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Qualitative analysis of knowledge, attitude and practice of academic community of Mataram University regarding COVID-19 vaccine refusal, vaccination obligation and cultural barriers

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Abstract

Background: COVID-19 cases in Indonesia has spread rapidly throughout the country, so the government implemented COVID-19 vaccination program. This program raises differences in public perception of COVID-19 vaccination, includes polemics against religion and beliefs, vaccinations as right or obligation, as well as refusal against vaccines.

Methods: This is a qualitative descriptive study that focuses on knowledge, attitudes and behavior on three themes, namely obligation and voluntary for vaccination, the right to refuse vaccination, as well as social, religious and cultural barriers in accepting vaccination. This study uses purposive sampling with FGD technique in academic community in University of Mataram who met the inclusion and exclusion criteria.

Results: Total 11 lecturers and students met the inclusion and exclusion criteria participated in FGD. There were 11 sub-themes found. Participant knowledge is good, represented by knowledge of COVID-19 vaccination policy, benefits of COVID-19 vaccine policy and sources of information regarding COVID-19 vaccine. The majority of participants' attitudes towards COVID-19 vaccine were positive and viewed the polemic of refusing vaccinations and vaccinations as right or obligation as a conditional matter. Social barrier is considered the biggest barrier to COVID-19 vaccination. Participant behavior regarding vaccine availability varied and some participants willing to help increase vaccination in the community.

Conclusion: FGD Participants have good knowledge of COVID-19 vaccination policy. The attitudes of FGD participants showed that there were variations in COVID-19 vaccine acceptance, vaccines as mandatory or voluntary, refusal to vaccinate and COVID-19 barrier vaccinations. Participant behavior varies in willingness to vaccine and some participants willing to participate in increasing vaccination in the community.

Keyword: Knowledge; Attitude; Practice; Barrier; COVID-19 vaccine

1. Introduction

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [1]. This virus spread very fast. In March 2020, the World Health Organization (WHO) declared it found COVID-19 as the fifth pandemic after the 2009 flu pandemic [1].

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In Indonesia alone as of 1 December 2021 the number of COVID-19 cases was 4.2 million with 143 thousand death[2]. Our government formed a task force for handling COVID-19 and distributing COVID-19 vaccine. In addition, the government also procured vaccines and implemented vaccine programs through collaboration with international institutions officially on October 6, 2020. The government appointed Ministry of Health as agency that regulates the vaccination program in Indonesia [3].

The government is working with WHO, the Indonesian Technical Advisory Group on Immunization (ITAGI) and the United Nations International Children's Emergency Fund (UNICEF) to conduct national-scale survey to understand views, perceptions and identify public concerns about COVID-19 vaccination[3]. The survey, showed that acceptance varied between regions. Total 64.8% of public received vaccinations, 27.6% said they did not know, while the remaining 7.6% said they refused vaccinations [3]. Several reasons related to the rejection of COVID-19 vaccination are doubts about the safety and effectiveness of vaccines, distrust of vaccines, fears of side effects and also religious reasons [3]. Several characteristics of the respondents were also recorded and categorized in this survey such as gender, economic status, religion, belief and insurance users [3].

This difference in background leads to differences in public perception of COVID-19 vaccination and is risky for solving the COVID-19 pandemic [4]. In dealing with this problem, the government intervened to issue policies regulated in Presidential Regulation no. 14 of 2021 paragraph (1) which states that "The Ministry of Health collects data and determines target recipients of COVID-19 Vaccine" and paragraph (2) "Every person who has been determined as the target recipient of COVID-19 vaccine based on the data collection referred to in paragraph (1) must take part in COVID-19 vaccination" [5]. Enforcement of this policy sparked a polemic whether vaccination is a right or obligation for public [6]. Some activists comment that refusing vaccination is part of human right. Meanwhile, on the other hand, rejection of vaccination can also hinder the eradication of COVID-19 [6].

The researcher chose this theme because the diversity of culture and religion in Indonesia is an interesting point to study, especially culture in West Nusa Tenggara itself in the academic community at University of Mataram. Indonesian government policies regarding the vaccination program can elaborate public opinion regarding vaccination as an obligation and whether there is a right to refuse vaccination. Similar research to this title and theme has not been conducted in West Nusa Tenggara. Hopefully this research can provide an overview of vaccination acceptance, especially at University of Mataram so that it can later become reference for implementing more effective solutions for COVID-19 vaccination in the context of eradicating COVID-19.

This study aims to analyze qualitatively the description of knowledge, attitudes and behavior of Mataram University academics regarding acceptance of COVID-19 vaccination using the FGD technique.

2. Material and methods

This is a descriptive study using qualitative approach with primary data objects taken using the Focus Group Discussion (FGD) technique. One FGD session will involve 5 to 8 subjects and the theme will be chosen by researcher. The research will focus on three themes, namely obligation and voluntarism for vaccination, the right to refuse vaccination, as well as social, religious and cultural barriers in accepting vaccination. The research was carried out online using Zoom Meeting media from January to July 2022.

Inclusion Criteria were lecturers or students who are active at the University of Mataram and lecturers or students who are willing to take part in the research. Exclusion Criteria were lecturers or students who cannot be contacted and lecturers or students who do not join the Zoom Meeting room until the discussion is over.

This study used purposive sampling technique. This research is a continuation of previous quantitative research on COVID-19 vaccine with the title "Relationship Level of Knowledge, Attitudes and Behavior with Acceptability of COVID-19 Vaccines in the Hospitality and Academic Community in Mataram City, West Nusa Tenggara". In this study, participants were recruited from the quantitative research respondents according to the inclusion and exclusion criteria.

The sample size in this study was determined based on the adequacy of data saturation. Data saturation is considered sufficient if no new information is obtained from the results of data collection through the FGD session. In this study, the researcher adjusted the data saturation when there were 3 identical responses based on group analysis, so that every time a participant discussed a topic, the participant's response was recorded. Based on previous similar studies, the number of participants involved was 20 people. In this study, the authors provide an estimation 20 people in 2 FGDs. But again, the number of samples will be flexible according to the quality of the data obtained during the FGD.

The type of data used in this study is primary data taken using the Focus Group Discussion (FGD) technique. The data is in the form of notes and recordings of the opinions of FGD participants. The data obtained will be verbalized first from the recording into a detailed written document containing the opinions of each FGD participant. The data will be coded using labels or markers. Coding is done inductively or by classifying specific individual data into more general categories [7]. Theoretical interpretation of data is also carried out by identifying problems and concepts, identifying patterns and consistency and identifying differences and similarities in the data. The last step is to establish the validity of the analysis results by triangulating the data using various other literature reference sources [8].

3. Results

Data collection was carried out from October to November 2021 online via Zoom Meeting media. The FGD is carried out online involving 5-8 participants in each session by discussing the theme chosen by researcher. Before the FGD began, the participants were informed about the background and purpose of the research briefly and the mechanism of the FGD, explicit consent was asked to identify their willingness to participate in FGD and willingness to be documented in the form of audio and video recording for research purposes. Total subjects who were sampled in this study were 11 people from the 2 FGD sessions. The number of samples excluded in this study could not be identified specifically because this research was part of main research which also examined other themes, so that sample recruitment and data collection were carried out simultaneously. Subjects who agreed to become FGD participants were recruited without data collection on the samples included and excluded per research theme. This resulted in indicators of exclusion criteria that could not be identified because the data collection was not separated from the main research sample. To maintain the confidentiality and anonymity of the FGD participants, the researcher provide an "ID-N" code with (N) being the number used to identify each participant. In addition, in this study steps were taken to anticipate bias that could occur which is described in the following scheme.

Table 1 Sample characteristics

Characteristics	Frequency	Percentage
Gender		
Male	6	54,5%
Female	5	45,5%
Age		
18 – 25	4	36,4%
26 – 35	1	9%
36 – 45	2	18,2%
46 – 55	1	9%
56 – 65	3	27,3%
Occupation		
Lecturer	7	63,6%
Student	4	36,4%
Religion		
Islam	11	100%
Faculty		
Faculty of Teacher Training and Science (FKIP)	5	45,4%
Faculty of Food Technology and Agroindustry (FATEPA)	1	9%
Faculty of Engineering (FT)	1	9%
Faculty of Economics and Business (FEB)	1	9%
Faculty of Law (FH)	2	18,2%
Faculty of Mathematics and Science (FMIPA)	1	9%

This research involved 11 participants including lecturers and students who were currently active at University of Mataram. The above is a table of sample characteristics used in this study.

Participants consisted of 7 lecturers (63.6%) and 4 students (36.4%). The gender of the participants included 6 men (54.5%) and 5 women (45.5%). In this study, the participants age 18-25 was 4 (36.4%), age 26 -35 was 1 (9%), age 36-45 was 2 (18.2%), age 46 – 55 was 1 (9%), and age 56 – 65 was 3 (27.3%). All participants in this study were Muslim (100%). The origin of the participating faculties was 5 (45%) from FKIP, 1 (9%) from FATEPA, 1 (9%) from FT, 1 (9%) from FEB, 2 (18.2%) from FH and 1 (9%) from FMIPA.

Themes and Sub-themes in the Responses of FGD Participants

Table 2 Themes and Sub-themes in FGD

Subtheme	Response
Knowledge	
Knowledge of the benefits of COVID-19 vaccine policy	Vaccination can reduce severe symptoms of COVID-19
	Vaccination can minimize the risk and impact of COVID-19 pandemic
	Vaccination can reduce transmission of COVID-19
	Vaccination is able to protect yourself and those around you from COVID-19
Knowledge of government policies regarding COVID-19 vaccination	Government vaccination targets
	Government vaccination program efforts and regulation
Sources of information about the COVID-19 vaccine	News by doctors
	Friends from health sector
	Government apparatus
	Government agencies
	Important figure from neighborhood
	News
Subtheme	Response
Attitude	
Vaccines from a social aspect	Supportive social strata
	Social barriers
	a. Issues in the mass media and the environment
	b. Perceptions of people around the vaccine
The attitude towards vaccination is either obligatory or voluntary	Conditional
	Vaccines tend to be mandatory
Attitude towards the right to refuse vaccination	Conditional
Behaviour	
Willingness for vaccines	Willing
	Not willing
Participation in increasing vaccination	Educating the importance of vaccines
	Invitation to vaccine

In this study, 2 FGD sessions were carried out to discuss predetermined themes, namely social, religious and cultural barriers in receiving vaccinations, obligations and volunteerism for vaccinations and the right to refuse. From these themes the responses of FGD participants regarding knowledge, attitudes and behavior towards the three themes will be grouped. The results of the data in the form of verbatim opinions of FGD participants were coded and inductively analyzed to interpret opinion patterns and sub-themes. Based on the opinions of the FGD participants, 11 sub-themes were identified from all aspects of knowledge, attitudes and behavior towards each sub-theme. The following is summary of the themes and sub-themes obtained from the FGD.

3.1. Knowledge Aspect

Based on the results described in the table above, the FGD participants had knowledge of COVID-19 vaccine. The first is knowledge about the benefits of having COVID-19 vaccine policy.

- “So I think the vaccination process is very important to protect ourselves, our family and friends [from COVID-19]” (ID 8)
- “In my opinion, the benefits of this vaccine policy, the government, of course, aim to reduce the impact of COVID-19 pandemic and the risks can be avoided or at least minimized.” (ID 10)
- “In my opinion, the benefits of the government’s vaccine policy massively reduce transmission. If you meet an infected person, the risk of contracting is low and even if you get infected, the symptoms are not as severe as someone who hasn’t been vaccinated.” (ID 11)

In discussing this topic, participants also discussed lack of knowledge about vaccines in public. Participants considered that this was caused by lack of education to the public by government.

- “There is no clear explanation about the lack of vaccines and what are the conditions. It has never been studied up to the layman’s level, this is the only vaccine, yes, you have to be vaccinated.” (ID 5)
- “If the government really wants vaccines to be accepted by public in general, of course there must be education to public regarding the vaccine models provided.” (ID 10)

Second, participants also know several aspects of COVID-19 vaccination program initiated by Indonesian government. First, participants have prior knowledge of vaccination targets set by government, both in Indonesia specifically in West Nusa Tenggara. Some of these opinions are attached in the quotation below.

- “At the end of this year, the [vaccination] target for West Nusa Tenggara is 75% [of residents] have been vaccinated [as requirements] to host MotoGP.” (ID 5)
- “From the results of my conversations with government officials, including lurah in my area, the government is targeting 75% of Indonesia’s population to be vaccinated.” (ID 10)
- “I think the government’s efforts are extraordinary from target around 70% of Indonesia’s population to be vaccinated.” (ID 9)

In addition, the participants also described the vaccination program efforts initiated by government as cited as follows.

- “Vaccination coverage is wide and vaccinations have been procured in all districts, villages and even those in remote areas.” (ID 8)
- “At my place there was vaccination during car free day event held by police in collaboration with TNI.” (ID 11)
- “I also received information on procedures and vaccinations from COVID-19 task force team at my faculty” (ID 2)
- “What I know is that if we want to enter a certain place, for example going to the mall, we must be vaccinated, we must scan the application and we must be in the green zone.” (ID 11)

The FGD also identified participants’ opinions regarding the sources of information used by participants to gain insight into COVID-19 vaccine. These sources of information include information from scientific articles, news (ID 10), coverage by doctors (ID 2), friends from health sector (ID 11), government officials (ID 10), government agencies (ID 1,5,6) and important figures in the environment (ID 1).

3.2. Attitude Aspect

The attitude aspect is divided into several sub-themes with the first sub-theme regarding attitudes towards the COVID-19 vaccine in general. In this sub-theme, the majority of participants have open attitude and able to accept the COVID-19 vaccine. Several participants who received the vaccine also showed progress and changes their attitude towards the vaccine when compared to before.

- “At first I felt that because I was young I didn't need [vaccine], but over time someone told me that the vaccine was necessary to reduce the severity of COVID-19. I also feel that if I just make a fuss over the environment not to get vaccine it won't change COVID-19 either. From there I finally got vaccine and thought that this was one of the government's efforts to reduce the number of COVID-19 victims.” (ID 3)
- “Initially I personally felt healthy and didn't need [the vaccine], but more and more I often read and watched doctor's coverage regarding vaccines and because the encouragement from my husband I got the vaccine.” (ID 2)
- “I think the vaccination process for COVID-19 is very important.” (ID 8)

Several participants also stated the reason for receiving vaccine explicitly. The majority of participants vaccinated without being forced and because of their self-awareness of its importance. The reasons identified include taking care of yourself, family and surrounding environment, to protect yourself when you are infected with COVID-19 to minimize severe symptoms and to avoid and reduce transmission of COVID-19.

- “Because in my house there are two people who have comorbidities, so I go out more often to avoid transmission, because I'm afraid of being infected outside.” (ID 7)
- “We take care of ourselves, take care of our other healthy families, especially those who have problems with comorbid illnesses.” (ID 8)
- “I think the vaccine policy will reduce transmission [of COVID-19] because from what I've read, because we have antibodies, if you get infected, the risk of getting infected is low and even if you get infected, the symptoms are not as severe as people who haven't been vaccinated.” (ID 11)

On the other hand, there are also participants who have negative attitude and tend not to receive vaccines. Participants did not receive the vaccine because they were worried about the side effects of the vaccine and especially the effect on people with comorbidities.

- “Looking at the objective condition of the disease in me and my family, I think it's risky [for vaccines]. Finally, the history of autoimmune in one family is a concern if you have to get vaccine.” (ID 9)
- “Not to mention the news that after the vaccine [people] actually experience symptoms that are not normal. Because if there is a risk after the vaccine, who is responsible for this is also a question.” (ID 9)

From the statements above, it can also be identified factors that influence attitudes towards vaccinations. These factors are internal factors which include awareness about vaccination, knowledge about the benefits of vaccination, and personal medical history. Meanwhile, external factors include family health and safety, personal relationships, information about vaccines and encouragement from the social environment.

There were also participants who thought that there were doubts in the community about receiving vaccinations. This could be due to the influence of changing policies, to the factor of vaccination program being unable to eliminate the restrictions imposed by government to anticipate the spread of COVID-19.

- “Stakeholders need to make policy that is intact and does not change, meaning that if for example Sinovac is relied upon, there should be no other types. Health workers who have been vaccinated and then test positive for COVID-19 should not be added to other vaccine programs. This makes society unsteady.” (ID 5)
- “If you have had a complete vaccine, for example 2 times, then other obligations must be aborted, for example a PCR test for long trips. If it is not aborted, then there is no effectiveness of the vaccine series and it tends to lose the value of vaccine.” (ID 8)

Participants considered that some of the problems by receiving COVID-19 vaccine in the community could be overcome in several ways, namely through consistent policy making and a community approach.

- “Stakeholders need to make comprehensive and permanent policies regarding the vaccine program to make people believe the importance of vaccines.” (ID 5)

- “The right way to reach other people who are hampered other than the information that should be given is that there must be coercion.” (ID 3)

The next sub-theme is personal acceptance of vaccines based on religious aspects. There were participants who stated that the vaccination program was in accordance with their beliefs.

“From those of us who are Muslims, an MUI fatwa has been issued that is halal and legal, so there's nothing wrong with that.” (ID 1)

“If the MUI has said it is halal, I am type person whom follow my imam.” (ID 6)

In addition to acceptance based on religious aspects, a sub-theme of vaccine acceptance based on cultural aspects was also identified. Several FGD participants felt that it was appropriate and some chose neutral answer.

- “In my opinion, it is in accordance with my environment because there are no people who oppose it.” (ID 4)
- “I can't say whether it's appropriate or not because everyone may be different” (ID 2)

The next aspect that affected vaccine acceptance was identified from the response patterns of FGD participants, namely based on social aspects. FGD participants had a similar response agreeing that their social structure, such as religious leaders and RTs, supported receiving vaccinations. However, the many different perceptions and opinions of each citizen can affect the acceptance of vaccines by other residents.

- “In my environment, if we talk about the social strata, there are more who support [the vaccine] because the information conveyed from *kelurahan* to the environment has been disseminated through *kades* and *RT*.” (ID 3)
- “The social barrier has very strong effect, people can follow [vaccination] if there are many people in their environment who do that.” (ID 3)
- “However, news or issues circulating in the community can impact on people's understanding.” (ID 5)
- “When the government issues a policy, it certainly creates different perceptions from various groups, such as professors, doctors, experts, researchers. Many of these opinions make people's beliefs shake.” (ID 5)

In the next sub-theme, the FGD participants explained their choice of whether vaccination activities should be mandatory or voluntary. The majority of participants answered that both could be applied under certain conditions, while there were participants who tended to choose vaccination as an activity that should be mandatory.

- “In my opinion, it is mandatory for those who do not have restrictions on vaccines and are healthy.” (ID 8)
- “If you are risky and dont have congenital disease, you should volunteer.” (ID 10)
- “It's better to be obligated because if it's voluntary not everyone will want to vaccinate themselves.” (ID 11)

From its own implementation in Indonesia, participants were also asked for their opinion regarding vaccination activities in Indonesia, whether it as citizen's right or obligation. Some participants chose to be neutral, while some others were divided into the tendency to assess vaccines as citizen's right and view vaccines as obligation.

- “Vaccine is a right or obligation, the answer is very relative. If you speak both then there must be legal consequences. Cannot convey rights or obligations without certain regulations. So that vaccination becomes more of an awareness and is not understood as right or obligation.” (ID 9)
- “I think it's a citizen's right because there are no rules or regulations, so it's voluntary whether you want to take the vaccine or not.” (ID 10)
- “I'm still confused, but to carry out some activities, vaccines must be mandatory, for example, for certain areas, vaccines must be mandatory and scans of the *PeduliLindungi* application. So we don't have the right to refuse vaccines if we have to be vaccinated just to go to the place we want.” (ID 11)

However, with the voluntary nature of vaccine, participants understand that there are also drawbacks, namely the government's vaccination target will be more difficult to achieve. This could be due to the possibility that fewer healthy and risky people will participate and they are likely to delay vaccination (ID 8, ID 10). Participants also described the advantages of vaccination policy as an obligation, namely being able to achieve the government's vaccination target and herd immunity more quickly (ID 8, ID 10).

The next sub-theme was views on refusal to vaccinate. The FGD participants all agreed that it was permissible under certain conditions.

- “I think it's okay if there are certain conditions or concerns, including health reasons or high risk of vaccines, because this is basically the right to life. So if those who are healthy want to be healthy, take the vaccine, if those who are sick can't get the vaccine, then it's legal to refuse.” (ID 10)
- “In my opinion, I have the right to refuse if there is an influence that is not compatible with the vaccine.” (ID 11)

3.3. Behavioral Aspect

On behavioral aspect, several sub-themes were identified from the opinions of the FGD participants. The first sub-theme concerned the willingness of the FGD participants to participate in vaccination activities. The majority of participants answered that they were willing to vaccinate voluntarily.

- “Yes, I myself had the vaccine in March.” (ID 3)
- “Yes, I am ready for the vaccine because in my opinion the vaccine is a preventive measure.” (ID 10)
- “I've had two doses of the vaccine and even though it's not mandatory I decided to keep the vaccine because I don't view vaccines as an obligation but more of my own will.” (ID 11)

However, there were also participants who were not willing to vaccinate. The participant refused vaccination since he was worried about the risk of health conditions for himself and his family.

- “If under normal conditions I would say I'm ready. But from my objective condition, the history of my child who died 7 years ago due to autoimmune, my family belongs to the non-vaccinated group. It's not a matter of disagreeing, but don't get vaccines actually bring us problems. We take preventive measures by maintaining health and body immunity.” (ID 9)

Other participants also discussed the existence of people around them who were still delaying until they refused vaccinations. Some of these participants provided suggestions on things that could be done to increase vaccination participation from community, especially by using community approach. Some of these opinions include:

- “There needs to be coercion through a community approach, it could be from village heads and religious leaders to people who don't really understand vaccines.” (ID 6)
- “From the community, represented by village leaders and RTs, data can be recorded on the respective residents who have not been vaccinated and the reasons why. Later, health workers can be brought in to vaccinate directly in the village.” (ID 10)
- “There must be firm and consistent enforcement of policies from the government. To increase participation, especially for people who refuse vaccination, socialization needs to be carried out to village officials, traditional leaders, and the community so that they can continue to educate their respective residents.” (ID 9)

On the behavioral aspect, the participants also stated several ways to participate in increasing vaccination. Some participants thought that they should provide private education about vaccines to the public and invite them to vaccinate.

- “From myself, I will invite my friends more for vaccines and educate them on how important vaccines are.” (ID 11)
- “I and the people in my village are enthusiastic about vaccines. If asked if they have had a vaccine or not, they will usually be invited to do so.” (ID 4)

4. Discussion

During the FGD, several steps were taken to anticipate bias that could occur in research. Selection bias which is bias towards the recruitment of participants as with the selection of certain participants who are representative for population. In this study there is one characteristic of homogeneous sample, but researchers have made efforts to ensure that researchers contact all contacts of potential participants available from previous research. Interview bias in this study was prevented by extending participant observations including good communication with participants, ensuring participants understood the themes and questions, and reconfirming participants' opinions. In addition, researchers seek to use more open questions to prevent herding opinions. Participant bias in this study is related to

differences of backgrounds that can influence opinions in the FGD implementation. In this study, lecturers tended to have more opinions than students and researchers sought to allow students to argue before lecturers to prevent bias. Researcher bias in this study is related to the subjectivity of authors in processing and analyzing data.

4.1. Sample Characteristics

In this study, it was found that the male was dominant, dominated by age 18-25 years and lecturers, all participants were Muslim and the origin of the participating faculties varies with the highest number, namely from FKIP. In this study, the gender and age range of the participants did not have big difference in the participants' opinions during the FGD. However, it was found that there was a tendency for lecturers to express opinions longer than students. This can be caused by the insight that the lecturer has more broadly or the tendency of students to argue less in discussions with lecturers. This phenomenon has been discussed in study which states that hierarchies related to age and work background are situational factors that influence FGD results [9]. In addition, it was found that lecturers with backgrounds in law faculties tend to be more critical in efforts to handle COVID-19 and procure COVID-19 vaccines by government. This could be due to the suitability of the theme being discussed with the background of the participant's professional field.[u10]

4.2. Knowledge Aspect

In the current era of the COVID-19 pandemic, knowledge is a crucial factor for assessing people's perceptions of vaccinations. The participants in this study had fairly good knowledge of COVID-19. Participants understand the benefits and urgency of COVID-19 vaccine, vaccination targets and the status of vaccination in Indonesia. This is in line with research conducted by Santiago and Santos on academics at universities in Philippines which state that the results of knowledge regarding COVID-19 vaccine are quite good [10]. Based on studies that have been conducted, vaccination is able to prevent infection of SARS-CoV-2 virus by triggering immune system which will impact the production of antibodies against SARS-CoV-2. People who have received the COVID-19 vaccine develop fewer symptom and shorter duration of illness when compared to people who have not been vaccinated. By vaccination, the chain of transmission of COVID-19 can be broken and reduce the burden of COVID-19. The opinions cited by participants regarding the benefits of COVID-19 vaccine in broad terms are in accordance with research findings on the COVID-19 vaccine. This shows that participants have prior knowledge of the benefits of vaccines and its policies.

On the other hand, participants also mentioned that there is a lack of knowledge in public regarding vaccination. Participants also criticized the lack of education by government regarding vaccines, the advantages and disadvantages of vaccines and the types of vaccines available. The solution that can be done is to provide education to public, especially by presenting more simple information and adjusting the content and media for dissemination to targeted community groups. The form of education and the intensity of providing education is also crucial because government is competing with unreliable information spread on social media to the society.

In this study, participants also had prior knowledge of vaccination policies. Based on ITAGI and WHO, pandemic disaster management is considered successful if vaccination coverage reaches at least 70% of the total population in Indonesia or the exact figure is 181.5 million people. This is based on the minimum number of herd immunity or group immunity that can be achieved [11]. If we look at the participants' opinion quotes above, it can be concluded that FGD participants have an overview of the minimum target of vaccination in the range of 70%, although not in the exact number. From other quotes, the participants also understood the concept of herd immunity which could be achieved through government's target.

The last sub-theme is about information sources that participants use to gain insight into the COVID-19 vaccine. Information sources have important role in achieving knowledge about the COVID-19 vaccine. Understanding about vaccines is formed through various sources used by individual and will impact on attitudes and behavior towards vaccination. [12]. In this study, the sources used by the participants varied, but none of the participants mentioned using sources from scientific articles. However, the various sources used by the participants have correlation with a positive or pro attitude towards vaccination. Meanwhile, there is one source of information that correlate with negative attitudes towards vaccination, namely news of abnormal symptoms after the vaccine. This is in line with one of the previous studies that examined people's attitudes towards influenza vaccination, which stated that the mass media can publish news in positive to neutral attitude, but the news is spread in the wrong or inappropriate manner or language so that it can influence attitudes towards vaccination in general public [12].

4.3. Attitude Aspect

In the conditions of COVID-19 pandemic, the success of vaccine is greatly influenced by people's attitudes towards vaccines. Based on research data, the majority of participants showed positive attitude towards COVID-19 vaccine. The findings of positive attitude in this study in line with qualitative research that has been conducted by Simon and Kimberly in England which examined public attitudes towards COVID-19 vaccine [13]. Another study conducted by Santiago and Santos on academics at universities in the Philippines stated that the majority of respondents had positive attitude toward COVID-19 vaccine. The most frequently identified opinion in participants' opinion is their view of vaccine as way to provide protection for oneself, family and the community in the surrounding environment. The results of the study also provide development in the attitude of accepting vaccines from previously tend to underestimate vaccines to understand the importance of vaccines and receive vaccines. When compared with the preliminary research of this study, the results obtained were that the majority of respondents were skeptical of vaccines and did not want to receive COVID-19 vaccinations. This phenomenon of changing attitudes can be caused by data collection which was carried out about 1 year after the pandemic and at the third vaccination stage, namely 9 months after the first vaccination was carried out, while preliminary research was carried out at the first vaccination stage. During this time, participants received various information and concrete evidence about COVID-19 and its impact, and participants had time to re-evaluate their views on COVID-19. This theory is supported by longitudinal study conducted in the UK regarding changes in attitudes to vaccination against COVID-19 which resulted in positive shift in participants' attitudes towards vaccine trust and sense of collective responsibility for vaccination after a year pandemic [14]. This study also suggests that not all participants were aware from the start about the risks they had against COVID-19 infection, participants had a perception of the benefits of vaccination which was trigger factor for them to receive the vaccine. Several other triggering factors that have positive influence on vaccines here are encouragement from social environment and sources of information about vaccines. This is in accordance with the WHO determinant matrix which discusses factors that influence vaccine acceptance and vaccine hesitancy which also includes contextual factors, namely communication and media sources of vaccine information as well as individual and group factors which discuss vaccine influence from colleagues and social environment.

On the other hand, there were small number of participants who were still unsure about COVID-19 vaccine, indicating vaccine hesitancy. If analyzed from the "3 C" model by WHO and the Sage Working Group there are 3 determinants that affect vaccine hesitancy, namely complacency, convenience and confidence. The determinant of confidence implies lack of confidence in vaccine efficacy and safety, complacency discusses low perceptions of disease risk and convenience which is barrier to access and practices for vaccination [15]. In this study, confidence is the biggest factor for negative attitudes towards vaccination. This is due to the worriness about side effects, especially for people with comorbidities and risk factors. Reasons for concern about these side effects have also been shown to be frequently obtained from previous studies, one of which was qualitative research in Malawi [16]. Apart from comorbidities, there are also negative implications from COVID-19 post-immunization adverse events circulated by the mass media. The circulation of information about the occurrence of severe vaccine side effects also role in creating fear and doubts about getting the vaccine. Much research has been conducted on the safety and efficacy of the COVID-19 vaccine, but not all people use scientific articles as main source of information.

The community also found similar problems regarding doubts about the COVID-19 vaccination. Participants estimated that this was caused by large number of types of vaccines provided and the number of vaccine administrations which had impact on reducing public confidence in vaccines. In general, the science of medicine and health is dynamic and develop rapidly, especially in cases of global emergencies such as the COVID-19 pandemic. According to WHO, in the early phase of the pandemic, many vaccines will be produced because not all vaccines will make it to the clinical trial phase. The large number of vaccines being developed increases the chances of successful production of safe vaccine with good efficacy for the target population [17]. In addition, research also shows that the number of antibodies formed after vaccination will decrease gradually, this indicates the need for additional doses to maintain the body's immune system [18]. From this theory, it can be concluded that people need to understand more about the concept of vaccines and why there are so many types of vaccines. The community needs to learn how to filter the received information and the government needs to provide more intense, comprehensive and interesting education for the community.

The researchers combined several sub-themes into one, namely about vaccination barriers which allude to people's attitudes towards vaccines based on religious, social and cultural aspects. In this study, there were no cultural or religious barriers that affected acceptance of the COVID-19 vaccine. Almost all participants had a supportive attitude towards vaccines, both from religious and cultural perspective. Participants considered that there were no cultural norms that were violated from implementing vaccination program. On the religious aspect, the participants also agreed that vaccine was halal. All participants used the same source of information, namely one of the government agencies of Indonesian Ulama Council (MUI) which issued fatwa on vaccine halalness. In this sub-theme, participants highlighted

the existence of social barriers in the form of incorrect issues regarding vaccines and different views of various groups regarding vaccines. Although almost none of the participants explicitly stated that they believed in these issues and various perceptions, all participants considered that this was very crucial social barrier in influencing public opinion. The many issues and differences of opinion from various groups, especially if the issues and opinions regarding the vaccine are described in negative connotation, it can cause wave of misinformation arise in society. If viewed from behavioral and cognitive point of view, the current wave of misinformation is capable in causing excess volume of contradictory information in society which can ultimately shift the real truth [19].

On the question of vaccination should be defined as voluntary or obligatory, the majority of participants answered conditionally, it is mandatory for people who do not have risk of vaccines and it is voluntary for those who have risk of vaccines. This is in line with regulations set by government on targets set by the Ministry of Health. If there are participants who do not meet the eligibility requirements for vaccination, then that person does not have to be vaccinated. There were also participants who emphasized that vaccination should be mandatory because voluntary vaccination does not guarantee that all people are willing to be vaccinated. This phenomenon is similar to research which states that if vaccines are not enforced as requirement, there will be population that will become free riders. Vaccination can reduce the risk of disease not only for the individual who receives the vaccine, but also for the collective benefit of public by reducing the incidence of disease. If many people have been vaccinated and the transmission of virus has decreased significantly, it will increase the possibility of an individual whom was not vaccinated as "hitch a ride" [20]. Participants also understand the advantages of vaccination as an obligation can achieve government targets and herd immunity more quickly. The time it takes to achieve herd immunity is very important because the faster herd immunity is achieved, the more people can be saved, considering that COVID-19 has become pandemic. Herd immunity is able to protect people who cannot be vaccinated due to contraindications. Even though herd immunity can be achieved nationally, herd immunity in local or regional areas can fall below standard causing an increase in infection rates. Therefore, good and fast herd immunity is needed to suppress the infection rate of COVID-19 [21].

In implementing the vaccination program in Indonesia, participants also had different perceptions between a right or an obligation. Participants who answered that the implementation of the vaccination program in Indonesia tends to be applied as a citizen's right, stating that there is still freedom from community to decide whether to vaccinate or not. Meanwhile, participants who tend to view vaccination in Indonesia as an obligation highlight vaccinations used as requirement for carrying out certain activities. In a study which examined mandatory vaccination policies, this was categorized as mandatory vaccination policy that determined vaccination as a condition for eligibility to receive access to facilities and access to social or government benefits[22].

The topic regarding the right to refuse vaccination was also discussed in FGD and participants agreed that refusal to vaccinate is only permitted in populations that risky for negative impacts on health due to COVID-19 vaccination. In this discussion the participants also emphasized the existence of the right to life which is regulated in the 1945 Constitution article 28 stated that "Every person has the right to live and has the right to defend his life and existence". This indicates that it implies that individuals who have vaccine contraindications also have the right to maintain their health by refusing vaccination.

4.4. Behavioral Aspect

In this study, the majority of participants had positive attitudes toward the COVID-19 vaccine. This was shown from the participants' willingness to participate in vaccination. Participants understand the importance of the COVID-19 vaccine and have self-awareness to vaccinate voluntarily. Participants whom have the behavior not to vaccinate were also found in this study. This participant showed that he also understood the importance of the COVID-19 vaccine and was willing to be vaccinated if his family's condition was normal. Participants and their families were worried about side effects due to family history of autoimmune disease. This study also showed participants whom have the perception other preventive actions are considered safer than receiving vaccines. Based on the vaccine hesitancy determinant matrix, these participants are influenced by the vaccine factor itself from the condition of the COVID-19 vaccine which is quite new, giving rise to individual factors in the form of risk received if receiving vaccination is more severe when compared to the benefits received [23].

In addition to willingness to participate in vaccination, several participants also conveyed positive attitudes towards vaccines with direct action. These efforts include educating public about vaccines and inviting them to participate in vaccination. This is an excellent effort considering that social interaction between colleagues and people in environment is one of the important factors that influence the decision to vaccinate or not [24].

Participants also responded to this problem by providing suggestions for increasing community participation in vaccination. Some of them include education about vaccines with community approach through village officials, traditional and religious leaders so that education will be more effective and can be passed on to all residents in villages. Research has proven that social interaction with family, friends, political figures, leaders, religious leaders and health workers can be a predictor of vaccine acceptance behavior [24]. Participants also suggested collecting data on residents who had not been vaccinated and their reasons therefor health workers could be brought to vaccinate in the village. In addition, during the implementation of vaccinations it can certainly cause AEFI. To avoid decline in public trust in the AEFI COVID-19 issue, education is needed. Education regarding the flow of reporting and handling of AEFIs from local to national needs to be carried out so that the authenticity of AEFI report data can be maintained and AEFI handling can be better and public trust can also be maintained [6].

Limitation

In this study, data collection was carried out online through Zoom Meeting media. This has had several impacts such as lack of direct face-to-face interaction because not all participants are willing to turn on the camera. Limited observation of facial expressions, attention, and body gestures causes lack of connection with participants and results in limited exploration of deeper opinions. In addition, there were technical problems in the form of signal interference experienced by some participants but this could be overcome by reconfirming their opinions from FGD moderator. Another limitation of this study lies in the sample. First, there are characteristics of the sample that are underrepresented such as the homogeneity of the patient's religious characteristics. In addition, the number of samples excluded in this study could not be identified because data collection was carried out in conjunction with other studies and exclusion criteria were not collected separately. This causes the number of indicators of exclusion criteria cannot be identified specifically.

5. Conclusion

The existence of good participant knowledge, represented by public knowledge of the benefits and urgency of COVID-19 vaccination as well as knowledge of government policies regarding COVID-19 vaccination from various sources of information. The majority of participants' attitudes towards the COVID-19 vaccine were positive but negative attitudes were also found. The majority of participants viewed vaccination polemic as an obligation or volunteerism and the right to refuse vaccination as a conditional matter. In addition, participants saw the social aspect as the biggest barrier to carrying out the COVID-19 vaccination. Participant behavior towards this theme is represented by the willingness of participants for vaccines which varies, namely whether some are willing or not, as well as their participation in increasing vaccination by educating and inviting public to vaccines.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study

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