

Research Article

Age, History of Vaccination, and Occupation As the Determining Factors of Higher Acceptance of the COVID-19 Vaccination in Tanah Laut Regency

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Prevention of spread was important to overcome the COVID-19 pandemic while the vaccine was in the development process. Communities participated in various efforts to prevent transmission by implementing health protocols. There are several determinants that influence the acceptance of the COVID-19 vaccination program in Indonesia. This study aims to conduct a quantitative analysis of the most significant determinants that enhance the acceptance of the COVID-19 vaccination in the community of Telaga Village, Tanah Laut Regency. This study uses a quantitative analytical observational method with a cross-sectional study design approach. The instrument used is a questionnaire which is distributed directly to the public, where the sampling technique was carried out by accidental (spontaneous) methods. Respondents amounted to 100 people (>18 years old) residing in Telaga Village, Tanah Laut Regency. In this study, univariate analysis was carried out, and bivariate was tested using the Chi-Square statistical test. Binary logistic regression was used to determine the most significant variable that affected the acceptance of the COVID-19 vaccination. The results showed that there was no significant relationship between knowledge, occupation, gender, and education with the acceptance of the COVID-19 vaccination. However, there was a significant relationship between age, occupation, COVID -19 vaccination history and perception of the acceptance of the COVID-19 vaccine. Meanwhile, being younger, already vaccinated with the COVID-19 vaccine, and having an active job are the most significant factors affecting the higher rate of COVID-19 vaccination acceptance in Tanah Laut Regency.

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1. INTRODUCTION

The World Health Organization (WHO) declared Covid-19 as a global pandemic on March 11, 2020. Covid-19 was caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is reported that this virus is a new type of corona virus from the same genus as the SARS-Cov and MERS-Cov viruses. A survey conducted by the University of Maryland in collaboration with Facebook from January 10 to March 31, 2021, in the Ministry of Health of the Republic of Indonesia (1) resulted in a figure of 80.8% of people ready to be vaccinated against COVID-19. A positive report from the COVID-19 Symptom Survey showed that 19.2% of the population had doubts about vaccination between January and March 2021. Then 49.2% of the public were concerned about the after-effects of being vaccinated and 34.9% wanted to wait and see for reasons of doubt. Vaccination decisions in Indonesia vary the most based on age, with 20.9% aged 18-24 years old and 21.4% aged 25-34 years old.

Based on the journal entitled Relationship Level of Knowledge and Willingness of Covid-19 Vaccination to Residents of Dukuh Menanggal Village, Surabaya City. It can be concluded that from a total of 37 respondents who knew about the vaccination program, 83.8% and about 81% agreed to be vaccinated. The significance result is 0.000 (< 0.05) so it can be concluded that there is an influence of knowledge on the willingness to vaccinate the residents of Dukuh Menanggal Surabaya City (2).

Based on a journal entitled The Relationship of Knowledge and Perception to the Acceptance of the Covid-19 Vaccine in the Community where the research was carried out at the Aikmel Health Center, East Lombok Regency (3). Two factors were found that had a dominant influence on the acceptance of the COVID-19 vaccine based on the results of a multivariate analysis. Regarding respondents' perceptions of COVID-19, the results showed that respondents with positive perceptions were 27,578 times more willing to receive the COVID-19 vaccine than respondents with negative perceptions. Based on the characteristics of the history of the COVID-19 vaccine, respondents who had received at least 1 dose of the COVID-19 vaccine were found to be 3.999 times more willing to receive the COVID-19 vaccine than respondents who had not received the COVID-19 vaccine.

Based on data from the Ministry of Health, vaccination in South Kalimantan Province as of October 21, 2021 has only reached 34.37% for the first dose and 20.53% for the second dose. From these data it is concluded that the percentage obtained has not reached the target to be achieved, namely 80%. From the Public Relations of the Tanah Laut Police, it was reported that the COVID-19 vaccination in Tanah Laut Regency as of

October 26, 2021 which was held was still below 50% overall (4). The purpose of this study was to determine the knowledge, perception, and acceptance of the community in Telaga Village, Tanah Laut Regency to the COVID-19 vaccine. Then also to find out the relationship between knowledge and perception of the acceptance of the COVID-19 vaccine in the community in Telaga Village, Tanah Laut Regency.

2. MATERIALS AND METHODS

This type of research is a research using quantitative analytical observational method with a cross-sectional study design (cross-sectional) as the approach. This study was conducted with the aim of knowing the relationship between knowledge and perception of the acceptance of the COVID-19 vaccine in the community in Telaga Village. This research was conducted on the community in Telaga Village. The time needed in this study is about two months, namely March - April 2022.

In this study, non-probability sampling was chosen, where in this technique each member of the population does not get the same opportunity or opportunity to be selected as a sample. Sampling is done by door to door method, where the sample selection is spontaneous or unintentional. This means that anyone who meets the researcher accidentally and seems to fit the criteria to become a respondent, then that person can be selected as a sample (5).

Inclusion criteria are criteria that can be used as members in a population in other words meet the criteria according to the theory related to the topic and research conditions. The inclusion criteria in this study were people living in Telaga Village (by showing KTP), aged at least 18 years and over, who could and understood Indonesian orally or in writing, willing to help fill out questionnaires, people who had been exposed to COVID-19 and those who have not, and those who have been vaccinated and have not been vaccinated. Exclusion criteria are criteria that cannot be sampled in this study are people who are seriously ill such as unable to move their limbs, cannot think hard, are unconscious and have mental disorders.

In this study, the data collection instrument that used is a questionnaire. This questionnaire was distributed door to door or offline to the public, where this questionnaire consists of several parts that are already valid and reliable, namely a questionnaire sheet about sample characteristics including information on socio-demographic characteristics and information on participant characteristics related to the COVID-19 vaccine, sheet questionnaire related to public knowledge of COVID-19 and COVID-19 Vaccine,

questionnaire sheet related to public perception of the COVID-19 Vaccine, questionnaire sheet related to public acceptance of the COVID-19 Vaccine.

In previous research, the content and face validity of the instrument were reviewed by experts, namely lecturers who have expertise in preparing questionnaires and testing the construct validity of the questionnaires carried out in the work area of Kalijaga Health Center, Aikmel District, East Lombok Regency to 30 respondents with a total of 20 questions that have been declared valid (3). Testing the reliability of the instrument in previous studies using the Cronbach's alpha method. In research, this method is often used to measure scales with ranged answers such as the Likert scale (6). To find out whether the instrument is reliable or not, the reliability coefficient limit of 0.6 is used (6–8). From the results of the analysis of previous studies, a reliability value of 0.862 (3).

In this study, univariate analysis was used to examine socio-demographic characteristics, vaccine-related characteristics, level of knowledge and public perception in Telaga Village regarding COVID-19 and acceptance of COVID-19 vaccines. Knowledge, perception, and acceptance are presented descriptively based on the distribution of answers to each question. Knowledge is categorized as a good level of knowledge, and less based on a predetermined score in each group (5). Perceptions were categorized as positive and negative perceptions using the cut-off median score for each group. Meanwhile, acceptance is categorized as high and low acceptance by using the cut-off median score in each group (9).

Data were entered and analyzed using SPSS version 23 (SPSS, Chicago, IL, USA). We used the chi-square tests and Fisher's exact tests to analyze differences in sociodemographic, knowledge, and perception relation to acceptance in vaccination. The variables that had been reported previously to potentially confound the association examined or were possibly related to main independent and outcome variables using simple logistic regression models ($p \leq 0.25$) (10) were considered for multivariable regression models selection. Logistic regression using the "enter method" with all potential covariates simultaneously included for consideration was performed for final model selection. All factors were reported with their adjusted odds ratios (aORs) and their 95% confidence intervals (CIs). A p value of < 0.05 was considered statistically significant.

Ethical considerations The Commission of Research Ethics of the University of Muhammadiyah Malang (No. E.5.a/044/KEPK-UMM/III/2022) provided ethical approval. Informed consent was sought from each respondent about the details of the study's background, objectives, and providing information on the protection of the participant's data. All respondents signed a written informed consent (11).

3. RESULTS

In total, a valid sample of 100 participants was included for analyses. Most participants were aged 18-35 years (66%), male (60%), had attended higher education (86%), had more than three kilometers distance to healthcare facility (76%) and were working (96%) (Table 1). The results of the analysis of respondent characteristics related to the COVID-19 vaccination showed that almost all of the respondents involved had ever been vaccinated with COVID-19 vaccine (Table 1). The results of knowledge and perception regarding COVID-19 and COVID-19 vaccination showed in table one showed that mostly participants were had good knowledge (93%) and positive perception (60%).

TABLE 1: Distribution of participants by acceptance rate of COVID-19 vaccination.

Variables	Total (n=100)	Acceptance		p-value**
		Lower n (%)	Higher n (%)	
Age 18-35 years >35 years	66 (66) 34 (34)	8 (33.3) (66.7)	16 58 (76.3) (23.7)	<0.001*
Gender Male Female	60 (60) 40 (40)	18 (75) 6 (25)	42 (55.3) (44.7)	0.085
Education Lower Higher	14 (14) 86 (86)	6 (25) 18 (89.5)	8 (10.5) (89.5)	0.094
Occupation Not Working Working	4 (4) 96 (96)	2 (8.3) 22 (91.7)	2 (2.6) 74 (9.4)	0.243
Distance to the nearest healthcare 1-3 km >3 km	24 (24) 76 (76)	8 (33.3) (66.7)	16 16 (21.1) (78.9)	0.219
History of COVID-19 vaccination Yes Never	87 (87) 13 (13)	14 (58.3) (41.7)	10 73 (96.1) 3 (3.9)	<0.001*
Knowledge				0.672
Lower	7 (7)	2 (8.3)	5 (6.6)	
Higher	93 (93)	22 (91.7)	71 (93.4)	
Perception Negative Positive	40 (40) 60 (60)	14 (58.3) (41.7)	10 26 (34.2) (65.8)	0.035*

*significant value <0.05

**Pearson Chi-Square and Fisher's Exact Test

Based on the distribution of answers, it is seen that respondents' knowledge of COVID-19 is still quite varied on the topics asked. About 78% of respondents know that COVID-19 is a dangerous disease. The number of respondents who know that COVID-19 is a disease that attacks the respiratory tract is very high at 94%. In addition, almost all respondents also know the symptoms of COVID-19 which is 99%. Regarding the mechanism of transmission of the COVID-19 virus, as many as 98% already have good knowledge. Prevention of transmission of COVID-19 with vaccines as a solution is known by 83% of respondents (Table 2).

TABLE 2: Distribution of Respondents' Knowledge Answers Regarding COVID-19 and COVID-19 vaccination.

No	Statement	True n (%)	False n (%)
1	COVID-19 is a harmless and the same disease like the common cold	22 (22)	78 (78)
2	COVID-19 is a virus that attacks the respiratory tract	98 (98)	2 (2)
3	Signs and symptoms of COVID-19 are fever ($\geq 38^{\circ}\text{C}$) or history of fever accompanied by any of the following signs/symptoms respiratory disease such as cough/shortness	99 (99)	1 (1)
4	Shaking hands or touching objects that contain the COVID-19 virus and then touching your mouth, nose or eyes before	98 (98)	2 (2)
5	Covid-19 vaccine can be used to prevent disease Covid-19	83 (83)	17 (17)

TABLE 3: Distribution of respondents' responses to the COVID-19 vaccination acceptance.

No	Statement	Agree n (%)	Disagree n (%)
1	I will be willing to be vaccinated against COVID-19 to prevent me from getting coronavirus disease (COVID-19)	89 (89)	11 (11)
2	I would be willing to be vaccinated against COVID-19 if offered as a way to stop the pandemic	89 (89)	11 (11)
3	I would be willing to be vaccinated against COVID-19 if offered at a local health facility	90 (90)	10 (10)
4	I will receive the COVID-19 vaccination even though I am very busy	77 (77)	23 (23)

TABLE 4: Multivariate logistic regression analysis by acceptance rate of COVID-19 vaccination.

Variable	^a OR (95% CI)*
Age 18-35 years >35 years	1.00 0.20 (0.05 – 0.75)*
Education Lower Higher	1.00 0.78 (0.16 – 3.74)
Distance to the nearest healthcare 1-3 km >3 km	1.00 1.78 (0.51 – 6.17)
Occupation Not Working Working	1 9.88 (1.07 – 91.12)*
History of COVID-19 vaccination Yes Never	1.00 0.10 (0.02 – 0.46)**
Perception Negative Positive	1 2.48 (0.78 – 7.85)

p value * < 0.05; ** < 0.01

Acceptance was categorized into two levels: higher and lower.

^aResults were adjusted for socio-demographic variables, history of COVID-19 vaccinated, and perception

The results of the acceptance analysis of the COVID-19 vaccine in this study obtained a median score of 12 (cut-off point). Respondents with a score of <12 were categorized

as low acceptance and respondents with a score ≥ 12 were categorized into high acceptance. Public acceptance of the COVID-19 vaccine found that 76% of respondent had high acceptance and another 24% of respondents had low acceptance of the COVID-19 vaccination. Based on the distribution of answers, it is seen that about 89% of respondents are willing to be vaccinated to prevent them from being exposed to COVID-19, and are also willing to be vaccinated when they are offered as one way to stop the pandemic (90%). The majority of respondents are willing to be vaccinated against COVID-19 if it is offered at a local health facility (90%) (Table 3).

Table 1 shows the results of a bivariate analysis of the correlation between Socio-demographic characteristic, COVID-19 status, knowledge and perception with the acceptance of the COVID-19 vaccination. Age, history of COVID-19 vaccination, and perception was found to have a significant correlation with acceptance of the COVID-19 vaccine, respectively (p value = <0.001 ; p value <0.001 , p value = 0.035). Multivariate analysis using the Binary Logistic regression method was conducted to see if there was a relationship between some independent variables and the acceptance of the COVID-19 vaccine in the community at Tanah Laut Regency. Positive perception of vaccines. Being a working person—aOR=9.88, 95% CI = 1.07 – 91.12 were significantly more likely to had higher rate of acceptance (Table 4). However, older participants (>35 years) who had never been vaccinated at least with the first dose of COVID-19 were significantly less likely to have a higher acceptance rate—aOR = 0.20, 95% CI = 0.05–0.75; aOR=0.10, 95% CI = 0.02-0.46.

4. DISCUSSION

The sociodemographic characteristics of respondents in this study describe the diversity of respondents based on gender, age, occupation, education, and distance from residence to health facilities. As for data processing, the results of the characteristics of respondents based on sociodemographic as shown in table 1 can be seen that the majority of respondents are male (60.0%). The frequency of the age of the respondents is the most respondents with ages between 18-35 years. The reason why the majority of respondents are between the ages of 18-35 years is because those under the age of 30 are easier to be invited to contribute to this research. Age difference is an important predictor in a person's acceptance of health.

The distribution of work frequency found that the majority of respondents worked. This is in accordance with data from the Central Statistics Agency for Tanah Laut Regency (2020), which on average, residents there work as farmers and entrepreneurs.

The reason why in Telaga village most of the respondents work as private employees is because the job opportunities there are only examples such as being a construction worker, selling in front of the house, being a laborer in the market, raising chickens, cattle breeders, fish farmers, and also as farmers. So in this study it is stated that people who have jobs are the majority of the respondents.

The distance of the respondent's residence to the nearest health facility in this study showed that the majority of the respondents lived at a distance of >3 Km, which was 76.0%. The theory of health utility in Irawan & Ainy, (2018) (12) explains that a person's desire to use health services is also determined by supporting factors, one of which is distance or accessibility of health services. Difficult access to health services or poor road conditions make a person more reluctant to use a health service.

The characteristics of respondents related to COVID-19 in the table can be seen in terms of respondents having been vaccinated before with the majority of the percentage being respondents who have been vaccinated. The results of this study are in line with research conducted by Muhamad Mufqi Zaidan, M., & Anna Sunita, A. S. (13). In a subsequent study, the results obtained that the majority of respondents with a history of having received vaccine injections were 87.0%, for the majority results on the other hand on the characteristics of the family/relatives of respondents with a history of having received vaccine injections (93.0%). These results are in line with the results of research by Ramadlan, M. G., Rosidah, A., & Sulistyowati, E. (14) where the majority of respondents at Islamic boarding schools in Malang have received vaccine injections of around 96.6%.

The results of the univariate analysis of the assessment of respondents' knowledge in table 2 show that 93.0% of respondents have good knowledge of COVID-19. Judging from the percentage of positive perceptions of the community in Telaga Village towards the COVID-19 vaccine, it is not too high from all respondents, only 60.0%. The results of this study are following research conducted by Moudy and Syakurah (15) found the majority of respondents had good knowledge. This study found that only slightly more than half of the respondents had a positive perception of the COVID-19 vaccine, which was only 60%. These results are in line with research conducted in Nigeria by Adejumo, Ogundele, Madubuko et al. (16). In another study conducted in Southeast Sulawesi by Tasnim (17), perceptions are divided into 3 categories, namely good, sufficient, and poor, it was found that the majority of people have a sufficient perception of 59.0%.

The results of the bivariate analysis through SPSS showed that there was no significant relationship between knowledge and acceptance of the COVID-19 vaccine. The results of this study are in accordance with the results of research conducted in Bantul Regency by Nurhasanah, (2021) (18). Respondents with sufficient knowledge have the

highest acceptance with a percentage of 83.3%. Then the respondent with the lowest knowledge of acceptance has the lowest acceptance with a percentage of 100.0%. One of the reasons why knowledge is not related to acceptance is seen from the phenomenon that occurs in Telaga Village, namely some residents are forced to be vaccinated because of job demands that require them to be vaccinated, then frequent vaccine raids are held for motorbike or car drivers on the access road to the market so as to prevent this require the public to be vaccinated. A group of respondents may choose to wait and see first, while continuing to see vaccine developments from time to time. If explored more deeply, these symptoms are influenced by other factors including experience, beliefs, environment, socio-cultural factors of the community consisting of traditions, habits, customs. Furthermore, these factors give rise to knowledge, attitudes, perceptions, desires, wills, motivations, which in turn will shape behavior.

Then there is a significant relationship between perception and acceptance of the COVID-19 vaccine. The results of this study are following the results of a study conducted in Yogyakarta by Lienaningrum and Kristina (2020) (9) who examined the perception and acceptance of the Measles-Rubella (MR) vaccine. Respondents with high perceptions of severity, perceived susceptibility, perceived benefits, and cues to action (positive perceptions) were more likely to be willing to receive the vaccine than respondents with low perceptions (negative perceptions). On the other hand, respondents with a strong perceived barrier were less likely to accept the vaccine. This shows that in this study the perception of the COVID-19 vaccine is one of the important factors that respondents consider to be willing to accept the COVID-19 vaccine.

In the multivariate analysis, three predictors were found that had a dominant influence on the acceptance of the COVID-19 vaccine, namely age, occupation and characteristics of COVID-19 vaccine history. Respondents with a history of having received at least first dose of the COVID-19 vaccine were 1 times more likely to be willing to receive the COVID-19 vaccine than respondents with no history of receiving the COVID-19 vaccine. Another study by Gallè, Sabella, and Roma et al.(19), explained that respondents who previously had a history of receiving influenza vaccine in 2019/2020 had a 3,806 times higher probability of being willing to receive the COVID-19 vaccine than respondents who did not vaccinate. In addition, the results of research by Alqudeimat, Alenezi, and AlHajri et al. (20) also showed that respondents who previously had a history of having received an influenza vaccine were at least 1.35 times more likely to receive a COVID-19 vaccine compared to respondents who had never received an influenza vaccine.

5. CONCLUSION

Respondents who have good knowledge about COVID-19 are 93.0%. Then as many as 60.0% of respondents positively perceived the COVID-19 vaccine. A total of 76.0% of respondents were in the category of high acceptance of the COVID-19 vaccine. The results of the bivariate analysis showed that there was a significant relationship between age, history of COVID-19 vaccination, and perception. Furthermore, the multivariate results found that being younger, having been vaccinated against COVID-19 at least once, and having a job were the factors that led to the high acceptance of COVID-19 vaccination in the Tanah Laut Regency community.

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