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Predictive Factors of Community Engagement in COVID-19 Vaccination in East Java, Indonesia

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Abstract

BACKGROUND: SARS-CoV-2 was declared a global pandemic by the World Health Organization in March 2020. Vaccination is an important step to prevent COVID-19.

AIM: This study aimed to analyze the predictive factors of community engagement in COVID-19 vaccination in East Java, Indonesia.

METHODS: A cross-sectional study using purposive sampling was conducted on people aged 12–>60 years (n = 1,024) in Lamongan Regency, East Java Province, Indonesia, in August–September 2021. The data were collected using a self-administered questionnaire. Logistic regression analysis was used to estimate the relationship between community engagement in COVID-19 vaccination and other predictors.

RESULTS: We included 1024 people aged 12–65 years, with a mean age (±SD) of 29 (12.7). Around 94.0% of the participants reported that they had been vaccinated twice. The role of supportive health cadres could increase community participation by 0.496 times in COVID-19 vaccination compared to the less supportive health cadres (OR = 0.496; 95.0% CI: 0.292–0.845; p = 0.010). In addition, the role of supportive community leaders could increase community participation by 1.959 times in COVID-19 vaccination compared to the less supportive community leaders (OR = 1.959; 95.0% CI: 1.080–3.551; p = 0.027).

CONCLUSIONS: The role of health cadres and community leaders can increase community participation in COVID-19 vaccination. The partnership between community health center and community engagement in the COVID-19 vaccination program needs to be continued.

Introduction

SARS-CoV-2 was declared as a global pandemic by the World Health Organization in March 2020 [1]. The global pandemic has attacked 219 countries [2]. The most crucial component in dealing with COVID-19 is preventing the infection [3]. Preventive measures such as washing hands with soap, avoiding infected patients, keeping a distance, wearing masks, contact tracing, quarantine, and consume nutritious foods such as those rich in zinc and COVID-19 vaccination are declared effective to protect oneself from COVID-19 [1], [4], [5], [6], [7], [8], [9], [10]. Moreover, vaccines are an invaluable asset in suppressing the spread of viruses [1].

COVID-19 vaccinations have started worldwide [11]. Globally, as of October 6, 2021, a total of 6,545,309,084 doses of the vaccine had been administered [2]. However, COVID-19 vaccine has not been fully accepted by the public. In Middle Eastern countries, only 25% of the 2925 participants were willing to receive the vaccine while 33% were undecided [12]. In the United States, only about 67% of 672 participants

said that they would accept the vaccine [13]. Doubts about vaccination are felt not only by the general public but also by medical students in Iraq. The results of the study found that 65.21% of male students had doubts about vaccination and 66.80% of female students [14].

The COVID-19 pandemic has left many countries vulnerable both economically and socially including Indonesia [15]. It takes about 55-82% of the vaccinated population to create herd immunity and suppress the spread of the virus [16]. The World Health Organization (WHO) targets a COVID-19 vaccine coverage of 70% for all countries by June 2022 [17]. In addition, the broad impact of a successful vaccination program will be considerable including interrupted disease transmission, decreasing confirmed cases, hospitalizations, and deaths, and reducing symptoms [18], [19], [20].

Handling COVID-19 will require a multisectoral response and multiple approaches. Community engagement should be a fundamental component of all these responses whether it is related to prevention, control, or vaccination [21]. Therefore, it is important to understand why some people are willing to be vaccinated and others are not. Although several studies reveal that

people's willingness to vaccinate against COVID-19 is affected by various factors including doubt, basic reproductive numbers, vaccination campaigns, vaccine costs, access, nationalism, risk assessment, and self-satisfaction [11], [13], [17], [22], predictive factors of community engagement in COVID-19 vaccination have not been studied extensively. The purpose of this study was to determine the main predictors of community engagement in COVID-19 vaccination in East Java, Indonesia.

Methods

This cross-sectional study was conducted in Lamongan Regency, East Java Province, Indonesia, in August–September 2021.

Sample

A total of 1024 respondents aged 12–>60 years were obtained by purposive sampling with certain criteria: Lived in Lamongan, did not having mental disorders, and agreed to be the respondents. The criteria of respondent's age were in accordance with the guidelines for the age limit for COVID-19 vaccine recipients issued by the Ministry of Health of the Republic of Indonesia.

Data collection

The questionnaire consisted of three parts. The first part was demographic characteristics including questions about age, gender, religion, and participation in vaccination. Vaccination participation was categorized into two parts, namely, "Yes" for respondents who been vaccinated twice and "No" for respondents who had never been vaccinated. The second part of the questionnaire was about education and knowledge of the COVID-19 vaccine. The questionnaire about knowledge was self-administered and used multiple-choice questions. The response for each correct question was worth 1 and incorrect was worth 0. The number of questions was 10 items. The highest score was 10 and the lowest was 0. The validity and reliability of the knowledge questionnaire were confirmed from the pilot study (n = 25) (0.737). The third part was the role of community leaders and the role of health cadres. Responses to each question were categorized based on a 4-point Likert scale, in which the highest score was 64 and the lowest was 16. The validity and reliability of the questionnaire was confirmed from the pilot study (n = 25). There were 16 questions (0.752) about the role of community leaders and 16 questions (0.765) about the role of health cadres. The questionnaire was filled out anonymously and confidentially.

Data analysis

The data were analyzed using SPSS 21 software. Descriptive statistics were used to report general characteristics, including gender, age, and religion. The independent variables in this study were education and knowledge about the COVID-19 vaccine, the role of community leaders, and the role of health cadres, while the dependent variable was the COVID-19 vaccination status. Logistic regression with 95% confidence intervals (CI) was used to determine predictors of community engagement in COVID-19 vaccination. The value of $p < 0.05$ was considered statistically significant.

Research ethics

This research was approved by the Health Research Ethics Commission of Universitas Muhammadiyah Lamongan No.114/EC/KEPK-S2/07/2021.

Results

Table 1 shows the general characteristics of the participants. We included 1024 people between 12 and 65 years, with a mean age (±SD) of 29 (12.7). Nearly 59.8% of participants were female and 40.2% male. In terms of religion, the majority of the participants (91.4%) were Muslims and 8.6% of them were non-Muslims. The majority of participants (94.0%) had been vaccinated twice while the rest (6.0%) were unvaccinated. In terms of education, 42.67% of the participants graduated from high school education. Nearly 41.11% of participants with high school education had been vaccinated and only a few (1.56%) had not been vaccinated. Furthermore, 75.19% of the participants had sufficient knowledge. About 71.58% of participants who had sufficient knowledge reported having followed the vaccination, and only a few (3.61%) had not been vaccinated. In terms of community engagement in the implementation of the COVID-19 vaccination program, 62.01% of health cadres and 58.69% of community leaders supported the COVID-19 vaccination program. As illustrated in Table 2, the analysis revealed a

Table 1: Demographic characteristics

Demographic characteristics	n = 1024	(%)
Gender		
Male	412	40.2
Female	612	59.8
Age (mean ± SD)	29.3±12.7	n = 1,024
Adolescent (12–18)	189	18.5
Adult (19–59)	724	70.7
Elderly (>60)	111	10.8
Religion		
Muslim	936	91.4
Non-Muslim	88	8.6
COVID-19 vaccination		
Yes	963	94.0
No	61	6.0

Table 2: The univariate and multivariate analysis of the predictors of education, knowledge, the role of community leaders, and the role of health cadres

Variables	Vaccination		Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
	Yes	No				
The role of health-care cadres						
Supportive	606 (59.18)	29 (2.83)	0.534 (0.318–0.897)	0.018	0.496 (0.292–0.845)	0.010
Less supportive	357 (34.86)	32 (3.13)	1		1	
The role of community leaders						
Supportive	556 (54.30)	45 (4.39)	1.895 (1.067–3.364)	0.015	1.959 (1.080–3.551)	0.027
Less supportive	407 (39.75)	16 (1.56)	1		1	
Education						
Bachelor	66 (6.45)	8 (0.78)	1		1	
Senior high school	421 (41.11)	16 (1.56)	3.189 (1.313–7.747)	0.010	3.060 (1.240–7.550)	0.015
Junior high school	294 (28.71)	18 (1.76)	1.980 (0.826–4.747)	0.126	1.905 (0.782–4.642)	0.156
Primary school	96 (9.38)	9 (0.88)	1.293 (0.474–3.524)	0.616	1.232 (0.443–3.428)	0.690
No school	86 (8.40)	10 (0.98)	1.042 (0.390–2.787)	0.934	1.193 (0.438–3.253)	0.730
Knowledge						
Good	87 (8.50)	8 (0.88)	1		1	
Fair	733 (71.58)	37 (3.61)	1.822 (0.822–4.038)	0.140	1.709 (0.759–3.848)	0.195
Poor	143 (13.96)	16 (1.56)	0.822 (0.338–2.000)	0.666	0.808 (0.327–1.997)	0.644

significant relationship between the role of health cadres and the role of community leaders after adjusting for confounding factors. Consequently, we found a positive relationship between the role of health cadres and the role of community leaders with vaccination participation even after adjusting for confounding factors. The role of supportive health cadres had a higher probability of encouraging people to take vaccinations (OR = 0.496; 95.0% CI: 0.292–0.845; p = 0.010). In addition, the role of supportive community leaders had a higher probability of encouraging people to take vaccinations (OR= 1.959; 95.0% CI: 1.080–3.551; p = 0.027). The role of health cadres was the most dominant factor for encouraging people to take vaccinations compared to other factors. Furthermore, it was followed by the role of community leaders.

Discussion

It has been revealed that many factors affected community participation in the COVID-19 vaccination. This study illustrated a significant relationship between the role of health cadres and the role of community leaders with participation in COVID-19 vaccination. One of the initial success factors in vaccination was the presence of trained health cadres [23], addition to vaccine campaigns by volunteer workforce [24]. Health cadres are trained community members who volunteer in assisting the COVID-19 prevention program, especially vaccinations. They are also the members of the COVID-19 task force in the village. The previous research revealed that health cadres took an essential role in the prevention and control of COVID-19 in urban villages and residential areas [25], [26]. In this study, participants revealed the role of health cadres in supporting vaccination campaigns and the ongoing vaccination program starting from registration and recording.

Furthermore, several studies revealed that community leaders played an important role in preventing and controlling COVID-19. The roles of community leaders were in terms of designing and planning interventions, building trust, campaigning for social and behavioral change, campaigning for risks and contact monitoring, carrying out administrative activities, providing facilities such hand washing facilities, building facilities, and record keeping [27]. Community leaders in this study consisted of village heads, village staff, hamlet heads, hamlet staff, heads of neighborhood associations, and religious leaders. They assisted in vaccination campaigns, targeting vaccines, and facilitating vaccinations such as site provision, registration, printing of vaccine cards, and others. In addition, religious leaders were important gatekeepers for society because they could perform a crucial role in policy and implementation, even when the policy did not refer to religion [28]. The religious leaders played a role in assuring the society that COVID-19 vaccine was halal since most of the people were Muslims. Some communities revealed that religious leaders were role models in vaccination. Religious leaders can promote exemplary messages and behaviors in support of community oversight through standardized forms of monitoring or structured participatory dialogue to identify and address community needs in targeting community beliefs [29]. This may reduce public doubts about vaccines. Two-way dialogue with the community is important for building trust, especially by providing accurate and consistent information to overcome rumors and misunderstandings [30]. The previous study stated that campaigns or delivering information to the public could be carried out online through online platforms such as Zoom [31].

However, the vaccine campaign in this study was carried out by village officials and religious leaders through banners and direct delivery or two-way dialogue. Community engagement supports the formation of social dynamics based on power and control that perpetuates the marginalization of certain groups. The actors involved in mobilization and decision-making efforts are seen as legitimate by other community members [32]. Community engagement should be an ongoing collaborative process.

Conclusions

Measures that have been declared effective in protecting themselves from COVID-19 include washing hands with soap, avoiding infected patients, keeping a distance, wearing masks, contact tracing, quarantine, consume nutritious foods such as those rich in zinc, and COVID-19 vaccinations. Vaccines are an invaluable asset in suppressing the spread of viruses that are widely used in various countries. Handling COVID-19 will require a multisectoral response and multiple approaches, where community engagement is related to participation in the COVID-19 vaccination. The role of community leaders and health cadres can increase community participation for COVID-19 vaccination. Despite these findings, there are still people who have not been vaccinated. It is necessary to continue the partnership between community health centers and community engagement in the COVID-19 vaccination program.

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