




Investigating Knowledge toward COVID-19 Vaccination: A Cross-sectional Survey in Yogyakarta, Indonesia

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Abstract

AIM: Since there were pros and cons, and insufficient knowledge among Indonesian regarding the vaccines, this research aims to investigate the knowledge regarding COVID-19 vaccination among employees who work in an Islamic University in Yogyakarta, Indonesia.

METHODS: A descriptive cross-sectional design was used to investigate the people's knowledge of COVID-19 vaccination. The survey was conducted before the first vaccination of COVID-19 in March 2021. A descriptive analysis method was performed. Seven hundred sixty-two respondents completed the questionnaire.

RESULTS: Respondent's average age was 34.61 years old (standard deviation = 11.821, range 20–64), 54.1% of female and 45.9% of male. 448 (58.8%) respondents did not have any comorbid history. Respondents mostly obtained vaccination information through social media (86.25%). Most respondents had sufficient knowledge about the COVID-19 vaccine (83.2%), particularly those aged 20–29. For side effects, 585 (76.8%) respondents answered that they experienced pain in the injection area after getting the COVID-19 vaccination. This study showed that the respondents aged 20–29 years old had sufficient knowledge regarding COVID-19 vaccination.

CONCLUSION: As knowledge plays an essential role in accepting vaccinations, health-care workers' efforts to promote COVID-19 vaccination should be directed toward the middle-aged and elderly population to support the government's plan to increase the rate of COVID-19 vaccinations in Indonesia.

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Introduction

Since coronavirus (COVID-19) was first detected in Wuhan, China, in December 2019, it has spread to many countries and has become a global pandemic. Globally, on October 22, 2021, there were 242,348,657 confirmed cases of COVID-19, including 4,927,723 deaths. There have been 4,239,396 confirmed cases in Indonesia, including 143,176 mortality numbers [1]. Several measures need to be taken, such as wearing masks, maintaining physical distance, performing hygiene practices, minimizing this disease from spreading, and getting the vaccination. Hand cleanliness and maintaining a proper social distance are the most important measures adopted overseas [2]. COVID-19 is considered one of the dangerous viruses which now have several kinds of vaccines that have been distributed worldwide. The vaccine aims to build antibodies in people's bodies to minimize the virus's transmission. The human antibody is essential [3].

Vaccination is specifically given to actively generate or increase an individual's immunity against a disease. Vaccine not only helps us but also helps people in the environment. Vaccination has a positive externality in that it protects both other individuals [4]. The safety vaccination is crucial in the COVID-19 pandemic. The safety of vaccines is essential for the proper implementation of any immunization program, particularly during a pandemic [5]. Hence, if the disease infects someone, they will not quickly get sick or only have a mild symptom and will not become the transmission source. Those who have received the vaccine are health-care workers, government employees and the elderly, and now, the general public has started getting vaccinated [6]. In addition to the vaccination, which will be continually distributed to an Indonesian citizen, there will be an examination of antibody levels by taking a blood sample after receiving the vaccine. This research aims to determine the human antibody's levels after receiving the COVID-19 vaccine.

The vaccine aims to build the immune system or generate antibodies against the virus, specifically

COVID-19. The vaccination itself has been carried out in two stages: the first and second administration stages. From the first to the second administration of vaccines, a period is needed to adapt and develop the effects or symptoms after receiving the vaccine that can be seen in the body [7]. In addition, the world has expedited to comprehend the infection, natural immunity, and foster antibodies [8]. The Indonesian government has prepared a vaccination that will be distributed to all Indonesian people. However, there are also the pros and cons of the community seen from the crowds talking about the COVID-19 vaccine on social media [9]. There is considerable speculation over the COVID-19 vaccine itself. One of which is whether or not people who have received the vaccine can still be infected with COVID-19, then the answer is yes. After the body gets the vaccine, it needs a few days to adapt [10].

In most environments, people have their perspective on the COVID-19 vaccine. People would take action toward the issues happening, especially in Indonesia. Society can quickly get the information from traditional and new media; however, COVID-19 vaccines are recent, and public doubt is unavoidable. Nonetheless, despite the vaccine's alleged scientific justification and quick answer to the world health crisis, some people have reservations [11]. Hence, many rumors spread that vaccines are unsafe, not correctly distributed, cause harmful side effects, etc. Besides those rumors, many people still believe that vaccines would protect the body from COVID-19. The study [12] shows that knowledge is one of the most important aspects of handling COVID-19 cases. Therefore, the researchers want to investigate people's abilities regarding the COVID-19 vaccine. Every person in the world will get a vaccination, but it will take time to distribute its vaccine to many people. People will get the same doses of vaccines that can maintain the antibody [13].

In the previous research, people also considered the situation and protected themselves by doing several protection methods such as social distancing, washing hands, and wearing masks. The use of a mask, hand cleanliness, and social distancing decreased the impact of COVID-19 and lowered the incidence of other respiratory diseases [14]. Further research stated that people's knowledge was still lower than their fear, panic, and property. Therefore, information could make people believe and decrease their anxiety about the COVID-19 situation [15], meaning that people still have insufficient knowledge about COVID-19. Furthermore, it showed that knowledge and perception about COVID-19 vaccination affect people's acceptance of COVID-19 vaccination [15]. The information should be given using the local language, and health-care workers should present thorough information regarding COVID-19 to the patients [16]. The pros and cons, the rumors, and society's behaviors regarding vaccines lead researchers to bring up the issues about recipients' knowledge regarding vaccination since taking vaccines

is a must in Indonesia. It obviously can facilitate the administration process in the COVID-19 pandemic. Hence, the researchers wanted to investigate people's knowledge on vaccination of COVID-19 because the Indonesian government has declared that people should get vaccinated to protect their bodies from the harm of COVID-19.

A study conducted in Lybia found that 86% of respondents have an adequate level of vaccine COVID-19 knowledge [17]. Moreover, a study in 2020 in Indonesia reported that half of the health-care workers as the participants have high knowledge about the COVID-19 vaccine [18]. In addition, 465 (96,3%) respondents had prior knowledge about COVID-19. Some previous studies in Indonesia also proved that knowledge correlates with people's attitude toward COVID-19 vaccination. The purpose of this study was to find the level of knowledge about the COVID-19 vaccine among employees, staff, and academicians in the Private Islamic University in Yogyakarta, Indonesia, before they received the vaccine.

Methods

Study design

A descriptive cross-sectional design was used to investigate people's knowledge of the COVID-19 vaccination.

Sampling

Convenience sampling was adopted to decide the sample of this study. From the unknown vaccine recipients, 762 employees participated as the respondents working in the Private Islamic University in Yogyakarta, Indonesia. Furthermore, this is the first university that arranges a mass immunization initiative with Sinovac (CoronaVac). The study was conducted in March 2021, before the respondents got the first dose of the COVID-19 vaccine. The inclusion criteria were (1) the participants must have been 18 years and older and agreed to take the COVID-19 vaccination and participate in the research and (2) the respondents were going to receive Sinovac (CoronaVac) vaccination. Besides, the exclusion criteria were (1) pregnant mothers and breastfeeding mothers and (2) once infected with COVID-19 in <3 months during the research.

Instrument

The questionnaire was developed based on a literature review and discussion with the research team for this study. The questionnaire category regarding the side effects of the COVID-19 vaccine was established

based on the questionnaire from the minister of health regulation of Indonesia number 12 of 2017 concerning immunization. Then, it was also developed by the guideline from WHO and CDC concerning vaccination [1], [19]. The researchers developed the category about recipients' knowledge through reviewing some literature. The experts carried out content and face validity for each item in the questionnaire, and it was also distributed to 60 respondents for the piloting test. The questionnaire consisted of two main categories.

The first section was demographic information, including age, gender, blood type, comorbid history, and confirmation that the respondents were infected with COVID-19 through standard laboratory testing protocols. The second section was about the COVID-19 vaccination information sources. Participants could choose more than one available answer.

The third section was COVID-19 vaccines knowledge consisting of five questions with two answers choices, "yes" or "no;" the researchers developed the items using "Yes" and "No" because it was purposely made as a close-ended questionnaire only to see the recipient's knowledge about the vaccine. Besides, a close-ended questionnaire would ease the respondents in filling out the questionnaire because they were provided a specific choice to answer;

The fourth knowledge of side effects after being vaccinated and knowledge of management if side effects occur after receiving the vaccine participants could choose and add more than one available answer.

Data collection

The questionnaire was distributed using the Indonesian language to gain actual data from respondents. Distributing questionnaires in the country's national language will effectively generate a proper answer. The data were collected in March 2021 through a web-based questionnaire via Google Forms. The researchers sent the Google Forms link via WhatsApp to each participant.

Data analysis

The first and second section was analyzed using the Statistical Package for the Social Sciences (SPSS) program 22 versions. In the third section, the level of knowledge was divided by using the Arikunto (2013) scale that can determine three levels of respondents' knowledge: high, low, and moderate (Table 1). Furthermore, the fourth section was analyzed

Table 1: The scale of respondents' knowledge level

Category	Percentage
High	>76
Moderate	56–75
Low	<55

by counting the percentage of all answers from respondents.

Results and Discussion

The researchers found several results by spreading the questionnaire toward the respondents before they got a vaccine. The study was conducted in one of the private Islamic universities in Yogyakarta, Indonesia. The questionnaire investigated the respondents' knowledge about vaccines. It was essential to know about the vaccine before and after people were vaccinated [20]. In this result report, there would be some information about the respondents' data or history, and it would follow the respondent's knowledge on a vaccine.

Characteristics of respondents

All respondents are personnel or employees with various educational backgrounds, from university functionaries, lecturers, researchers, education staff and non-education staff, and cleaning services (data not shown). The minimum age of the respondents is 21 years old, and the maximum age is 63 years old. They are mainly in the range age of 20–29 years old (51.4%), and respondents are primarily female (54.1%). The blood type of the respondents mainly was O 275 (36%), followed by A blood type 194 (25%), B 231 (30%), and AB 64 (8%). A total of 745 (97.8%) respondents had never been diagnosed with COVID-19. However, 314 (41.2%) respondents have a comorbid condition which includes allergy (11.5%), rhinitis allergy (9.6%), hypertension (8.5%), asthma (7.3%), and other diseases (<5%), which should be a risk factor COVID-19 concern (Table 2).

Table 2: The characteristics of respondents (n = 762)

Characteristic	n (%)
Gender	
Male	350 (45.9)
Female	412 (54.1)
Age	
20–29	392 (51.4)
30–39	132 (17.3)
40–49	136 (17.8)
Unknown	102 (13.5)
Blood type	
A	194 (25)
B	231 (30)
AB	64 (8)
O	275 (36)
Comorbid history	
Allergy	88 (11.5)
Rhinitis allergy	73 (9.6)
Hypertension	65 (8.5)
Asthma	56 (7.3)
Others	161 (4.3)
No disease history	448 (58.8)
History of COVID-19 infection	
Yes	17 (2.2)
No	745 (97.8)

Information sources about COVID-19 vaccine

Figure 1 shows that all respondents 129 (7%) got information from television, 537 (29.4%) respondents obtained the information from a newspaper, followed by 257 (14.1%) got information from social media, 513 (28%) from friends, 356 (19.5%) from family, and 37 (2%) from others.

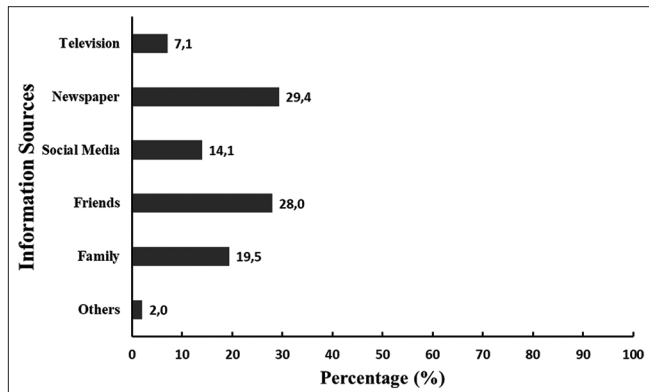


Figure 1: Information sources about COVID-19 vaccines

Assessment of general knowledge COVID-19 vaccine

To assess the level of public knowledge about the COVID-19 vaccine, the researchers divided the questions into third parts. The first part contains information sources for COVID-19 vaccine (Figure 1). The second is about the general knowledge of the COVID-19 vaccine, consisting of five questions (Table 3). The last part is public knowledge about the side effects and knowledge about managing side effects after receiving the COVID-19 vaccine (Figures 2-4). As shown in Table 3, 725 (95.1%) of respondents know about COVID-19 vaccination. A total of 623 (81.8%) respondents understand that the COVID-19 vaccine can prevent the occurrence of COVID-19 infection and can prevent severe COVID-19 disease (76.5%). However, only 10.6% of respondents did not know that people who have undergone the COVID-19 vaccine can become infected with COVID-19 and did not know the COVID-19 vaccine's detrimental consequences (16.8%). It means that they did not know about its effects.

Table 3: The general knowledge of the COVID-19 vaccine

Question	Frequency (n = 762), n (%)
1. Do you know about the COVID-19 vaccination?	725 (95.1)
2. Can the COVID-19 vaccine prevent the occurrence of COVID-19 infection?	623 (81.8)
3. Can the COVID-19 vaccine prevent severe COVID-19 infection?	583 (76.5)
4. Can people who have undergone the COVID-19 vaccine become infected with COVID-19?	681 (89.4)
5. Do you know about the COVID-19 vaccine's detrimental consequences?	634 (83.2)

We assess the level of respondents' knowledge about the COVID-19 vaccines (Table 3). A total of 120 (15.7%) respondents have a moderate level of expertise, especially in 20–29 years (51.4%).

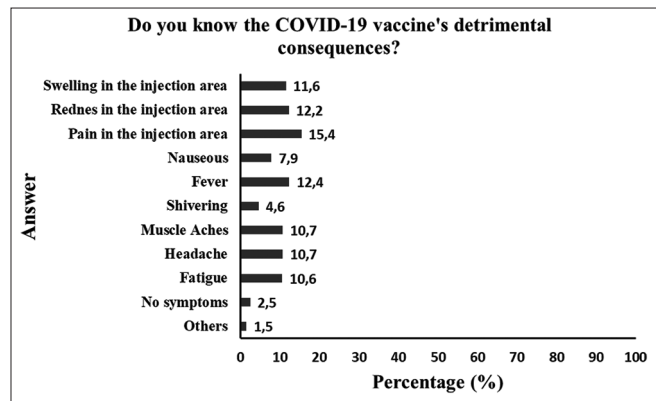


Figure 2: Public knowledge about the side effects after receiving the COVID-19 vaccine

Eight (1.04%) respondents have low scores regarding the knowledge of the COVID-19 vaccine. This research also found different results on gender about the ability of vaccination of COVID-19. The results show that 269 (35.3%) male and 365 (47.9%) female respondents have high knowledge for their score of knowledge on vaccination of COVID-19. Then, there are 76 (9.9%) male and 44 (5.7%) female respondents for a moderate category of its knowledge. Finally, 5 (0.6%) male and 3 (0.3%) female respondents had an excellent understanding of vaccination of COVID-19.

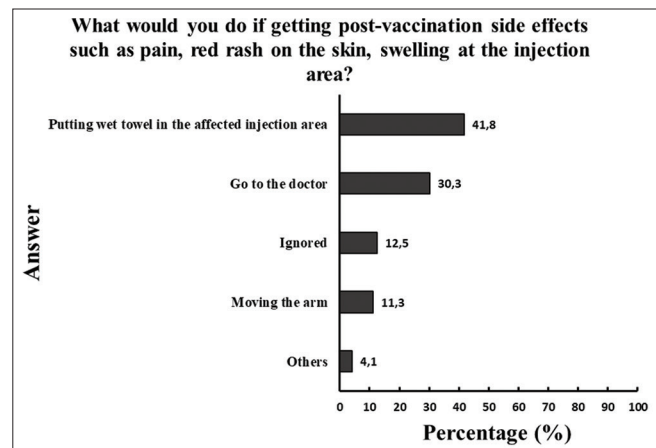


Figure 3: The knowledge about managing side effects after receiving a vaccine (pain, red rash on the skin, and swelling at the injection site)

Figure 2 describes public knowledge about the side effect of receiving the COVID-19 vaccine. A total of 585 (15.4%) respondents answered that they feel pain in the injection area, 469 (12.4%) respondents answer they had fever, and 464 (12.2%) respondents got redness in the injection area. Meanwhile, 94 (2.5%) respondents answered having no symptoms (Figure 2). The fourth part of the question is the knowledge in managing the side effects after receiving the vaccine. As shown in Figure 3, on the question "What can you do if you get post-vaccination side effects such as pain, red rash on the skin, swelling at the injection site?," 468 (41.8%) respondents answered giving wet towels in areas with vaccine side effects, and 339 (30.3%) respondents chose to go to the doctor. Interestingly,

140 (12.5%) respondents decided to leave it alone if side effects appeared after receiving the vaccine.

In addition, in Figure 4 on the question “What would you do if you had side effects after vaccination such as fatigue, headache, muscle aches, chills, fever, nausea?” showed a total of 513 (28.0%) respondents chose to consult their condition to a health-care facility. However, 537 (29.4%) respondents chose to drink enough water and took fever-reducing drugs (antipyretic) (365, 19.5%) or took painkillers (analgesic) (257, 14.1%).

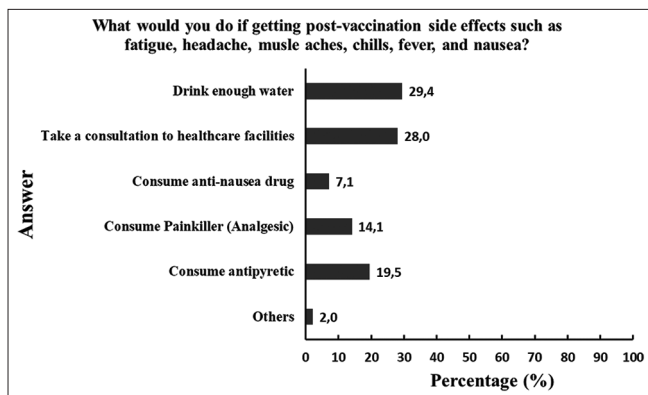


Figure 4: The knowledge about managing side effects after receiving a vaccine (fatigue, headaches, muscle aches, chills, fever, and nausea)

From the results above, it can be said that the range of respondents was dominated by respondents from 20 to 29 years old, and the majority of respondents were female, with 412 (54.1%). The respondents mostly get the information sources for COVID-19 vaccine from newspaper 537 (29.4%), followed by the vaccine COVID-19 information sources from their friends, 513 (28%). The majority of respondents in this study have a high level of knowledge, with a total mean score of 85.2% which indicates a high level of knowledge because it is above >76%, according to Arikunto (2013). 585 (15.4%) participants know that the side effects after receiving the COVID-19 vaccine were the pain in the injection area and redness in the injection area mentioned by 464 (12.2%) respondents. To manage the side effect of the COVID-19 vaccine, the participants 468 (41.8%) mostly put a wet towel in the affected injection area. Nevertheless, many respondents (140, 12.5%) ignored the side effect of the vaccine. In the post-vaccination effect, the majority of participants choose to drink enough water 537 (29.4%) and go to the doctor 513 (28.0%).

Discussion

COVID-19 vaccination program in Indonesia was held for the first time for Indonesia's President, Joko Widodo, on January 13, 2021. Those vaccines will be given to all of Indonesia's people for free, which aims to decrease the transmission of COVID-19 and

decrease the death number caused by COVID-19 and reach the immunity of groups of people or called by herd immunity. Herd immunity is a sufficiently significant fraction of immune individuals who exist in a group of susceptible individuals who receive indirect protection from infection [21]. People's immunity will only be built if the vaccination process is high and equal all over Indonesia. In the first phase of January to April 2021, the COVID-19 vaccination targets were health-care workers, assistant health-care workers, support personnel, and students who undergo professional medical education and work in health service facilities.

To support the COVID-19 vaccination program in Indonesia, one of the Islamic universities in Yogyakarta gave Sinovac (CoronaVac) on March 29, 2021 (first dose) and second dose (April 27, 2021) to all of its employees. While this research was conducted on March 29, 2021, the coverage of COVID-19 vaccination in Indonesia at the first dose was 18.80% and 8.43% at the second dose. The Special Region of Yogyakarta province ranked third with the first COVID-19 vaccination coverage of 30.75%. In contrast, the second dose of the COVID-19 vaccination range ranked second at 13.88% [22].

The exclusion criteria in this research were the people who had not received or were contraindicated for the COVID-19 vaccination. They were pregnant women and persons who had been infected with COVID-19 and tested negative but were in the research period for <3 months. Sinovac vaccine (CoronaVac) is not recommended for individuals who have a history of hypersensitivity to any vaccine component, as well as those who have basic immunodeficiency. Sinovac vaccine (CoronaVac) has relatively high efficiency. The percentage efficacy of the Sinovac vaccine was 78% [23], as stated by the World Health Organization (2021) that vaccines must have a 50% or higher effectiveness rate to be authorized. Vaccination should be postponed for people suffering from acute illness or acute attacks of chronic disease. Furthermore, caution and post-vaccine observation are required for individuals with a history of allergy (11.5%), allergic rhinitis (9.6%), and asthma (7.3%). Diabetes mellitus patients were even more eligible to receive the vaccination than patients with other chronic illnesses, perhaps because of the increased risk of severe consequences if they were infected with COVID-19 [24].

Until now, published data on knowledge about COVID-19 vaccines are still limited, especially in Indonesia. Although health authorities have consistently disseminated the information about the COVID-19 vaccine since the first national vaccine program was implemented, there is still a lot of false (hoax) and inaccurate information. This situation can lead to confusion and difficulty ascertaining correct information. Several people in Indonesia, including a few anti-vaccine groups, refuse to be vaccinated. Refusal and delay of taking the COVID-19 vaccine were higher

before information on the vaccine's safety and efficacy was released, implying that people were reacting to the information that was made available and demonstrating how hesitancy is a complex time-dependent construct influenced by a variety of factors [25]. As a result, the coverage of the COVID-19 vaccination in Indonesia is now inadequate. Several sources of information have been written, including social media, television, friends, family, newspapers, posters, or journals. The most popular sources of vaccination information were social media (86.2%) and television (50.2%). It aligns with the research from Al-hanawi *et al.* [26] in Saudi Arabia and Al-Marshoudi *et al.* [27] in Oman, revealing that social media and television were the most popular sources of vaccination information. Huynh *et al.* [28] used random sampling to survey the adult age group with chronic diseases in Ho Chi Minh City, Vietnam, between December 2020 and January 2021. Most respondents said they learned about COVID-19 via television (82.4%) and social media (51.8%). The results are consistent with a survey performed in Bangladesh by Islam *et al.* [29]. The source of information regarding the COVID-19 vaccine that received the most votes was the mass media (e.g., radio, TV). Assessing vaccine information will assist in identifying the information gaps in the community and among certain groups, combating issues, and establishing appropriate plans of strategic management to improve vaccination acceptance quality.

With the fast development of different social media platforms such as Facebook, WhatsApp, Twitter, Instagram, YouTube, and others being utilized more in the creative industry, information distribution has been faster than in past years. Utilizing the development of digital technology in Indonesia for the health sector is possible since Indonesia has the fourth-highest growth rate of smartphone users behind China, India, and the United States. According to survey data from the Indonesian Internet Service Providers Association (APJII), 196.714 million (73.7%) of Indonesia's population will be internet users by 2020 [30]. As a result, people should be informed up to speed on the newest COVID-19 information through popular platforms of communication, such as social media and television, which are probably to provide faster information updates to the community. People find helpful information on social media platforms more effectively and individually than through traditional information retrieval using search engines [31]. It is hardly surprising that getting information through social media is easier and more popular than attending a webinar or reading a health journal. The vast volume of information available on these platforms impacts how we perceive and respond to the present COVID-19 outbreak [32].

Gender, age, disease history, and history of COVID-19 infection were discovered to be four points of information about the respondents in our study. According to Ping *et al.* [33], demographic, epidemiological, and clinical information was required

to be included as respondents' information. There are conflicting reports of gender impacts throughout the literature, with some males being more inclined to accept the vaccination than others [34]. Interestingly, males are more likely than women to engage in COVID-19 vaccination clinical experiments in 2020 [35]. This study also discovered gender differences in awareness of COVID-19 vaccination. Females have a vast understanding to shield themselves. Several researchers have indicated that women are better educated and have healthy vaccination practices and attitudes [36], [37], [38], [39]. Pregnant women and mothers of young children were shown to have poorer acceptance and trust in the COVID-19 vaccine's safety and effectiveness in studies conducted in the United States and Russia. The primary reason for mothers' refusal to get COVID-19 vaccines is that they were concerned that the legalization of the vaccine would be rushed for political issues [40]. They want the safety and efficacy evidence and assume the COVID-19 vaccine is unsafe and may have adverse side effects [40].

The respondents' age in this study was from 20 to 64 years old. The findings revealed that 95.1% of respondents knew the COVID-19 vaccine. Most respondents around 20 to 29 years old were well during the COVID-19 vaccination. In comparison, in a survey of millions of Americans, people between 35 and 44 years old were most likely to receive the COVID-19 immunization [41]. In Malaysia, those above the age of 50 had greater levels of knowledge [34]. The research in Ethiopia shows that those who aged 18–25 years were more aware of the COVID-19 vaccine [42].

In this research, most respondents recognized that the COVID-19 vaccination would prevent COVID-19 infection (81.8%), severe COVID-19 condition (76.5%), and people who have undergone the COVID-19 vaccine get infected with COVID-19 (89.4%). A previous study in Indonesia found that 93.3% of the population received a vaccine with 95% efficacy, while 67% would do so with a 50% efficacy [43]. Based on previously studied, Chinese residents maintained high opinions regarding the efficiency of COVID-19 vaccination, with 89.5% assuming that vaccination is a practical approach to prevent and control COVID-19, even though the vaccine is still being developed [44]. According to comparative research conducted in Oman, most respondents (52%) claimed that vaccinations could prevent them from getting COVID-19, and 42% assumed that patients could not be infected COVID-19 after being vaccinated [27]. The result of the recent study was in line with Jamil *et al.* (2020), [18] that the respondents have sufficient knowledge about the COVID-19 vaccine. However, this result study differs from Elhadi's (2021) study in that his respondents have an adequate level of COVID-19 vaccine knowledge.

Previous research discovered that individuals had insufficient awareness about COVID-19; 96.0% had a limited understanding of the disease, and 39.0%

had a negative opinion of the COVID-19 vaccine trial. Before and after getting a vaccination, people should know what actions to take before and after getting a vaccination [21]. In line with the previous study of Olapegba *et al.* [45], most respondents had poor knowledge about COVID-19 and were viewed as a threat and engaged in prompting precautionary behavior. The result contrasts the current results where the respondents had good knowledge about vaccination of COVID-19. Based on previous research by Ruiz and Bell [46], this research supports the previous research on understanding the importance of the immunization process, rejecting conspiratorial disinformation about vaccines, and personal assessments of risk in developing vaccination intentions. Taghrir *et al.* [47] 79.6% of respondents have good knowledge of COVID-19, and the respondents also have excellent preventive behavior with 94.2%. It supported that people should know what people should do in this pandemic situation of COVID-19.

Respondents in a study conducted by Callaghan *et al.* [48] in the United States and Islam *et al.* [29] in Bangladesh assumed that the recently discovered COVID-19 vaccine could have side effects. Several respondents in our study reported having one or more side effects after their most recent vaccination, such as fever and pain, redness, and swelling at the injection site. The result is consistent with Oxford University's statement to study participants that some may have painful arms, headaches, or fevers in the first few days after receiving the adenovirus-based vaccine [36]. They were also warned of a theoretical risk that the virus might trigger a severe response to coronavirus, which had occurred in some early SARS animal vaccination experiments [49], [50].

Respondents in this study also knew about the management of Adverse Event Following Immunization (AEFI) and side effects after receiving the COVID-19 vaccine. They provided a wet towel at the injection area if having pain, swelling, or a red rash on the skin after receiving the COVID-19 vaccine. To relieve local symptoms, place a clean, cool, wet cleaning cloth over the affected area, rest the arm, and refrain from hard lifting or exercise [51]. The respondents also consumed enough water and took fever-reducing drugs or painkillers if they felt tired had headaches, muscle aches, chills, fever, and nausea after receiving the COVID-19 vaccine. To alleviate the discomfort of a fever, drink plenty of water and dress comfortably [52]. The side effect of the vaccine usually occurs after the second dose. The majority of side effects were recorded, with the majority appearing after the double dose, which is injection site pain, headaches, flu symptoms, fever, and exhaustion are the most prevalent symptoms [53].

Knowledge has a significant impact on preventive measures due to the effectiveness of believing, and it has a direct impact on attitudes [33]. Knowledge is one of the Health Belief Model (HBM)

components, and it is critical in comprehending pandemic risks. In many previous types of research, the HBM was widely regarded as a framework for predicting vaccine acceptability and uptake [28], [54]. People would be more inclined to take the vaccination if they had no concerns about vaccine safety and were more knowledgeable of vaccine side effects, which would be strongly related to vaccine acceptance [55]. Therefore, the investigation of this research found that the people in one of the Islamic universities where this research had been conducted had good knowledge on vaccination of COVID-19. This variation in levels of expertise may reflect the current COVID-19 information landscape in the country.

This study provides valuable information about COVID-19 vaccination, which can be implemented through an appropriate framework of governmental public health efforts. The misinformation spread through social media can obstruct people's trust in COVID-19 information. A global epidemic of disinformation quickly spreading through social media platforms and other venues poses a severe threat to public trust [56]. Health literacy and awareness greatly influence the intention to follow health recommendations, which is critical to preventing the pandemic's negative consequences. Health literacy is widely recognized as a crucial strategy for preventing non-communicable diseases, with long-term expenditures in education and communication being sought [57]. Therefore, building health literacy through a social and educational framework is required to prepare individuals for complex situations such as pandemics and ensure successful vaccination campaigns among the general population [58].

This study has some limitations. The total of respondents of this study does not fulfill the total number of employees who work or who receive the vaccine. On the other side, the respondents' level of education and profession is unknown. Hence, the researchers cannot make a relation between the level of education and profession with the knowledge of vaccine.

Conclusion

To summarize, social media is one of the ways to provide health information to society. Hence, this information will enhance the insight of society regarding COVID-19, including the disease, prevention, and management. Along with proper knowledge, society will accept the vaccination program to decrease COVID-19 infection. Expectantly, through the result of this study, it can support the government to enhance public health promotion in terms of infectious disease in the pandemic. It also can raise the awareness and knowledge of society about the pandemic and health protocol as a way to prevent and control the infection.

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