# EXPLORING FACTORS CONTRIBUTING TO THE SLOW COVID-19 VACCINE ROLLOUT IN PANDEGLANG DISTRICT, INDONESIA: A QUALITATIVE STUDY

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**Abstract.** Indonesia was severely hit by the coronavirus disease 2019 (COVID-19) pandemic, and thus, rapid vaccination of most of the population was imperative to help suppress the virus transmission and return to normalcy. However, vaccination progress appeared to be slow in many Indonesian regions, including the Pandeglang District. The purpose of this research was to investigate the factors that contribute to the slow rollout of the COVID-19 vaccine in the Pandeglang District of Banten Province, Indonesia. A series of audio-recorded focus group discussions and in-depth interviews were conducted with the director of the Pandeglang District Health Department, community leaders, health workers, and individuals targeted by the COVID-19 vaccination program. The audio data were then transcribed and thematically analyzed to extract the participants' perspectives on factors that affected vaccination rollout in Pandeglang. The analysis stage revealed five factors at the community and organizational levels that hindered the COVID-19 vaccination coverage. Factors at the community level were the fear of adverse reactions following immunization, the halal issue of the newly invented COVID-19 vaccines, comorbidities that prevented individuals from being vaccinated, and inadequate health literacy. On the other hand, the scarcity of the COVID-19 vaccine supply was the factor identified at the organizational level. Since the issues occurred at both community and organizational levels, the government of Pandeglang District and central governments should work together to address the problems and increase the likelihood of vaccination success. It is important to involve religious leaders in vaccination campaigns to gain the trust of the local community and alleviate vaccine hesitancy on religious grounds. At the same time,

education through an appropriate medium is required to raise the community's COVID-19 literacy and mitigate the negative effects of the incessant false information. Securing more COVID-19 vaccine supply from the existing manufacturers while accelerating the development of Indonesian-made COVID-19 vaccines and improving the distribution system would help ensure vaccine availability.

**Keywords:** COVID-19, vaccine, qualitative, health literacy, Indonesia

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## INTRODUCTION

The coronavirus disease 2019 (COVID-19) virus which was first reported in Wuhan, China in 2019 has caused serious health problems for all countries around the globe. COVID-19 cases in Indonesia reached their peak in January 2021. As of 30 January 2021, the number of positive COVID-19 cases in Indonesia was 1,066,313 with a total of 862,502 people recovered and 29,728 died (Indonesian Hospital Association, 2021). This statistics data placed Indonesia as the country with the highest number of confirmed COVID-19 cases in Southeast Asia and one of the countries with the highest fatality rates in the world (Fauzi and Paiman, 2020; Song *et al*, 2021). However, the Indonesian government refused to implement a total lockdown as had been implemented by several European countries such as Italy and Germany due to social and economic reasons. Instead, the government of Indonesia instigated a partial lockdown by enforcing stricter travel rules to suppress the spread of the virus. The partial lockdown policy appeared to be ineffective considering the high mobility of individuals in the pandemic epicenters in Java and Bali islands (Suraya *et al*, 2021).

At the end of 2020 when the first COVID-19 vaccine was validated

for emergency use by the World Health Organization (WHO, 2020), most countries were in the race to get the vaccine available in sufficient amounts for their domestic use. While lockdown has serious social and economic consequences, rapid vaccination was seen as a better solution to build herd immunity, reduce fatality rates, and return to normalcy. The launch of the national COVID-19 vaccination program in Indonesia was marked by the injection of the Sinovac vaccine to President Joko Widodo on 13 January 2021 (MOH RI, 2021). Since then, an incessant COVID-19 vaccination campaign was held throughout the country. However, the COVID-19 vaccination rollout in several regions in Indonesia seemed to be very slow. One of these regions was the Pandeglang District in Banten Province.

In October 2021, the COVID-19 vaccination coverage in Pandeglang was 22.02% for the first dose (Darmawan, 2021). This vaccination rollout was the lowest among cities and districts in Banten Province. Serang District was in second place as the district with the lowest COVID-19 vaccination coverage in Banten Province with 23.55% for the first dose in October 2021. The city with the highest coverage in Banten Province was Tangerang with 86.64% for the first dose in October 2021. This undesired circumstance in the Pandeglang District had even attracted the attention of the Indonesian President. Considering its location relatively close to the state capital, Jakarta, and the high mobility of Pandeglang citizens to the agglomeration areas, the unsuccessful COVID-19 vaccination would most likely affect the achievement of COVID-19 control efforts in the surrounding areas. Hence, it is imperative to understand the factors contributing to the slow vaccination rollout in the Pandeglang District and tackle the problems. In light of the above, this study aimed to investigate factors contributing to the slow COVID-19 vaccination rollout in the Pandenglang District. This study provides essential information for the Ministry of Health of Indonesia, Pandeglang governments, and related policymakers to make informed-decision to help accelerate COVID-19 vaccination, suppress the spread of the virus, and return to normalcy.

## MATERIALS AND METHODS

A qualitative study design was applied to explore the factors that were suspected as the cause of the slow COVID-19 vaccination rollout in Pandeglang. The data were collected during 5-8 October 2021 through focus group discussion (FGD) and in-depth interviews with informants. The FGD was intended to explore participants' perspectives on factors that hindered the COVID-19 vaccination program within a group interaction (Tong *et al*, 2007). The criteria for FGD participants were individuals whose age was 18 years old and above, who held a position as neighborhood leaders, religious leaders, and health workers, living in the Pandeglang District during the COVID-19 pandemic, and had been involved in the COVID-19 vaccination program. These criteria were set to get discussants who had adequate knowledge regarding the COVID-19 vaccination program in Pandeglang. The FGD was held in one of the health centers near the capital of the Pandeglang District. The selection of the health center was according to the recommendation of the District Health Department by considering the ease of access for the research participants whereas a series of in-depth interviews were conducted with informants who were considered to have good knowledge regarding vaccination problems in Pandeglang. These informants included the Director of the Pandeglang Health Department, health workers who were involved in the vaccination program, and individuals who were not vaccinated yet. The study participants were recruited voluntarily following the District Health Department and primary health center recommendations. The multiple data collection methods were applied to triangulate and validate the data based on personal and collective perceptions (Merriam and Tisdell, 2016; Tong *et al*, 2007). Both FGD and in-depth interviews were audio-recorded. The characteristics of the study participants are presented in Table 1.

### Study setting

This study was conducted in Pandeglang District, Banten Province,

Table 1
Characteristics of study participants

| Characteristic | Method of data collection | |
|---|---|---|
| | FGD (N = 9) | In-depth interview (N = 6) |
| Age, mean ± SD | 51.0 ± 7.5 | 44.7 ± 14.9 |
| Gender, n (%) | | |
| Male | 7 (77.8) | 0 (0.0) |
| Female | 2 (22.2) | 6 (100.0) |
| Position/Occupation, *n* (%) | | |
| Health Department Top Manager | 0 (0.0) | 1 (16.7) |
| Health worker | 2 (22.2) | 2 (33.3) |
| Religious leader | 2 (22.2) | 0 (0.0) |
| Neighborhood leader | 5 (55.6) | 0 (0.0) |
| Unvaccinated individual, *n* (%) | 0 (0.0) | 3 (50.0) |

FGD: focus group discussion; SD: standard deviation

Indonesia. Pandeglang District is geographically located at 6°21'-7°10' south latitude and 104°48'-106°11' east longitude, the westernmost side of the island of Java. Pandeglang District has an area of 2,747.89 square kilometers or 29.98% of the total area of Banten Province. Pandeglang City as the Regency Capital is located 23 km from the provincial capital of Banten, Serang, and 111 km from the State Capital, Jakarta. According to 2021 census data, the total population of the Pandeglang District was 1,288,314 (National Statistics Bureau, n.d.). In October 2021, the confirmed COVID-19 cases in Pandeglang District reached 131,469 cases with 2,672 fatalities (Banten Province Health Department, 2021).

## Data analysis

The inductive data-driven approach was applied in the analysis stage. The audio recordings were transcribed and condensed into a concise format before it was thematically analyzed to extract the participants' perspectives on factors that affected vaccination rollout in Pandeglang (Thorne, 2016). The analysis of the transcribed data was carried out by experienced researchers from the National Research and Innovation Agency Republic of Indonesia.

## Ethics approval

The certificate of ethical approval for this study was obtained from the Ethics Research Committee, National Institute Health Research and Development, Ministry of Health of Indonesia, under ethics approval number LB.02.01/2/KE.141/2021.

# RESULTS

A total of nine FGD discussants participated in the study whereas six informants were in-depth interviewed regarding the factors contributing to the slow rollout of COVID-19 vaccination in Pandeglang.

The analysis stage revealed five factors that contributed to the slow rollout of COVID-19 vaccination in Pandeglang, Banten Province according to the informants' perspectives. Among those five, four of them occurred at the community level whereas one factor occurred at the organizational level. At the community level, the identified barriers to the COVID-19 vaccination program were fear of adverse events following immunization, the halal issue of the newly invented COVID-19 vaccines, comorbidities that prevented individuals from being vaccinated, and inadequate health literacy. At the organizational level, the identified barrier was the scarcity of COVID-19 vaccines.

## Community level

### *Fear of adverse events following immunization*

The first factor was the fear of adverse events following vaccination. Study participants from both FGD and in-depth interviews consistently reported that people in their neighborhoods were reluctant to be vaccinated because they were afraid of the adverse reactions after the immunization.

> *".. in my village, there are people who refuse the COVID-19 vaccination because they are afraid of the side effects. We often hear bad news about the side effects of COVID-19 vaccines that can cause high fever and even paralysis." (FGD)*

> *"I am now pregnant. Initially, the government said that pregnant women should not be vaccinated. Now my pregnancy is in the third trimester, and I heard that COVID-19 vaccines are not good for pregnant women. Even though the government now allows pregnant women to be vaccinated, my husband and I agree that I must not be vaccinated because we are afraid of the side effects." (Unvaccinated 3)*

### *The halal issue of the newly invented COVID-19 vaccines*

The second factor immerged from the data was related to the issue of the COVID-19 vaccines' halal status. COVID-19 vaccines that first circulated in Indonesia were produced in China, a country where Muslims are not the majority. At the early stage of the pandemic, these vaccines were immediately used when they were newly invented. Therefore, the informants assumed that there should be no time for the Indonesian Muslim cleric body to testify to the vaccines' halal status. This circumstance led to the hesitation to get vaccinated in the Muslim population in Pandeglang and reported remained

in a relatively small population even when Indonesian Ulema Council had issued the halal certificate for Sinovac. The present phenomenon is depicted in the following FGD excerpts.

> *"Regarding the religious aspect, I want to discuss with the religious leaders here, because many people refuse vaccination for religious reasons." (FGD)*

> *"People have doubts and some even refuse to be vaccinated because they heard that the vaccine is from China, so they can't guarantee it's halal." (FGD)*

### *Comorbidities that prevented individuals from being vaccinated*

The third barrier to the COVID-19 vaccination program in Pandeglang was the occurrence of comorbidities that prevented people from being vaccinated. One of the most common health problems reported by most of the informants was high blood pressure.

> *"I haven't been vaccinated yet. I came here when vaccination was first given in Pandeglang. But my blood pressure was high, it was 180. Then the doctor gave me medicine and I was told to wait for a quarter of an hour. After a quarter of an hour, my blood pressure lowered to 160 but at that time I also had a cold so the doctor said I couldn't be vaccinated. The doctor told me to come back when I get better. The second time I tried to get immunized again, but this time the doctor said I couldn't be vaccinated after I told her that I had been given the injection due to osteoporosis." (Unvaccinated 1)*

> *"When I was about to get the vaccine, it turned out that my blood pressure was high, the doctor told me to get rest first. The second*

*blood pressure check result was still high. The doctor then said that I could come here again next time. A week later I came here again, but my blood pressure was still high. I was willing to be vaccinated but due to health problems, I couldn't. Anyway, I've already tried." (Unvaccinated 2)*

### *Inadequate health literacy*

The fourth factor that hindered COVID-19 vaccination was the lack of health literacy, particularly regarding knowledge of the danger of COVID-19 and the importance of being vaccinated. In the population residing in rural and remote areas in Pandeglang, COVID-19 was considered a common cold and thus not as dangerous as reported. The COVID-19 vaccination was also considered merely an administrative requirement for inter-regional travels rather than an urgent need to protect themselves from the virus. This circumstance was reported by community leaders and health workers in the FGD.

*"Some people think that COVID is not worse than flu and cough. Before COVID became a pandemic, flu and cough existed, so what is the vaccine for? Because if you get infected it will not be serious and can heal itself." (FGD)*

*"Our residents in rural areas said that they are not traveling anywhere. They don't need to go out of town. Every day, they just commute from home to the garden or rice fields so what is the vaccine for? They do not need a vaccine certificate. This kind of person needs education regarding the importance of vaccines. Vaccines are not only for travel permission but also to maintain their health." (FGD)*

## Organizational level

### *Scarcity of the COVID-19 vaccines*

At the organizational level, the key informants reported that the lack of COVID-19 vaccine stock had contributed to the slow vaccination progress in Pandeglang. This barrier was reported not only by the health provider informants but also by individuals as the target of the vaccination program. The following excerpts illustrate this phenomenon.

> *"One of the factors that hindered the vaccination coverage in Pandeglang is the scarcity of the vaccine. When the community wanted to come to the health centers to be vaccinated, it turned out that the vaccine was lacking because the supply from the central government was late." (Top manager)*

> *"… for people who have not been vaccinated, one of the reasons is because there is no vaccine. I often meet neighbors who have not been vaccinated because they are still working. When they had time to go to the health center, there was no vaccine available." (FGD)*

## DISCUSSION

This study found five factors that contributed to the slow vaccination rollout in Pandeglang District, Banten Province. These five factors were the fear of adverse events following immunization, the halal issue of the vaccines, comorbidities, inadequate health literacy, and the scarcity of vaccines. These findings are adding to existing evidence to help the government of Indonesia to make informed decisions to tackle the problems at the community and organizational levels.

COVID-19 vaccinations are not exempt from side effects, despite having been demonstrated to be safe. According to data from vaccine trials, the most common side effects of the COVID-19 vaccine are fever, headache,

fatigue, muscle soreness, and joint pain (Folegatti *et al*, 2020; Mulligan *et al*, 2020). However, most of the COVID-19 vaccines including Sinovac, Pfizer-BioNTech, and AstraZeneca were reported to cause mild adverse reactions and rarely require any treatment (Ganesan *et al*, 2022; Xia *et al*, 2020). In the Pandeglang District and many other places, the side effects of COVID-19 vaccines were often exaggerated. The false news regarding the adverse reactions after vaccination was spread vigorously and was allegedly the cause of the low vaccination coverage. People were concerned about the vaccine's adverse reactions, which they feel could be worse than the sickness caused by COVID-19 itself. The sub-optimal COVID-19 vaccination due to the fear of its adverse reactions was reported not only in the community but also among health workers (Riad *et al*, 2021; Simanjorang *et al*, 2022). This finding is in line with the results of studies conducted in Europe and the United States (Dror *et al*, 2020; Pogue *et al*, 2020).

The intention to get vaccinated is influenced by people's perceptions of vaccination benefits and the religious values that they embrace (Warren and Lofstedt, 2021). Indonesia as the country with the world's largest Muslim community is heavily influenced by Islamic teachings. Although vaccine hesitancy occurs in almost all religious believers (Kibongani Volet *et al*, 2022), in most Islam countries, immunization has always been a challenging issue where Muslim identity is associated with lower vaccine uptake (Costa *et al*, 2020). Doubts over the vaccine's halal status seem to be the primary reason for Muslims refusing immunization. This religious-related obstacle occurred in this study setting especially in the initial stage of the COVID-19 vaccination program when the fatwa on the vaccine's halal status from the Indonesian Ulama Council was absent. Although, according to Islamic law when faced with an emergency, the use of a non-halal substance is permissible (Mardian *et al*, 2021). When the Indonesian Ulama Council granted a halal certificate to Sinovac on 11 January 2021, the acceptance of the COVID-19 vaccine in Pandeglang began to increase. The COVID-19 vaccine's elevated acceptance was influenced by the ulama's positive perspectives on the vaccines. Since most Pandeglang citizens identified themselves as devout Muslims, it is

important to involve ulama as a Muslim religious leader in the COVID-19 vaccination campaign. However, it must be admitted that immunization rejection on religious grounds still exists in a relatively small number of conservative Muslim societies.

The COVID-19 outbreak has demonstrated that the elderly and individuals with pre-existing comorbidities are at a considerably greater risk of mortality from COVID-19. Therefore, vaccination might assist to protect these vulnerable groups in direct and indirect ways. Direct protection is when high-risk groups are immunized to avoid disease, whereas indirect protection is when those in touch with high-risk persons are vaccinated to suppress the virus transmission (Lipsitch and Dean, 2020). Prior studies found that people who are at higher risk of mortality due to COVID-19 have a good acceptance and lowered hesitancy over the vaccines (Nery *et al*, 2022). This phenomenon was demonstrated in this study setting. Three unvaccinated informants were observed to have a good intent on the COVID-19 vaccination. However, they did not pass the medical evaluation prior to the immunization due to pre-existing comorbidities which were mostly hypertension. The pre-vaccination screening is important to prevent potential adverse reactions following the COVID-19 immunization such as anaphylaxis (CDC, 2019). Therefore, it has to be understood that for this group of individuals, the delayed COVID-19 vaccination was not caused by vaccine hesitancy but rather due to medical indications.

These study participants conveyed that for some people, COVID-19 vaccination was perceived merely as a travel requirement and had no substantial health benefits. This is an indication of deficient COVID-19 literacy in this population. Especially for people living in rural and remote areas with limited access to quality education and little exposure to health promotion campaigns, inadequate health literacy seems to be prevalent (Effendi *et al*, 2021). Health literacy is defined as the individuals' ability to gather, appraise, and comprehend health-related information to make appropriate health decisions (Kickbusch, 2001; Nielsen-Bohlman *et al*, 2004; Nutbeam, 2008). In efforts to overcome the COVID-19 pandemic, inadequate

health literacy might have hindered the ability of individuals to comprehend the importance of immunization to prevent virus transmission (Effendi, 2017; Spring, 2020). Besides, the deficient ability to critically appraise health information has caused individuals with low health literacy to be easily victimized by the COVID-19 false information (Paakkari and Okan, 2020). The false, misleading information about the pandemic, is referred to as infodemic (Zarocostas, 2020). The fast emergence of the COVID-19 infodemic is evidence that low health literacy is an underestimated public health problem (Effendi *et al*, 2022).

The scarcity of vaccine supply was the last factor reported to slow down the COVID-19 vaccination in Pandeglang. The shortage of vaccines is a common phenomenon in middle- and low-income countries (Liu and Lou, 2022). The scarcity of the COVID-19 vaccine is the consequence of limited vaccine type and production as well as competition among countries to rapidly vaccinate most of their population. Although Indonesia had settled a contract with Sinovac manufacturers from China, all vaccine-producing countries would most likely prioritize the fulfillment of their domestic needs (Fuady *et al*, 2021). The inefficient vaccine distribution and monitoring system pose additional challenges to the COVID-19 vaccination program in Indonesia. The slow vaccine distribution and the health workers' non-adherence in updating the vaccine supply data were reported by the informants hindered the vaccination coverage. Therefore, overcoming barriers at the organizational level is imperative in addition to the good level of vaccine acceptance.

This study has been able to reveal barriers to the COVID-19 vaccination program in Pandeglang District, Banten Province, Indonesia. The barriers were identified both at the community and organizational levels. The Pandeglang District government is suggested to keep close coordination with the central government in Jakarta to tackle the vaccine scarcity problem. At the same time, it is important to address the issues at the community level by providing clear, succinct health information to increase the individuals' health literacy and to prevent adverse effects caused by the COVID-19

infodemic. The involvement of religious leaders is also suggested to gain the trust of the local community, especially those in rural and remote areas who are still following strict religious and cultural practices (Effendi *et al*, 2021; Effendi and Muchammadun, 2018; Nugroho *et al*, 2021). Additionally, increasing the COVID-19 vaccine supply from existing manufacturers, as well as accelerating the development of Indonesian-made COVID-19 vaccines and improving the distribution system, would assist to ensure vaccine availability.

The results of this study have contributed to policy formulation by the related policymakers. The involvement of religious leaders in promoting the benefits of taking the COVID-19 vaccine was intensified. Additionally, stricter control was instigated on vaccine supply data updates by health workers. However, there are several limitations worth noting. First, as the nature of qualitative research, the result of this study is ungeneralizable. Second, as the participants mostly resided near the district capital, the perspectives of people living in rural and remote areas of Pandeglang, might have been underrepresented. Third, although no new themes were identified when reaching the sixth informant, the data saturation of this study is contentious due to the small number of informants. Fourth, the non-homogenous characteristics of FGD participants might have constrained the participants in voicing their views. Future studies are suggested to apply quantitative design with an adequate sample size so that the results would be generalizable.

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## CONFLICT OF INTEREST DISCLOSURE

The authors affirm that they have no conflict of interest.

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