19 vaccine participation is perception towards vaccine safety. Based on the result analysis, it is known that respondents that have negative perception towards vaccine safety have a greater risk of not particiapted in COVID-19 vaccine. Several previous studies show people with negative perception towards vaccine safety is at risk of not participated in COVID-19 vaccine. There are still quite a lot of people who think that the COVID 19 vaccine is unsafe, contains poison, and can actually cause someone to be infected with the corona virus and even cause death, so the safetyness of the vaccine is still in doubt. This condition is predicted to be reason why the results of this study show that people with negative perception towards vaccine safety have a greater risk of not participated in COVID-19 vaccine.

CONCLUSION

Based on the research result and discussion, the conclusions of this research are there is association between knowledge and perception towards vaccine safety with COVID-19 vaccine participation in the area of Noyontaan Primary Health Care Center Pekalongan City. Meanwhie there is no association between attitude, history of comorbid disease, perception towards AEFI, and perception towards COVID-19 impact with COVID-19 vaccine participation in the area of Noyontaan Primary Health Care Center Pekalongan City.

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