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The Level of Education, Knowledge, Attitudes and Acceptance of the Covid-19 Vaccine in the North Sulawesi Community

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ABSTRACT

Corona Virus Disease (Covid)-19 is still a global problem. One of the efforts in the health sector to control this disease is vaccination. However, several problems were encountered in carrying out vaccination activities such as low education, lack of knowledge and negative attitudes towards the Covid-19 vaccine. The purpose of this study was to analyze the correlation between education level, knowledge and attitudes and acceptance of Covid-19 vaccination in North Sulawesi community. This is an observational research with a cross-sectional approach. This research was carried out in North Sulawesi Province by taking the focus of the place, namely in Minahasa Regency. This research was conducted during December 2022. The respondents to this study were 400 people aged 18 years and over who were willing to be respondents. The sampling method used is accidental sampling. The variables in this study are the level of education, knowledge, attitude and acceptance of the Covid-19 vaccination. The instrument used is a questionnaire that has been tested for validity and reliability. Data obtained through interviews with respondents. Interviews were conducted online (using the Google form) and offline (conducted directly in the community). Data analysis was carried out in this study using the chi square test. The results showed that the correlations between education level and vaccination acceptance found a value of p = 0.014 (p <0.05), which means that education level was significantly correlated to vaccination acceptance. In addition, a PR value of 1.989 was obtained, which means that respondents with low education were more likely to receive incomplete vaccinations 1.989 times. The correlations between knowledge and vaccination acceptance found a p-value of 0.435 (p> 0.05), which means that knowledge had no significant correlations with vaccination acceptance. The

correlations between attitude and vaccination acceptance found a p-value of 0.012 ($p < 0.05$), which means that attitude is significantly correlated to vaccination acceptance. In addition, a PR value of 2.111 was obtained, which means that respondents who had a poor attitude 2.111 times more easily received incomplete vaccinations. It can be concluded that the level of education and attitude were factors correlated to the acceptance of the Covid-19 vaccination in North Sulawesi community.

Keywords: level of education, knowledge, attitude, vaccine acceptance

INTRODUCTION

Corona Virus Disease 2019 (Covid-19) is a disease caused by the Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) virus. Infection with the SARS-CoV-2 virus causes lower respiratory tract infections and then develops into severe acute respiratory syndrome, multiple organ failure, and even death. This disease can become more severe if it affects the elderly and people who have comorbid conditions (Covid-19 Task Force, 2021). The Covid-19 virus is a virus that belongs to the coronavirus family, and is a positive single strain Ribonucleic Acid (RNA) virus, encapsulated and not segmented. There are 4 main protein structures in Coronavirus, namely: protein N (nucleocapsid), glycoprotein M (membrane), spike glycoprotein, and protein E (envelope). The covid-19 virus belongs to the betacoronavirus genus, generally round in shape with several plemorphics, and 60-140nm in diameter (Riadi, 2019). Covid-19 is transmitted from animals to humans (zoonoses) and also from humans to humans. Transmission from human to human can be through direct contact in the form of secretions such as saliva and respiratory tract secretions or respiratory droplets that come out when an infected person coughs, sneezes and talks. The infected secretions are spread through the air, contaminated objects. The incubation period for COVID-19 is on average 4-6 days, with a range of 1-14 days. The highest risk of transmission is obtained on the first day of the disease, this is due to the high concentration of virus in the secretions (WHO, 2020). Efforts are being made to prevent transmission of Covid-19, namely by wearing masks, washing hands with soap, avoiding crowds, reducing mobility and carrying out Covid-19 vaccinations (Riadi, 2019).

The administration of the Covid-19 vaccination has now entered the 3rd or booster dose stage in accordance with the Circular issued by the Indonesian Ministry of Health number SR.02.06/II/408/2022 concerning Adjustments to the Implementation of Advanced Doses of Covid-19 Vaccination (Booster). Vaccination booster is a covid-19 vaccination that will be given after someone has received the primary vaccination, that is, they have received dose 1 and dose 2 vaccinations with a minimum distance of vaccine doses 2 to dose 3 is 3 months. Booster vaccination is intended for people over 18 years of age. The implementation of stage 3 vaccination is aimed at maintaining the level of immunity and extending the protection period (Directorate General of Disease Prevention and Control, Ministry of Health, Republic of Indonesia, 2022; Ministry of Health, Republic of Indonesia, 2022b). The Ministry of Health of the Republic of Indonesia (Kemenkes RI) as of 8 November 2022 stated that the number of people in Indonesia who had received the 1st dose vaccine was 205,206,052 people with a percentage (87.45%), the 2nd dose vaccine was 172,022,447 people with a percentage (73 .31%) and vaccine dose 3 as many as 65,486,977 people with a percentage (27.91%) (Ministry of Health RI, 2022).

North Sulawesi received vaccinations as of 8 November 2022 for dose 1 of 1,735,310 (74.85%), while dose 2 was 1,298,778 (56.02%), and vaccine dose 3 was 461,635 (19.91%) (North Sulawesi Provincial Health Office). Minahasa Regency, the number of people who received dose 1 vaccine was 206,952 people (73.49%), who got dose 2 was 157,462 people (55.95%), and who got dose 3 was 20,581 people (7.31%). Based on these data, there are visible problems in the Covid-19 vaccination process in North Sulawesi and Minahasa Regency. One of them is the still low percentage of people who have received the phase 2 vaccine, which is still around 55-56%. This figure is far from the national level which has reached 73%.

There are many theories that explain the factors that influence behavior. Behavior itself is an activity or activity that can be observed directly or cannot be observed by outsiders. In the health sector, one of the theories that explains the factors that influence behavior and is the basis of reference in this study is the Precede-Proceed theory developed by Green and Krauter, which is an acronym for 3 factors that influence behavior, namely Predisposing, Enabling and Reinforcing Causes in Educational Diagnosis and Evaluation. One of the predisposing factors is the level of education, knowledge and attitude (Notoatmodjo, 2007; Irwan, 2017; Pakpahan, 2021; Nelwan 2022). The results of initial observations showed that the factors of education level, knowledge and attitude were problems in achieving the Covid-19 vaccination target in North Sulawesi. In rural areas, especially in Minahasa Regency, low education means that people are still reluctant to receive vaccines. This is supported by the amount of incorrect information circulating about the Covid-19 vaccine such as the issue of vaccines that can cause death and others so that people's knowledge is not good which has an impact on people's negative attitudes towards the Covid-19 vaccine. Education is an activity in the form of guidance given to someone or to other people to understand something. The higher a person's education, the easier it is to obtain information and knowledge that will be more extensive. Conversely, someone who has a low level of education will hinder the development of a person's attitude in accepting newly introduced information and values (Notoatmodjo, 2007; Nelwan 2022).

Every human knowledge will continue to increase and even the knowledge received can vary according to the experiences experienced by each individual. Bruner stated that the knowledge process is divided into three aspects, namely the process of obtaining information, the process of transformation, and the process of evaluation. The process of obtaining information means the process whereby the new information obtained is a substitute for knowledge that has been previously obtained or is a refinement of previous information. The process of transformation is the process of manipulating knowledge to suit new tasks. The evaluation process is carried out by re-checking whether the way to process information is adequate. Attitude is a reaction or response that is still closed from someone to a certain stimulus or object. Everyone who has positive feelings towards a psychological object is said to have a favorable attitude towards that object, while individuals who have negative feelings towards a psychological object are said to have an unfavorable attitude towards the object of that attitude (Notoatmodjo, 2007; Irwan , 2017; Pakpahan, 2021; Nelwan 2022; Arianti, 2017). These things are the basis of the urgency of this research being carried out. The purpose of this study was to analyze the correlation between the education level, knowledge and attitudes with the acceptance of Covid-19 vaccination in North Sulawesi community.

METHODS

This is observational research with a cross-sectional approach. This research was carried out in North Sulawesi Province by taking the focus of the place, namely in Minahasa Regency. This research was conducted during December 2022. The respondents to this study were 400 people aged 18 years and over and who were willing to be respondents. The sampling method used accidental sampling. The variables in this study are the level of education, knowledge, attitude and acceptance of the Covid-19 vaccination. The instrument used is a questionnaire that has been tested for validity and reliability. Data obtained through interviews with respondents. Interviews were conducted online (using the Google form) and offline (conducted directly in the community). Data analysis was carried out in this study using the chi square test.

RESULTS AND DISCUSSION

In-depth Analysis of the Use of Information Technology

The results of the correlation between education level, knowledge and attitudes and acceptance of the Covid-19 vaccine are explained in Table 1.

Table 1. The correlation between the independent and independent variables

Dependent variable			Acceptance of Covid-19 Vaccination		Total	PR (CI 95%)
Independent variable			Incomplete	Complete		
Level of education	Low	n	33	100	133	
		%	24,8%	75,2%	100,0%	**0,014***
	High	n	38	229	267	
		%	14,2%	85,8%	100,0%	**1,989**
Total		n	71	329	400	**(1,180-3,352)**
		%	17,8%	82,3%	100,0%	
Knowledge	Low	n	32	129	161	
		%	19,9%	80,1%	100,0%	0,435
	Good	n	39	200	239	
		%	16,3%	83,7%	100,0%	1,272
Total		n	71	329	400	(1,758-2,134)
		%	17,8%	82,3%	100,0%	
Attitude	Low	n	51	180	231	
		%	22,1%	77,9%	100,0%	**0,012***
	Good	n	20	149	169	
		%	11,8%	88,2%	100,0%	**2,111**
Total		n	71	329	400	**(1,205-3,698)**
		%	17,8%	82,3%	100,0%	

Tabel 1 showed that:

1. The results of the analysis of the correlation between education level and vaccination acceptance found a value of p = 0.014 (p <0.05), which means that education level was significantly correlated to vaccination acceptance. In addition, a PR value of 1.989 was obtained, which means that respondents with low education were more likely to receive incomplete vaccinations 1.989 times.
2. The correlation between knowledge and vaccination acceptance found a p-value of 0.435 (p> 0.05), which means that knowledge had no significant correlation with vaccination acceptance.
3. The correlation between attitude and vaccination acceptance found a p-value of 0.012 (p <0.05), which means that attitude is significantly correlated to vaccination acceptance. In addition, a PR value of 2.111 was obtained, which means that respondents who had a poor attitude 2.111 times more easily received incomplete vaccinations.

The result showed that the most respondents are in the age group 18-59 years, female sex, highly educated (High school and University) and have worked. There are many factors that can influence an individual's decision to accept or refuse a Covid-19 vaccine, but based on current research, there does appear to be a correlation between certain demographic characteristics and vaccine acceptance. Specifically, research has shown that individuals in the age group 18-59 years, female sex, highly educated, and have worked with the Covid-19 vaccine tend to be more accepting of the vaccine. One possible explanation for this correlation is that individuals who are highly educated may have a better understanding of the science behind the vaccine and are therefore more likely to trust its safety and efficacy. Similarly, those who have worked with the vaccine may have firsthand knowledge of its development and testing process, which could also contribute to a greater level of trust in the vaccine. Additionally, females tend to be more health-conscious than males and are more likely to engage in preventive health behaviors, including vaccination. The age group 18-59 years is also likely to include individuals who are actively participating in the workforce and are therefore more likely to view vaccination as a way to protect themselves and their colleagues from the virus. It is important to note that correlation does not necessarily imply causation, and there are likely many other factors that influence vaccine acceptance beyond these demographic characteristics. It is also important to continue to educate the public about the safety and efficacy of Covid -19 vaccines and to address any concerns or questions individuals may have about the vaccine.

The results showed that the education level was significantly related to vaccination acceptance, which means that respondents with low education were more likely to receive incomplete vaccinations 1.989 times. Research conducted by Lasmita et al (2021) found a correlation between the last level of education and vaccine acceptance in the Pejuang sub-district community, Bekasi City (p-value <0.029). Another study conducted by Ardiningsih and Kardiwinata, (2021) in people in Karangasem district found a correlation between their last education and vaccine acceptance (p-value <0.010). The results of this study are in line with research from Lasmita et al (2021) which found that the most respondents

who received vaccines were highly educated (46.1%). Research conducted in the United States by Malik et al (2021) found that along with a high level of education, acceptance of the Covid 19 vaccination program will also increase. A study has also been conducted in Saudi Arabia by Al-Mohaithef et al (2021), Respondents with the highest education expressed more interest in receiving the Covid-19 vaccine, namely 68.84%. Similar research has also been carried out by Khubchandani et al (2021) showing that more respondents who have university degrees have received the Covid-19 vaccination program, namely 77%.

The result showed that the knowledge had no significant correlation with vaccination acceptance. The results of this study indicate that 80.1% of people who have low knowledge have received complete vaccinations. In addition, there are still 16.3% of people who have good knowledge but who do not fully receive vaccinations. The results of this study indicate that good knowledge does not necessarily mean that the public will receive the complete vaccine or that poor knowledge will not receive the complete vaccine. Knowledge is one of the predisposing factors that make it easier for someone to act. This theory explains that knowledge is a very important domain for shaping one's actions or behavior. Behavior based on knowledge will be more lasting than behavior that is not based on knowledge (Notoatmodjo, 2012). Research conducted on students of the nursing profession at the University of Indonesia stated that there was also no significant correlation between the level of knowledge and infection prevention measures. In his research also explained that there are other factors besides knowledge that can influence infection prevention behavior. The results of this study also indicate that there are other factors besides knowledge that can affect the acceptance of vaccination by the public. Based on the results above, it can be concluded that acceptance of the Covid 19 vaccination is not only influenced by knowledge, but can be influenced by other predisposing factors, supporting factors, and driving factors (Notoatmodjo, 2012).

The results showed that the attitude is significantly correlated to vaccination acceptance. In addition, a PR value of 2.111 was obtained, which means that respondents who had a poor attitude 2.111 times more easily received incomplete vaccinations. Attitudes are psychological states that are shaped by a person's beliefs, values, and emotions. Vaccine acceptance refers to a person's willingness to receive a Covid-19 vaccine. Research has shown that people's attitudes towards vaccines can influence their acceptance of the Covid -19 vaccine. People who have positive attitudes towards vaccines in general are more likely to accept the Covid -19 vaccine. On the other hand, people who have negative attitudes towards vaccines or who are skeptical of their safety and effectiveness are less likely to accept the Covid -19 vaccine. Attitudes towards the Covid -19 vaccine can also be influenced by factors such as political beliefs, religious beliefs, and cultural norms. For example, people who identify as Republicans or conservatives in the United States have been found to be less likely to accept the Covid -19 vaccine compared to those who identify as Democrats or liberals. Similarly, some religious groups have expressed skepticism about the vaccine, which can influence their members' attitudes towards it. Overall, a person's attitudes towards vaccines and their beliefs about the Covid -19 vaccine's safety and effectiveness are important factors that can impact their willingness to get vaccinated. It is important for public health officials to understand these attitudes and beliefs in order to effectively promote vaccine acceptance and control the spread of Covid -19.

Attitude is a factor contained within the individual that is able to have an impact on the behavior to be performed. Acceptance of behavior or adoption of behavior that is based on a positive attitude then this behavior can be long lasting (Notoatmodjo, 2012). Research conducted by Widjaja et al (2022) on health workers and the general public at Bandung Immanuel Hospital found that there was a correlation between attitude and vaccine acceptance with a p-value <0.05. Another study conducted by Isnaini (2021), in the community in Banjarmasin, a correlation was found between attitudes and acceptance of the Covid-19 vaccine (p-value = 0.000). The results of this study are in line with the theory of Notoatmodjo (2012) which explains that a person's actions in this case receiving the Covid-19 vaccination are influenced by predisposing factors. This factor is a factor that exists within the individual in which there is an attitude of the individual. Individual attitude is the beginning of the realization of individual action or behavior. Based on this theory, it can be concluded that people's attitudes towards receiving the Covid-19 vaccination are indeed able to influence the acceptance of the Covid-19 vaccination by the community. The results of this study are in line with the research of Saqlain et al (2020) which states that there is a significant correlation between attitudes and actions. A positive attitude is a motivation or awareness in a person to be able to do work as part of a fun activity so that they can behave properly and vice versa. From these results, the researcher assumes that the people in this study who have a positive attitude will also have good actions because with a positive attitude someone will confidently and optimistically participate actively in tackling the Covid-19 pandemic in Indonesia in accordance with what is learned and applied through experience and responsibility without being burdened by anything so that he will always try to protect himself, his family and others from exposure to the Covid-19 virus. One of these efforts is to receive the Covid-19 vaccination.

CONCLUSION

It can be concluded that the level of education and attitude were factors correlated to the acceptance of the Covid-19 vaccination in people in North Sulawesi. Therefore, efforts are needed to create a positive public attitude towards the Covid-19 vaccination which can prevent the transmission of Covid-19 in the community. These efforts can be carried out through massive and structured health promotion through social, print and electronic media or through community meetings.

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