Factors Related to Manggarai's Public Readiness on Acquiring Vaccination Against Covid-19

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Abstract. Public's COVID-19 vaccination acceptance and readiness is a vital parameter of the COVID-19 eradication purpose because the vaccination hesitancy could hamper the long-term effect of COVID-19 pandemic management. The aim of this study is to identify the factors contributing to the Manggarai citizen readiness to be vaccinated against COVID-19. This study used cross sectional method to evaluate the factors related to Manggarai's public readiness of taking COVID-19 vaccination. This study was conducted to 199 respondents provided with online questionnaire in February 2021, the questionnaire including multiple variables such as vaccination readiness, lifestyle, knowledge, and social trust to health services and government. The study result showed that as much as 77.4% respondents ready to accept the vaccination, 20.6% were hesitate, and 2% were not ready to accept COVID-19 vaccine. The most significant factor for the readiness to get COVID-19 vaccine was social trust to government (P value: 0.002) and health services (P value: 0.003). The higher the social trust is, the public's acceptance and readiness of vaccination is also higher. This study showed that there were part of the public unwilling and not ready to get the vaccination against COVID-19 and primarily caused by the trust the health services and government. Thus, the health services agent driven by the government must comprehensively persuade the public and promote the importance of the vaccination to eradicate the COVID-19 pandemic.

Keywords: COVID-19 Vaccine; Readiness factors; COVID-19; Public readiness

1 Introduction

Corona virus Disease-19 (COVID-19) was first identified in China later of December 2019 and have exponentially transmitted throughout 213 countries and infected more than 150 million people worldwide (1). COVID-19 vast transmission develops mainly health issues and several social and economy issues (2–5). In order to prevent the transmission of COVID-19, WHO releases the transmission prevention measures including maintaining physical distancing, routine hand washing, use mask and stay at home (6). But these measures is yet to be effective due to the large number of population that not abide the prevention, thus by mid of 2020, vaccine against COVID-19 were developed in order to be able to be used by the end of 2020 (7–10).

The development of vaccine against COVID-19 is a vital solution in the current pandemic. The experts have identified and conduct the trial on the vaccine on its ability to cut the transmission and prevent the more severe effect of pandemic to health, economy and social sectors (9). Global Alliance for Vaccines and Immunization (GAVI) have firmly stated that no

one's safe from the virus until everyone's safe or vaccinated (11). To this day, various vaccine has been developed and approved by WHO using these criteria include: safety profile (25 points), potential for efficacy (25 points), vaccine stability (10 points), vaccine implementation (15 points) and vaccine availability (25 points) (1). Some of the vaccine that passed this criterion including Pfizer, Sinopharm, Moderna, Astra Zaneca, and Sinovac (7). These vaccines have been distributed and administered in Indonesia including Manggarai since February 2021.

COVID-19 prevalence in Manggarai is still high. According to Manggarai District Level Health Office, until March 2021 there were 1400 COVID-19 cases in total with 3 deaths. Vaccine administration were ruled out since February 2021 started to be given to health professionals, April and May to elders, teachers, lecturers, and civil servant and to public would be started at July 2021. Public readiness to accept the vaccination is the important success key of vaccination program. A previous study in USA stated that 1 out of 5 people would not get vaccination against COVID-19 (12,13). This vaccine reluctancy is caused by hoax and fake news and conspiracy theory spread during pandemic creates the public's negative perception to COVID-19 vaccine (13).

Moreover, another study stated the public's uncertainty feeling towards vaccine will 100% prevent the COVID-19 prevention (14). Other study on the COVID-19 vaccine acceptance and readiness in Nigeria stated that fear of COVID-19 vaccine is the most important factor (15). The fear against COVID-19 vaccine included the fear of complication and side effect, vaccine affect daily activities, mutation, microchip implant in vaccine and the fear of death after vaccination (12).

Besides, there are people that no believing in COVID-19. These fears caused by the lack of knowledge and perception on COVID-19. The other factors influence the public vaccine readiness are including life style, economic status, trust to health professionals and government (15). A study by UNICEF on Indonesian public perception and readiness to vaccination in 133 thousand people in 34 provinces stated that the vaccine acceptance rate is higher in Papua, Java and Kalimantan islands provinces while the lower rate identified in Sumatera, Sulawesi, and Maluku islands provinces (16).

West Papua Province is on the highest acceptance rate (74%) compares to other provinces, while Aceh Province is the lowest (46%). In NTT Province, the vaccine acceptance rate is on the higher level around 70% (16) According to the study, the most common factors influence the vaccine reluctancy are as follows vaccine safety (30%); the vaccine efficacy hesitation (22%); vaccine disbelief (13%); side effect (fever and pain) concern (12%); and religious reasons (8%) (12).

Previously, the study on COVID-19 in Manggarai have been conducted, such as the influence of Catholic Church on imposing religious event ban in order to prevent the transmission of COVID-19 (17). COVID-19 effect on Manggarai woman daily living activities (18) and Factor related to Manggarai's adolescent's adherence to conduct COVID-19 prevention measures. However, the study on COVID-19 vaccine preparedness is yet to be studied. This study is the first study on COVID-19 preparedness and acceptance within Manggarai society and it is expected to be the basis of the future studies related to COVID-19 vaccine administration.

The study aimed to explore the factors influencing the Manggarai's public readiness to accept COVID-19 vaccine. This study is expected to provide description of factors influencing the society on accepting or rejecting vaccine against COVID-19 thus it could be used as a guidance to educate the public so that vaccine administration can be conducted as planned to prevent the more severe effect of COVID-19.

2 Methodology

This study used cross-sectional design with the study subject were public on the adult age (>18 years old). The questionnaire filling applied through online form (google form) on February 2021. This study was conducted in Manggarai Regency on 199 respondents. Respondents' recruitment was carried out by spreading the google from link on social media. Respondents who are willing to participate will be given an online informed consent before they agreed to participate the inclusion criteria of this study were Manggarai people, adult (aged > 18 years old), have a good internet access, willing to fill the online questionnaire. Exclusion criteria of this study were under 18 years old Manggarai people and not willing to fill in the online questionnaire. The informed consent obtained on the first form page and the respondents have the rights to not continue the data collection.

The questionnaire consists of 39 closed question items that have been tested its validity and reliability. The average time needed of respondents to fill the questionnaire is around 7 minutes. Questionnaire were divided into three (3) main parts, first the demographic data (7 item), second COVID-19 vaccine readiness (4 item), and third the factors influencing the COVID-19 vaccine acceptance and readiness including the knowledge on vaccine (9 item), lifestyle during pandemic (11 item), trust towards health professionals (3 item), and trust towards government (3 item). The survey was self-paced, so the participants had sufficient time to read, comprehend, and answer all the questions.

3 Result and Discussion

The respondents in this study are 199 Manggarai people aged over 18 years old. Data analysis were described into three parts namely demographic data, vaccine readiness and factors influence the vaccine readiness.

3.1 Characteristic of Respondent

Characteristic of Respondents in this study including sex, age, education level, marital status, health status and occupation. The detailed demographic data is presented in the following table 1.

Table 1. Characteristic Respondent

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Female	72	36
	Male	128	64
Age Group	18 -25 years old	17	8.5
	26-30 years old	148	74
	31-40 years old	32	16
	41-50 years old	2	1
	Over 50 years old	1	0.5
Education level	Elementary school	0	0
	Junior high school	8	4
	Senior high school	12	6
	Higher education/college	180	90

Marital status	Married	77	35
	Not married	123	65
Health status	With comorbidities	12	6
	No comorbidities	188	94
Occupation	Private sector employee	31	15.5
	College student	58	29
	Civil servant	36	18
	Teacher/lecturer	50	25
	Unemployed	25	12.5

Table 1 show that most of the respondent's sex is female (72%), age category is 26 – 30 years old (74%), education level is higher education (college) (90%), marital status is not married (65%), health status is not having comorbidities (94%), and occupation is college student (29%).

3.2 Vaccine readiness

The vaccine readiness divided into three categories namely ready, hesitate and not ready.

Table 2. COVID-19 Vaccine readiness (n: 199)

Vaccine readiness	Frequency (N)	Percentage
Ready	154	77.4%
Hesitate	41	20.6%
Not ready	4	2.0%
Total	199	100

Table 2 showed that many of the respondents ready to accept COVID-19 vaccine as much as 77.4%. The detailed vaccine readiness described in table 2.

3.3 Factors influence the vaccine readiness

Factors influence the public readiness to accept vaccine is divided into 4 factors namely knowledge on vaccine, lifestyle during pandemic, trust towards government, and trust to health professionals.

3.4 Vaccine readiness and knowledge

The analysis of vaccine readiness and knowledge can be seen in table 3

Table 3. Vaccine readiness and knowledge (n: 199)

Vaccine readiness	Knowledge				Total		P Value
	Low		High				
	n	%	n	%	N	%	
Ready	79	39.7	75	32.7	154	77.4%	
Hesitate	20	10.1	21	10	41	20.6%	0,143
Not ready	4	2.1	0	0	4	2.0%	

Total	103	51.8	96	48.2	199	100

Table 3 showed the analysis of knowledge factor to vaccine readiness resulted in P value 0,143 (>0,005) (table 3). This showed that there was no significant correlation between knowledge and vaccine readiness. Respondent with lower knowledge will not influence their readiness to accept the vaccination.

3.5 Vaccine readiness and lifestyle
The analysis of vaccine readiness and lifestyle can be seen in table 4.

Table 4. Vaccine readiness and lifestyle (n: 199)

Vaccine readiness	Lifestyle				Total		P Value
	Poor		Good				
	n	%	n	%	N	%	
Ready	41	20.6	113	56.8	154	77.4%	
Hesitate	16	8	25	12.6	41	20.6%	0,130
Not ready	0	0	4	2.0	4	2.0%	
Total	57	28.6	142	71.9	199	100	

Table 4 showed the analysis of knowledge factor to vaccine readiness resulted in P value 0,130 (>0,005) (table 4) meaning that there were no significant correlation between lifestyle and vaccine readiness. Respondents with poor lifestyle do not influence their vaccine acceptance.

3.6 Vaccine readiness and the trust to government
The analysis of vaccine readiness and the trust to government can be seen on table 5

Table 5. Vaccine readiness and the trust to the government

Vaccine readiness	Trust to the government				Total		P Value
	High		Low				
	n	%	n	%	N	%	
Ready	130	65.3	24	12.1	154	77.4%	0,003
Hesitate	15	7.5	26	13.1	41	20.6%	
Not ready	0	0	4	2.0	4	2.0%	
Total	145	72.8	54	27.2	199	100	

Table 4 showed the correlation analysis of vaccine readiness and trust to the government results in P value 0,003 (<0.005) meaning that there is the significant relation between public trust to the government and vaccine readiness. Respondent with high trust to the government are ready to accept the vaccination while respondents with lower trust tend to hesitate or not ready to be vaccinated.

3.7 Vaccine readiness and the trust to the health professionals
The analysis of vaccine readiness and the trust to the health professionals can be seen in table 6

Table 6. Vaccine readiness and the trust to the health professionals

Vaccine readiness	Trust to the health professionals				Total		P Value
	high		low				
	n	%	n	%	N	%	
Ready	135	67.8	18	9.6	154	77.4%	
Hesitate	3	1.5	38	19.1	41	20.6%	0,002
Not ready	0	0	4	2.0	4	2.0%	
Total	138	68.3%	60	31. 7	199	100	

Table 6 showed the correlation analysis of vaccine readiness and the trust to the health professionals resulted in P value 0,002 (<0,005) (table 6) meaning that there is a significant correlation between vaccine readiness and the trust to the health professional. Respondent with the higher trust tend to accept the vaccination while respondents with lower trust tends to hesitate or not ready to accept the vaccination.

4 Discussion

The hesitancy to accept the vaccination against COVID-19 become the biggest obstacles on controlling the long-term transmission of COVID-19 pandemic. This study aims to identify the factors related to public readiness to accept the vaccination against COVID-19 in Manggarai. The study result showed that as much as 77.4% respondents ready to accept the vaccination, 20.6% were hesitate, and 2% were not ready to accept COVID-19 vaccine. This study result is in line with the previous UNICEF study in Indonesia that stated that around 70% of public in NTT Province are ready to accept vaccination against COVID-19 (12). Vaccination acceptance rate in Indonesia is influenced by several factors such as the experience of close relatives/acquaintances having COVID-19, vaccine safety, the perception that vaccine could help decrease the disease prevalence, and vaccine perceived to prevent death (11,20,21).

However, there were 23% of the respondents hesitate and reluctant to accept the vaccination. The previous study explains that the reason of this vaccine hesitancy and reluctancy is the fear of vaccine safety and efficacy, vaccine mistrust and question the vaccine halal status. The most common COVID-19 vaccine rejection is vaccine safety (30%); doubting the vaccine efficacy (22%); not trust the vaccine (13%); fear of side effect such as fever and pain (12%); and religious reasons (8%). Besides, another study stated that the vaccine reluctancy influenced by public's fear due to the fake news, hoax and conspiracy theory that COVID-19 is not real and that it was the government propaganda (11,15,16,20–22).

This study results also identify the two significant factors influencing the public readiness to accept the vaccination against COVID-19 namely the trust to the government and the trust to the health professionals. In the previous study, it was identified that one of the factors influencing the vaccine readiness is the health promotion from the government and health professionals to the public on the importance of vaccination in eradicating COVID-19 (12). The previous study showed that vaccine readiness also influenced by government efforts through COVID-19 vaccination campaign (9,10,23). Government is expected to provide information that increasing knowledge and the importance of vaccination and highlight the further effect of vaccine reluctancy (13).

Government is the public's trusted agency on vaccine campaign. Besides, the previous study in Indonesia identified that health professionals and medical professionals are considered the most trusted agency (57%) to guide the hesitant individuals to decide on accepting or rejecting vaccination (24). Thus, health professionals are expected to provide the continuous information on vaccination urgency and importance to the public.

This study result provides the description of factors influencing the public's readiness to accept the vaccination against COVID-19 that could be the important information source for public health intervention, particularly promoting the efficacy of COVID-19 vaccine administration in Manggarai. Public's trust to the government and health professionals are the significant factors to enhance public's readiness to accept the vaccination. Thus, government and health professionals possess the important role to motivate and educate the public on the importance vaccination against COVID-19 to prevent the disease transmission.

5 Conclusion

The most significant factor for the readiness to get COVID-19 vaccine was social trust to government and health services (P value: 0.000). The higher the social trust is, the public's acceptance and readiness of vaccination is also higher. This study showed that there were part of the public unwilling and not ready to get the vaccination against COVID-19 and primarily caused by the trust the health services and government. Thus, the health services agent driven by the government must comprehensively persuade the public and promote the importance of the vaccination to eradicate the COVID-19 pandemic.

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