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**Systematic Review**

# COVID-19's Vaccine Rejection: Lesson Learned To Preserving Health Security In Indonesia

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**ABSTRACT**

***Background:*** *Indonesia is a country with low COVID-19 vaccination coverage from 2020 through 2021. Different sociodemographic conditions determine the success of vaccination in suppressing the transmission of COVID-19. This systematic review aims to identify the reasons for the refusal of the COVID-19 vaccine among the general and vulnerable communities in Indonesia.*

***Methods:*** *This study uses a systematic review method using PubMed and Google Scholar. The keywords used are COVID-19 vaccine, acceptance, determinant, and Indonesia. The article, which was specifically researched, presents the acceptance of the COVID-19 vaccine in Indonesia only in 2020 and 2021. Elicit information from found articles to form conclusions for each article.*

***Results:*** *Based on 12 studies, the main causes of the rejection of the COVID-19 vaccine in Indonesia are knowledge and negative attitudes. In the aspect of knowledge, three things become problems, namely fear of the side effects of vaccination, doubts about the effectiveness of vaccines, and doubts about vaccine safety. Negative attitudes are influenced by propaganda and conspiracies.*

***Conclusion:*** *The general population and vulnerable people in Indonesia are more likely to reject the COVID-19 vaccine, so the target for mass vaccination is not achieved, the main reasons being knowledge and perception. Control strategies and invitations for specific COVID-19 vaccinations are critical in order to get the general public and vulnerable populations to participate in vaccination activities.*

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## INTRODUCTION

The coronavirus disease (COVID-19) pandemic is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which has become a global threat, especially in Asian countries, including Indonesia (Bhutta et al., 2020) (Chhetri et al., 2020;) (Harapan et al., 2020) (Lim et al., 2020). Furthermore, regions in Indonesia have

a high level of risk for the spread of COVID-19, with 201 red zones spread across various districts as of August 8, 2021 (Sahara, 2021). To increase defense against COVID-19, various efforts need to be made, including vaccination to increase herd immunity.

There is an urgent need for herd immunity against COVID-19 infection (MacIntyre et al., 2021). Immunological protection is obtained by vaccination. Vaccine-derived antibodies are required to block the interaction between protein S and angiotensin-converting enzyme 2 (ACE2) to effectively prevent COVID-19 infection (Huang et al., 2020). Herd immunity must qualify for up to 82% of the population (Schaffer Deroo et al., 2020). So the vaccine must also be well received by the general public (Forman et al., 2021).

High vaccination coverage has a chance of ending the COVID-19 pandemic (Dinleyici et al., 2021). However, target vaccination coverage in low-middle-income countries has limitations compared to high-income countries (Duan et al., 2021). Moreover, the socio-demographic and cultural characteristics of each country are very different, so the percentage of vaccination coverage is highly determined by the appropriate strategy (Giuliani et al., 2021).

Based on Indonesia's national vaccination coverage data obtained from the government's official website, the total vaccination dose 1 was 83.27%, dose 2 was 68.90%, and dose 3 was 31.88% as of October 20, 2022 (Indonesian Ministry of Health, 2022). Among the target groups, the vulnerable and the general public are the groups that received the lowest number of COVID-19 vaccinations compared to other target groups. It can be seen at a glance that in real-time, the coverage of COVID-19 vaccination in Indonesia continues to increase. However, those who achieved the requirement of herd immunity, which was more than 82%, were only at dose 1, while at dose 2 and dose 3, it was below 70%. Carrying out a booster vaccination will increase antibodies against COVID-19 (COVID-19 Handling Task Force, 2021).

The reason people only vaccinate against COVID-19 at dose 1 is to fulfill administrative requirements from the government (Kafrawi, 2022). So, this needs to be evaluated to increase public awareness about getting the vaccine. This study aims to assess vaccine acceptance in Indonesia. The results of this study may be an important strategy for the government to formulate the most appropriate approach to increasing public awareness related to the right information to receive vaccinations to maintain health security in Indonesia.

## MATERIALS AND METHOD

This systematic review focuses on aspects of the acceptance of the COVID-19 vaccine in the general and vulnerable communities to answer the following 3 research questions (RQ): (1) Do the general and vulnerable people in Indonesia receive the COVID-19 vaccine?, (2) What is the perception of the Indonesian people towards the COVID-19 vaccine?, and (3) What affects the acceptance of the COVID-19 vaccine in Indonesia?. In searching for related articles, two literature search engines are needed, namely Pubmed and Google Scholar, using four keywords, namely: "Vaccine", "COVID-19", "Acceptance", "Determinant", and "Indonesia".

The use of the keyword "COVID-19 vaccine" to identify the use of special fluids (vaccines) as a preventive measure related to COVID-19 infection that does not consider the type of vaccine such as Sinovac, AstraZeneca, Moderna, Sinopharm, Cansino, Pfizer. The keyword "acceptance" is used to describe the level of society that

will receive the COVID-19 vaccine. The keyword "determinant" is used to identify the reasons for the acceptance of the COVID-19 vaccine in Indonesia. The keyword "Indonesia" is used so that the research is limited to Indonesia only.

Two reviewers evaluate the research, while the other selects research articles that do not meet the required criteria. The research articles sought are only for 2020 and 2021. International and local journals and theses related to this systematic review are considered for inclusion in the review process.

The studies included in this review followed the inclusion criteria. (1) related to the COVID-19 vaccine, (2) aims to determine the acceptance of the COVID-19 vaccine, (3) research conducted in Indonesia, and (4) publication only from 2020 to 2021. Furthermore, this research also contains exclusion criteria, so they were not included in the study. (1) research related to intervention, (2) research based on the author's opinion, (3) research related to communication strategies, and (4) research with other themes during the COVID-19 vaccine period (for example, acceptance of basic vaccines during the COVID-19 period).

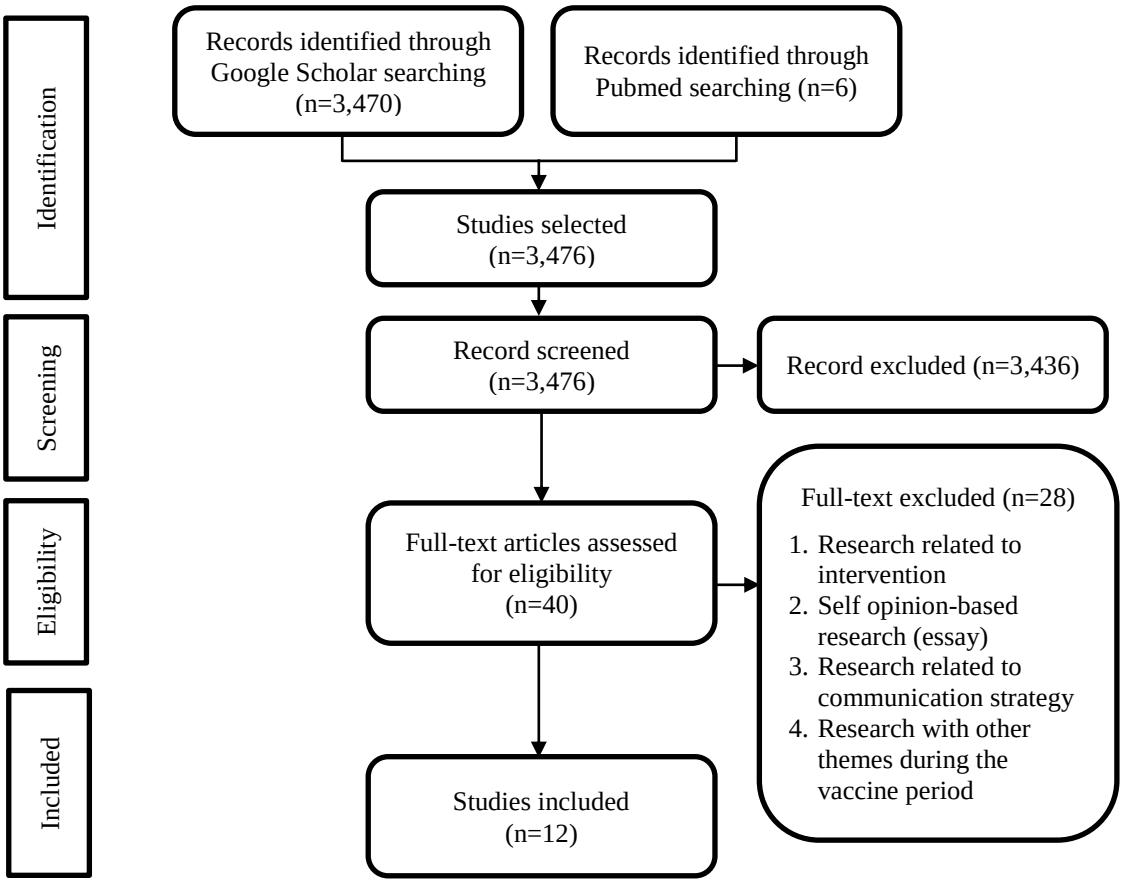


**Figure 1.** Study Workflow

In the research identification process, there were 3,470 articles entered into the Google Scholar database, and there were 6 articles entered into the Pubmed database, so the total initial articles were 3,476 studies, which were then screened based on the suitability of their titles and keywords, and 3,436 studies were excluded. Articles that have been processed according to the title then enter the abstract review stage by excluding articles related to interventions, essays or personal opinions, research related

to communication, and articles that are other themes of vaccines that are not in the right period, so the articles that are submitted in the systematic review stage may include as many as 12 studies.

## RESULTS

The general population and vulnerable populations in Indonesia have a very high rate of rejection of the COVID-19 vaccination (Table 2). The refusal was mostly due to incorrect knowledge and perceptions regarding the COVID-19 vaccine. Negative sentiment is suspected to be the trigger for propaganda and conspiracy for the COVID-19 vaccine (table 1).

**Table 1.** Article studying the acceptance COVID-19 vaccine by the general public and vulnerable in Indonesia

| Author/ Year | Study design | Sample size | Measures | Variable |
|---|---|---|---|---|
| Handayani et al., 2021 | Cross-sectional | 30 | Online questionnaire | a. Percentage of vaccine acceptance<br>b. Knowledge<br>c. Side effects (Handayani et al., 2021). |
| Safitri., 2021 | Cross-sectional | 98 | Questionnaire | a. Percentage of vaccine acceptance<br>b. Education or understanding<br>c. Mass media exposure<br>d. Negative attitudes<br>e. Subjective norms (Wilda, 2021). |
| Harapan et al., 2020 | Cross-sectional | 1,068 | Online questionnaire | a. Percentage of vaccine acceptance<br>b. Knowledge (Harapan et al., 2020). |
| Harun et al., 2021 | Opinion mining | 510 | Social Media | a. Negative sentiment<br>b. Vaccine effectiveness (Harun & Ananda, 2021). |
| Febriyanti et al., 2021 | Cross-sectional | 37 | Online questionnaire | a. Percentage of vaccine acceptance<br>b. Knowledge (Febriyanti et al., 2021). |
| Rachman et al., 2020 | Opinion mining | 4941 | Social Media (Twitter) | a. Negative sentiment<br>b. Vaccine effectiveness doubts<br>c. Vaccine safety<br>d. Hoaxes and propaganda |

| Author/ Year | Study design | Sample size | Measures | Variable |
|---|---|---|---|---|
| | | | | e. Side effects<br>f. Knowledge<br>(Rachman & Pramana, 2020). |
| Ichsan et al, 2021 | Cross-sectional | 266 | Online questionnaire | a. Percentage of vaccine acceptance<br>b. Knowledge<br>c. Doubts about the effectiveness of vaccines<br>d. Security<br>e. Side effects<br>(Ichsan et al., 2021). |
| Arumsari et al, 2021 | Cross-sectional | 200 | Online questionnaire | a. Vaccine safety<br>b. Vaccine effectiveness<br>c. Halal<br>d. Propaganda and conspiracy<br>(Arumsari, Desty, Eko, et al., 2021). |
| Wirawan et al, 2021 | Cross-sectional | 779 | Online questionnaire | a. Percentage of vaccine acceptance<br>b. Conspiration<br>(Wirawan et al., 2021). |
| Nadya, 2021 | Cross-sectional | 272 | Questionnaire | a. Knowledge<br>b. Perception of vulnerability<br>c. Vaccine safety<br>(Nadya, 2021). |
| Ma'rifati, 2021 | Cross-sectional | 323 | Questionnaire | a. Vaccine side effects<br>b. Vaccine safety<br>c. Perception of fear of Post-Immunization Adverse Events (AEFI)<br>(Ma'rifati, 2021). |
| The Ministry of Health, NITAG, UNICEF, and WHO, 2020 | Cross-sectional | 117,814 | Online questionnaire | a. Security<br>b. Effectiveness<br>c. Side effects<br>d. Knowledge<br>e. Religious beliefs<br>(Ministry of Health Republic of Indonesia, 2020). |

Figure 2. Vaccine acceptance in Indonesia is influenced by two things: knowledge and a negative attitude. The majority of people surveyed did not want and did not agree

to be vaccinated. The cause of the lack of knowledge in the community is the lack of education, so they are afraid of vaccine side effects, effectiveness, and safety. Various negative sentiments have emerged because the public believes that the vaccination carried out by the government is an unsafe vaccine and cannot afford to break the chain of transmission of COVID-19. Knowledge related to vulnerabilities, benefits, obstacles, and side effects is not well educated, so the implementation of vaccination is only to follow the requirements of the administrative obligations by the government.

Negative attitudes are influenced by propaganda and conspiracies. The rise of false information and hoaxes has made propaganda and conspiracy theories more easily accepted by the public. People consider that COVID-19 vaccines are created by "global elites", and business interests, lower the body's natural antibodies, are not kosher, and are created so that activities and data can be monitored.

This creates a public perception regarding vaccines, namely that the COVID-19 vaccine is not safe, so it is unable to break the chain of transmission. COVID-19 will also disappear if you surrender to God, and for treatment, you will be able to recover with traditional medicines. The importance of education, based on one of the studies by Febriyanti et al., (2021) will increase community participation because the public already understands the important benefits of vaccination.

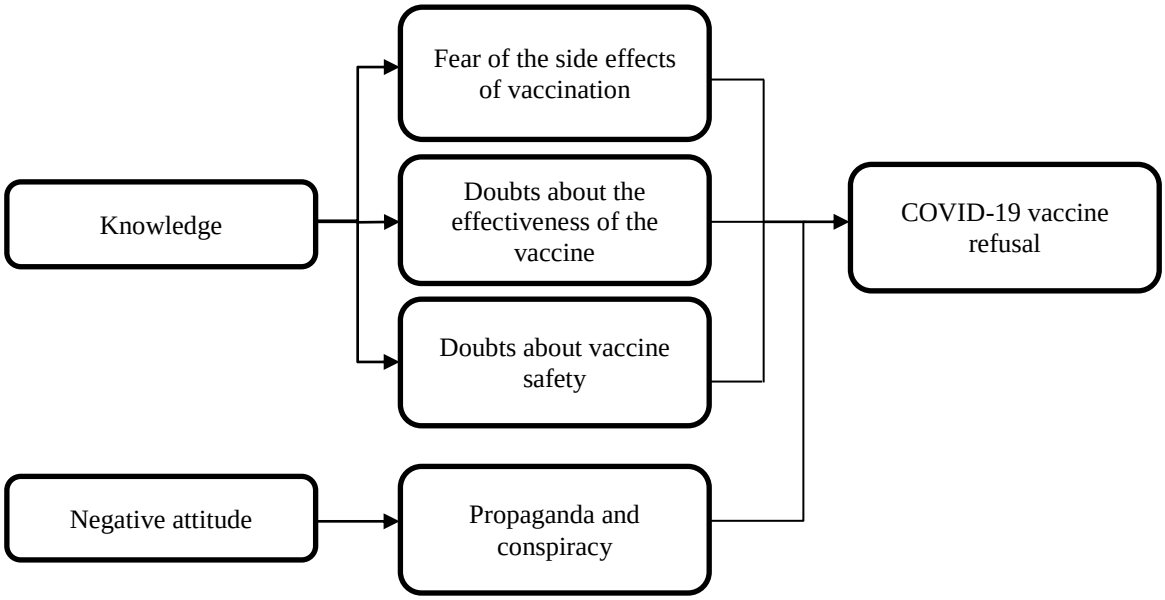


**Figure 2.** Framework for the causes of rejection of the COVID-19 vaccine in the general and vulnerable communities in Indonesia

## DISCUSSION

During the distribution and vaccination process for COVID-19 in Indonesia, irresponsible news circulating in the community is at a very high level and affects vaccine acceptance in the community (Ministry of Health, Republic of Indonesia, 2020). People who lack cooperation in vaccination will slow down the process of terminating the transmission of COVID-19 (Bollyky & Brown, 2020). The education that can be given is knowledge about the safety, effectiveness, and side effects of vaccines, so that it will provide a sense of security and public confidence in participating in the vaccination process (Zulfa & Yunitasari, 2021).

The perceived risk of vaccine side effects may be the most common barrier (Nguyen et al., 2021). Public awareness of the risks of vaccination has been compromised or lost. Perceived vulnerability is the likelihood that a person will be affected by a risk (such as vaccine side effects), and perceived severity is the degree of harm a risk poses (Dubé et al., 2016). According to secondary risk theory, people assess the potential risk of risk-reducing actions (eg, vaccination against COVID-19). Intentions to protect against major risks (such as COVID-19) may be diminished if recommended actions are perceived as dangerous (Cummings et al., 2021).

This is also in line with the research of Leng et al., (2021) which said that some people showed reluctance to be vaccinated due to several factors such as vaccine side effects, vaccine effectiveness, vaccine administration duration, cost, number of doses, the route of transmission, vaccination location, and the burden. disease. The diversity of preferences related to vaccination side effects is also suspected to have an impact on the absorption of vaccines related to socio-demographic characteristics such as education and people's income. Trust in vaccines has also declined given that many vaccines have a reputation for poor quality, which has led to a decline in vaccine coverage.

It is very important to identify the cause of the doubt so that one can plan what approach needs to be taken to convince the individual or group. Because doubts about vaccination have a significant impact on immunization coverage in achieving herd immunity, the strategy that can be done for this is to carry out a vaccination campaign to the right target group (the group that refuses), where information is given focusing on the effectiveness and efficacy of the vaccine and the motivation to be vaccinated (Arina, 2020). Vaccination campaigns can take advantage of online platforms or social media that involve religious leaders, community organizations, and influencers to conduct advocacy (Paul et al., 2021).

Hesitation and misinformation about vaccination are major obstacles to achieving community-wide coverage and immunity (Saied et al., 2021). Differences in immunization coverage between countries can potentially slow global control of the pandemic and subsequent social and economic recovery (Di Gennaro et al., 2020). Governments, health teams, and stakeholders must be ready to answer questions and build immunization capacity to ensure that people are vaccinated on time. Anti-vaccine activists are campaigning against the need for vaccines in many countries, with some denying the existence of COVID-19 outright (Lushington, 2020). The spread of misinformation through multiple channels can have a significant impact on COVID-19 vaccine uptake (Piltch-Loeb et al., 2021).

Clear and consistent communication by government officials is critical in building public trust in immunization programs (Sauer et al., 2021). This includes training leaders of public and community organizations, respected religious leaders in various sectors of society and local communities, and private sector leaders (Lazarus et al., 2021). Building public confidence in regulatory reviews of vaccine safety and efficacy will be critical (Schoch-Spana et al., 2020). Trusted, culturally insightful health communication is critical for influencing positive health behaviors (Porat et al., 2020).

In principle, when people believe in the COVID-19 conspiracy theory, this infectious disease is believed to have arisen not due to natural factors such as evolution but because it was deliberately created by humans (van Prooijen & van Vugt, 2018). National narcissism is a predictor of high confidence in conspiracy theories that the dangers of the COVID-19 vaccine are hidden by pharmaceutical companies, scientists, and the government and that the COVID-19 vaccine contains electronic devices to track

people's whereabouts (Cisłak et al., 2020). The COVID-19 conspiracy theory encourages the rejection of the COVID-19 vaccine because, by believing in the theory, individuals tend to deny the fact that COVID-19 exists (Miller, 2020).

Thus, the availability of an effective and safe vaccine alone cannot guarantee the achievement of herd immunity and COVID-19 control (Omer et al., 2020). Therefore, controlling social media, government policyholders, and religious leaders must work together to educate the public about the culture in each region (Sallam et al., 2021). The government, through the Ministry of Health, has made efforts to overcome content containing hoax news about the COVID-19 vaccine during the pandemic. Efforts have been made in the form of disseminating as well as straightening information through social media platforms (Instagram and Twitter) by presenting health experts (Susilo et al., 2021).

These experts are tasked with educating the public through their fields of expertise regarding the level of safety, halalness, and effectiveness of vaccines. Another effort was made by the "COVID-19 Task Force" through the covid.19.go.id page to launch a confirmation service for news related to COVID-19 by adding the "Hoax Buster" column on the website. This shows that public education needs to improve, given that acceptance and consensus are the next levels of knowledge.

Some information that needs to be given to the public is the level of safety, effectiveness, halalness, and vaccine emergency, and straightening out hoaxes about the COVID-19 vaccine (Arumsari, Desty, & Kusumo, 2021). However, the use of social media is not entirely able to reach information to all people. Conventional socialization involving religious leaders and community leaders is very important to implement (Muchammadun et al., 2021).

Moreover, the use of regional languages following the characteristics of disadvantaged areas that do not understand Indonesian is a trigger for changes in perceptions and behavior (Wea et al., 2022). Therefore, with collaboration between the government, the media, and stakeholders in increasing public awareness of COVID-19, it is hoped that it will become an ongoing program. In particular, this will also be very useful in national defense in the health sector (Lal et al., 2021).

## CONCLUSION

The general population and vulnerable populations in Indonesia have a very high attitude toward rejecting the COVID-19 vaccine. The reason for the rejection of the COVID-19 vaccine is due to public knowledge and negative sentiments about the COVID-19 vaccine being used in Indonesia, fear of side effects after vaccination, negative attitudes, doubts about the effectiveness of the vaccine, doubts about the safety of the vaccine, and considering the COVID-19 vaccine to be a vaccine, propaganda, and a conspiracy. The strategy for controlling and inviting COVID-19 vaccination is devoted to increasing knowledge of vaccines by using media that focuses on education on side effects, effectiveness, and safety of COVID-19 vaccines by involving stakeholders. Recommendations for further research are to develop intervention models to improve knowledge and find targeted media that can be received by all age groups.

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