

Original Research

Supporting and inhibiting factors of accepting COVID-19 booster vaccination in the elderly in north Jakarta, Indonesia

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Abstract

Background: The risk of fatal infection and death from Coronavirus disease 2019 (COVID-19) exposure increases in the elderly and those with coexisting illnesses such as cardiovascular disease, diabetes, cancer, obesity, and hypertension. The COVID-19 vaccine's efficacy and safety have been supported by numerous research. However, data from the Ministry of Health of Indonesia revealed that the elderly in North Jakarta had a declining interest in receiving a booster dose. This research aimed to assess the perception of the elderly living in North Jakarta related to supporting and inhibiting factors in accepting the COVID-19 booster vaccination. **Methods:** This qualitative research used a grounded theory design. It was conducted from March to May 2022, and data were gathered in North Jakarta's numerous districts through in-depth interviews until saturation was reached. Furthermore, data were validated using member checking, source triangulation to families of elderly, and vaccination doctors. They were processed to produce transcripts, codes, and finalized themes. **Results:** Booster vaccination in the elderly was supported by 12 out of 15 informants, and the rest did not agree. The supporting factors include health, family, peer support, doctors, government, administrative requirements, endemic transformation, booster choice, and media coverage. Meanwhile, the inhibiting factors include hoaxes, concerns over the vaccine's safety and efficacy, political issues, family, and comorbidities. **Conclusions:** Most of the elderly displayed positive attitudes concerning booster shots, but it was discovered that some barriers need to be removed.

Keywords: aged; COVID-19 vaccine booster shot; Indonesia; perception; qualitative research

INTRODUCTION

COVID-19 can infect all age groups and genders. Still, the elderly and people with comorbid diseases such as cardiovascular disease, diabetes, cancer, obesity, and hypertension have a higher risk of severe infection and death when exposed.¹ According to the Centers for Disease Control and Prevention (CDC), more than 80% of COVID-19 deaths occur in the elderly.² Data suggested that the elderly with comorbid diseases had a higher risk of experiencing severe infections, treatment in the Intensive Care Unit (ICU), and a higher risk of death.³ Based on the map of the distribution in Indonesia as of August 4, 2022, the elderly contributed 11% of COVID-19 cases and 47.5% of death cases.⁴

Vaccination seeks to protect the public from Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection,

which can cause illness and death.⁵ According to a prospective national cohort research conducted in Chile, a booster vaccine after two doses of inactivated SARS-Cov-2 vaccine effectively prevents symptomatic COVID-19 and hospitalization.⁶ Moreover, CDC data suggested that mRNA vaccines, such as Moderna and Pfizer-BioNTech, effectively reduce 94% of hospitalization in older patients.⁷ This shows that vaccination is essential for the elderly.

Data from the Ministry of Health of Indonesia, on August 4, 2022, showed that about 110,511 (92.91%), 101,381 (85.24%), and 63,453 (53.35%) older adults in North Jakarta received the first, second, and booster dose of the vaccination, respectively.⁸ This data suggests the community's declining interest in receiving COVID-19 vaccination in North Jakarta. Furthermore, research also showed that the vaccine's effectiveness in protecting against infection decreases over time. The Indonesian government is trying to provide a fourth vaccine as the next booster by giving it to health workers.^{9,10} Therefore, it is essential to know the public's perception of receiving the booster vaccination.

According to Lawrence Green's theory, several factors can influence a person's health behavior, such as social support, family support, knowledge, belief, and the availability and accessibility of health infrastructure.¹¹ Therefore, this becomes the grounded theory for researching the supporting and inhibiting factors of the community in North Jakarta for receiving the booster vaccination. This study set out to determine the factors that supported and inhibited their willingness to receive the COVID-19 booster shot in the elderly population of North Jakarta.

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METHODS

Research design

This qualitative research was conducted using an in-depth interview method. The design used is grounded theory, based on the theory of Lawrence Green. Prior to study commencement, the research design had been approved by the research ethics committee of Atma Jaya Catholic University of Indonesia (AJCU), with approval No. 05/02/KEP-FKIKUAI/2022. We followed Consolidated Criteria for Reporting Qualitative Research (COREQ) as our guidance in reporting this manuscript.^{12,13}

Research team

The interviews were conducted by the second author, a female pharmacy student. Two experts, a clinical pharmacist, and a primary care doctor, had instructed the interviewer on conducting effective interviews.

Research setting

Data collection was conducted from March to May 2022 in various districts in North Jakarta, including Pademangan, Penjaringan, Kelapa Gading, and Tanjung Priok.

Sampling

The criteria for the informants were the elderly (≥ 60 years old) who lived in North Jakarta and could communicate well, and those with the decreased cognitive function were excluded. Determination of informants is carried out by the purposive sampling method. Meanwhile, snowball sampling was conducted to achieve data saturation. Before the study began, the interviewer was unrelated to each of the informants.

Data collection

Prospective informants who met the inclusion criteria were asked for approval through informed consent. The informant's biodata, research objectives, flow, and confidentiality in this section were also explained. The data collection method

was in-depth interviews, recorded by audio. However, some interviews were conducted online, and audiovisual recording was conducted through the online meeting platform. Probing questions were also prepared, and the informants could express their opinions freely, with the duration of each interview ranging from 20-30 minutes. During interviews, the interviewer took field notes. Furthermore, data saturation was reached on the 11th informant, but four additional informants were added to ensure the data was saturated.

Analysis

Thematic Analysis was used to process and analyze the audio recordings from the interviews by turning them into textual data, then by continuing with the coding process and identifying the theme. All authors were involved in the coding process and determining the themes. The topics were translated from Bahasa to English using genuine meaning rather than word-for-word translation to improve understanding of the discourses. The sign /.../ was used to cut the pointless conversation.

Validation

Member-checking was conducted by giving the informant the transcript of the interview's results and ask their approval of the findings. The informants might provide feedback about the transcript during this process. To further guarantee the validity of the data, source triangulation was additionally used by gathering information from the families of informants and COVID-19 vaccinator doctors in North Jakarta.

RESULTS

In this research, 15 elderlies participated as the primary informants, of which seven were female, and the rest were male. In addition, five families of the elderly and 5 COVID-19 vaccinator doctors also validated data from key informants, as seen in Table 1. No informants were dropped out, and data saturation was reached without obtaining new codes or themes.

Table 1. Demographic data of source triangulation

Number	Category	Code Number	Gender	Age	Last Education	District	Agreement for the Booster Vaccine
1.	Elderly	Informant 1	Female	68	Primary School	Penjaringan	Yes
2.	Elderly	Informant 2	Female	66	Bachelor	Penjaringan	No
3.	Elderly	Informant 3	Male	60	Magister	Penjaringan	Yes
4.	Elderly	Informant 4	Male	65	Bachelor	Penjaringan	Yes
5.	Elderly	Informant 5	Male	60	Senior High School	Penjaringan	No
6.	Elderly	Informant 6	Male	78	Senior High School	Penjaringan	Yes
7.	Elderly	Informant 7	Female	65	Vocation	Penjaringan	Yes
8.	Elderly	Informant 8	Female	65	Senior High School	Kelapa Gading	Yes
9.	Elderly	Informant 9	Female	70	Junior High School	Pademangan	Yes
10.	Elderly	Informant 10	Female	71	Primary School	Tanjung Priok	Yes



11.	Elderly	Informant 11	Female	61	Junior High School	Pademangan	Yes
12.	Elderly	Informant 12	Male	61	Bachelor	Tanjung Priok	Yes
13.	Elderly	Informant 13	Male	80	Bachelor	Kelapa Gading	Yes
14.	Elderly	Informant 14	Male	72	Vocation	Tanjung Priok	No
15.	Elderly	Informant 15	Male	83	Primary School	Kelapa Gading	Yes
16.	Family	Family 1	Male	20	Bachelor	Pademangan	-
17.	Family	Family 2	Female	22	Bachelor	Penjaringan	-
18.	Family	Family 3	Male	26	Bachelor	Tanjung Priok	-
19.	Family	Family 4	Male	36	Bachelor	Pademangan	-
20.	Family	Family 5	Male	22	Bachelor	Kelapa Gading	-
21.	Doctor	Doctor 1	Female	27	Medical Doctor	Penjaringan	-
22.	Doctor	Doctor 2	Male	30	Medical Doctor	Kelapa Gading	-
23.	Doctor	Doctor 3	Female	31	Medical Doctor	Tanjung Priok	-
24.	Doctor	Doctor 4	Female	40	Medical Doctor	Pademangan	-
25.	Doctor	Doctor 5	Female	31	Medical Doctor	Pademangan	-

Booster vaccination in the elderly was supported by 12 out of 15 informants. Several supporting factors obtained are health, family, peer support, doctors, government, administrative requirements, endemic transformation, booster choice, and media coverage, as seen in Table 2. The sub-themes of health factors are improving body immunity, reducing the severity of COVID-19 symptoms, preventing COVID-19, older age, for the

health of others, and being safe during traveling or socializing. The sub-themes of family support are meeting up with family and maintaining family health, while peer support's sub-themes are friends and neighbors. Meanwhile, sub-themes of government include support and participation in programs, vaccination facilities, trust in the government, free of charge, and disclosure of information and education.

Table 2. Themes of supporting factors of accepting booster vaccination in the elderly

Themes	Sub-Themes	Informants' Quotations	Other Sources' Quotations
Health	Improving body immunity	Informant 4: "To grow more resilient to viruses. Even with the vaccine, there is no assurance that we will not get infected again. Many continue to be infected by COVID. Therefore, a booster will enhance our immune system to protect us from this virus."	Family 4: "It occurs that my parents voluntarily received the vaccine because they think it can improve their immune system." Doctor 1: "Of course, the elderly want to be immune. Yes, they want to receive immunity, to be stronger."
	Reducing the severity of COVID-19 symptoms	Informant 6: "With this booster vaccine, we may take better care of our health and improve immunity; hence, when infected, the symptoms will be less severe."	Doctor 4: "There are people who already know that this booster can prevent serious illness or there is a booster to increase immunity, or because they are aware that they are more vulnerable and need protection."
	Preventing COVID-19	Informant 1: "Yes, it was also stated that the virus can be prevented."	Family 1: "Subsequently, to avoid the most prevalent virus, it may be prudent to boost one's immunity."
	Older Age	Informant 3: "Because when you are old, you are more vulnerable to-become sick, hahaha."	Family 1: "Perhaps some are more vulnerable due to age, hence required a booster." Doctor 3: "Because they are aware of their health, a booster vaccine may be required."
	For the health of others	Informant 13: "Yes, we want this booster vaccine first to take care of ourselves. The second is to take care of others. We are also afraid that when we transmit this disease, it can spread to other people. Therefore, we also take care of others. Some said that the booster can prevent it from being contagious."	Family 2: "Maybe the addition is that the elderly should also meet other people, also want to socialize. Therefore, the elderly may desire a booster vaccine to preserve the health of others for everyone to be healthy and not contagious when they interact." Doctor 3: "In addition, maybe because the elderly also wants to maintain the health of their environment to stay healthy, hence, they do not spread the infection to each other."
	To be safe during traveling, or socializing	Informant 8: "when we receive a booster vaccine to protect ourselves, we will be safer on our frequent excursions."	Doctor 2: "However, he is more aware because he goes everywhere. Hence, he fears getting infected by the virus. Since he will be socializing with the crowd, he would accept the booster to protect himself, and when he got infected by COVID, the symptoms will be milder."



Family	Support form family	Informant 15: "The children said that it would be safer too. Therefore, just come along [to receive a booster]. /.../ The children also said they were told where there was a vaccine. They also took me away for vaccines."	Family 5: "As a family that sends their grandparents for a booster. Some of their families informed the elderly about the availability of a booster vaccine and were assisted in registering and also took them to the vaccination post." Doctor 5: "Their children at home or people around them may have access. Hence, the family can help educate the elderly."
	Meeting-up with family	Informant 9: "Yes. I want to meet my grandchildren out of town. Outside the city, there is a grandson. Therefore, we can meet each other, and the children will not be afraid."	Family 5: "Since it is like taking your family on a trip, meeting them also means that the elderly want to obtain a booster vaccination."
	Maintain family health	Informant 11: "When we are healthy, the children and grandchildren are also healthy. Therefore, no one will be infected."	Family 2: "My father also agrees with this booster vaccine because he wants his family to be safe. Hence, everyone stays healthy, and not contagious. Some elderly people want to vaccinate to care for their families." Doctor 2: "There are also elderly people who want to care for their family's health, for everyone to be healthy. Hence, they want a booster."
Peer Support	Friends	Informant 1: "There are many friends who got their boosters. All of them are in good health."	Family 5: "They also have peer support. Hence, they have their group, the elderly group, they fit in and listen more to their peers. /.../ Precisely because they listen to their peers, they become such as: okay, I will have a booster as that is okay."
	Neighborhood	Informant 11: "The program [booster vaccination] was conducted in the neighborhood, and we informed through the chat group. We went there and kept asking questions and got registered to obtain booster."	Doctor 5: "There are people who take their elderly people to the vaccine site by picking them up and dropping them at the health facility, maybe because there is no vehicle."
Doctors	Following the doctor's advice	Informant 1: "The doctor told me to do it too. Indeed, receiving the vaccine does not mean a 100% guarantee of not acquiring COVID, but the symptoms can be lighter. /.../ The doctor said I do not have a significant history of the disease so that I can receive a booster vaccine."	Family 3: "But when we explain and are helped by the doctor's explanation, maybe some elderly people can understand." Doctor 1: "But after we educate, they will want a booster in the end."
Government	Support and participate in government programs	Informant 6: "The government has provided health services, including booster vaccines, for free. Hence this government program should be supported."	Family 3: "/.../ And maybe it is a recommendation from the government to get vaccinated." Doctor 4: "With education from the government, they may want a booster following the advice from the government."
	Trust the government	Informant 4: "I trust the government and agencies that carry out the test. I have come to believe in the government that vaccines are safe."	Family 3: "When there are elderly people who believe in the government that this vaccine is for health, surely they will immediately want to receive a booster vaccine." Doctor 5: "There are elderly people who believe in the government and health institutions; this will be very supportive because the booster vaccine is a government program."
	Vaccination facility	Informant 11: "No need to bother, just register straight away, you can be boosted right away, and the place is near here."	Family 2: "But now it is more organized; the facilities are spread out everywhere; hence, this booster is accessible, right." Doctor 3: "This could be because of the location, close to his house. Therefore, they do not need more effort for getting booster vaccines."
	Free of charge	Informant 11: "Mr. Jokowi [the President] has already announced that a vaccine booster is needed. It is even free, right?"	Family 3: "The COVID-19 booster vaccine is also free." Doctor 5: "When there are elderly people who believe in the government and health institutions, this will be very supportive because the booster vaccine is a government program, and is given for free."
	Disclosure of information and education	Informant 12: "/.../ the government has suggested a booster to prevent the reducing effect of the vaccine, and we will be immune [to the virus]."	Family 5: "Besides, news from the government might convince them that the booster is safe. It can also help them convinced."
Administrative Requirements	No need for tests when traveling	Informant 5: "When I don't get vaccinated, it will be difficult to go abroad, where you will have to do a PCR or antigen test. When you have received the booster vaccine, you don't need to get tested again."	Family 3: "This booster is also useful for administrative requirements such as needing a certificate to enter the mall, specifically for flights. When it is a booster, there is no need for PCR and antigen tests." Doctor 2: "Indeed, some of these elderly often travel out of town or abroad. Presently, the flight requirements are new, and it helps the elderly to want a booster, just the same when you have a booster, you do not need PCR and antigen [test]."

Endemic Transformation	Desire to return to normal life	Informant 4: "Yes, people are advised to get vaccinated quickly. This means everyone will be healthy, and we can return to normal activities. Furthermore, there will be no disturbance to wear masks, keep distance, and wash hands."	Family 1: "Maybe there are also elderly who want to live a normal life and want the pandemic to end quickly." Doctor 1: "They think they want things to retrieve to normal. They can go out again."
Booster Choice	Availability of certain brands of vaccine	Informant 4: "But I finally got a booster vaccine. I received Sinovac, and the side effects are lighter."	Family 2: "But in the end, Sinovac was selected because it has milder side effects." Doctor 2: "Some people like that because they think certain vaccine brands are safer or have fewer side effects. Therefore, the elderly also select vaccine brands."
Media coverage	News from social media and television	Informant 7: "Information can be obtained from TV or the internet. Everyone also has news of this booster vaccine to maintain healthy immunity. Therefore, it is better to have this booster vaccine." Informant 10: "Yes, from children, from TV."	Family 2: "With promotions about boosters and information disclosure, specifically through the news on TV. The elderly will notice the message, which may promote them to seek booster vaccinations." Doctor 2: "For the elderly, they obtain info [about booster vaccine] from the news on TV."

*) PCR = Polymerase Chain Reaction; TV = Television

Table 3. Themes of inhibiting factors of accepting booster vaccination in the elderly

Themes	Codes	Informants' Quotations	Other Sources' Quotations
Hoaxes	Concern over the COVID-19 vaccination	Informant 14: "My acquaintance has also experienced bleeding following vaccination. Many blood donations are necessary. This is a costly and hazardous therapy option. Both of my other friends' children experienced seizures five minutes after receiving vaccinations."	Family 3: "There are many hoaxes, specifically about the after-effects of the vaccine, which can cause autoimmunity and lead to death. It can make the elderly not want to be vaccinated, specifically until three times vaccinations." Doctor 1: "Yeah, let alone hoaxes, like ouch, after getting this vaccine, I will have a stroke, or autoimmune. This can certainly be a barrier because it scares them off the effects. /.../There are also many news that the current vaccines do not work for Omicron."
Concerns over the COVID-19 vaccine's safety	COVID-19 vaccine side effects	Informant 14: "I am afraid of the side effects of this COVID-19 vaccine. When I received the first and second vaccines, I had a fever and a headache. /.../ My friend said this booster vaccine, specifically the Pfizer one, has even more severe side effects, up to 3 days of headaches."	Family 4: "Maybe it is related to vaccine safety, specifically when there are many circulating news that vaccines can have certain effects, such as death, blood clots, hahaha." Doctor 3: "For example, in the first case, they hear the news from their families that certain types of vaccines have more side effects than others. Therefore, they are pickier in selecting the type of vaccine."
	The short development duration of the vaccines	Informant 2: "The vaccine has not yet been tested for its toughness. It takes at least two to three years to produce a vaccine, such as the BCG or hepatitis shot the parents want to give their newborn, right?"	Family 4: "I thought maybe this COVID-19 vaccine would only be tested for a short time, and I have heard about it, maybe this can make people, or the elderly hesitate because of the short duration of the test. Hence, I do not know what the long-term effect will be." Doctor 2: "Some are also hesitant about the vaccine because they think it has a short test duration. Hence they are hesitant to obtain a vaccine, let alone a booster. This is because they do not know the safety and the long-term effect."
	No health guarantee for the COVID-19 vaccine	Informant 2: "There is no health guarantee at all. Yes, maybe there are many Indonesians and people around the world."	Family 4: "By not knowing the long-term effect, the elderly may be more afraid because when there is a negative effect, no one can take responsibility or provide guarantees for the safety of this vaccine." Doctor 2: "This makes the elderly afraid and doubtful about getting vaccinated, specifically when there are negative effects, they can think who wants to be responsible for this effect."
Concerns over the COVID-19 vaccine's efficacy	Death after vaccination	Informant 14: "Many have been vaccinated three times, and some died with an increase in cases. Many people, after the vaccine, were still infected. A friend of mine who has been vaccinated eeeee times is still infected. What is then the difference between those who are not vaccinated?"	Family 1: "The increasing number of COVID cases may prompt you to question the efficacy of the vaccination." Doctor 4: "How can some people who vaccinated still be infected? Is the vaccine effective?"
	One vaccine for several COVID-19 variants	Informant 2: "Why are there many variants, Delta and Omicron? What is wrong? But really, vaccines can fend off all variants? Impossible."	Doctor 1: "Yes, some think there are many variants, but can the current vaccine be a solution? Is it still effective?"



Political issue	COVID-19 vaccine is for government business/political interests	Informant 2: "According to my husband, this is business politics. It is only for the importance of people who create this vaccine from abroad, and they only consider the economic factor. The health factor is not too much of a concern. /.../ Well, the vaccine adds money to the people behind the big pharmaceutical factories."	Family 3: "There are the rumors of political motivation, such as the idea that vaccines are government business. The elderly may become skeptical about vaccines in general because of this, and about the need for booster shots." Doctor 1: "They can look at doctors with an attitude of "well, they get paid, oh, this is just a government toy."
Family	The family doesn't believe in COVID-19 or COVID-19 vaccine	Informant 2: "For the simple reason that my other sibling warned me against it. Exposure to excessive levels can trigger autoimmune."	Family 1: "The limiting factor is when the elderly are analyzed. For instance, it is difficult to ensure universal vaccination against COVID when certain families refuse to accept the science behind the disease." Doctor 4: "When there are families who already believe: what is COVID? Why are you vaccinated? Does COVID exist? Subsequently, the family is the most important factor."
Comorbidities	Fear of side effects due to comorbidities	Informant 4: "But at first, I was afraid because I had a congenital heart disease."	Family 2: "Hm, in my father's case, he has congenital heart disease. At first, I wanted to get him vaccinated. But it was delayed because of fear." Doctor 2: "I also found that he did not want to get vaccinated because of the high blood pressure, and he was taking medication. Therefore, he is afraid to get vaccinated because of his comorbidities."

Booster vaccination in the elderly was not supported by 3 out of 15 informants. Several themes of inhibiting factors are hoaxes, concerns over COVID-19 vaccine's safety and efficacy, political issues, family, and comorbid, as seen in Table 3. The sub-themes of vaccine safety concerns are vaccine side effects, the short development duration of the vaccine, and no health guarantee for the vaccine. The sub-themes of vaccine efficacy concerns are death after vaccination and one vaccine for several COVID variants.

DISCUSSIONS

Supporting factors

This research obtained data from different educational backgrounds. Several older adults are aware that they are the most vulnerable age group, which is one of the supporting factors for receiving the COVID-19 booster vaccine. Various research confirmed the vaccine's efficacy in supporting health against the pandemic.^{6,7} A Randomized-Controlled Trial (RCT) examining the reactogenicity and immunogenicity of 7 types of COVID-19 booster vaccine showed that administration of the Moderna could increase antibody levels 32-fold after two doses of Oxford/AstraZeneca and 11-fold after two doses of Pfizer-BioNTech.¹⁴ These results indicated that giving a booster vaccine can increase antibody levels and body immunity, which is expected to reduce the severity of COVID-19 symptoms. Ministry of Health of Singapore data showed that administering the Pfizer-BioNTech booster vaccine can reduce the risk of infection severity by 62%. Meanwhile, administering the Moderna booster vaccine after two doses of the Pfizer-BioNTech vaccine can reduce the risk of the severity of infection by 72%.¹⁵ This indicates the effectiveness of the various vaccine booster options, and the public should be advised not to choose certain types of vaccines. In addition, research in Italy (n = 1,549,747) showed that the elderly (≥ 80 years) who received the vaccine had an 82-83% lower risk of being admitted to the Hospital and ICU and had an 81% lower

risk of death when compared to those who only received two doses.¹⁶ This shows that the booster vaccine can prevent severe symptoms and death. Vaccines effectively reduce COVID-19 transmission,¹⁷ supporting statements from the elderly who have been vaccinated to maintain environmental safety and carry out activities.

Family and peer support are supporting factors of booster vaccine acquirement in the elderly other than health factors. These factors are under qualitative research in Hong Kong, investigating the perceptions and doubts about the COVID-19 vaccine in the elderly. Family members and social supports are the contributing factors for the elderly to receive the COVID-19 vaccine, specifically in enhancing motivation. The intention to meet family outside the city or abroad can also motivate the elderly to receive vaccination.¹⁸ In addition, support from neighborhood associations where the elderly live can also support the elderly to receive booster vaccines. According to the Coordinating Ministry for Human Development and Cultural Affairs, Muhadjir Effendy, to deal with the COVID-19 pandemic, it is required to bring together leaders from the central, provincial, and district levels at the neighborhood association level.¹⁹ This is also supported by the Ministry of Home Affairs Circular No. 440/3917/SJ Year 2022, which regulates the acceleration of the vaccine to the neighborhood association level.²⁰

The Indonesian government strongly recommends a COVID-19 booster to improve the vaccine's effectiveness. The government had prepared vaccination facilities, including free distribution to the public.^{20,21} These factors align with findings from cross-sectional research conducted on the elderly in Portugal, which also shows that the elderly tend to believe in information released.²² Therefore, the role of the government in educating the public regarding correct information about vaccines is vital. Education should also be massive, including in remote areas, but extra efforts are needed to distribute vaccines to remote locations due to inadequate infrastructure and difficulty to



reach.²³ However, the government has made efforts such as providing information regarding the stock availability of vaccines in various regions that the Indonesian people can access.⁸ Another effort made by the government to accelerate people to obtain booster vaccination is making the booster vaccine an administrative requirement for travelers. According to Circular Letter No. 16 the Year 2022, domestic traveling through the air, or land transportation modes using private or public vehicles should provide a vaccination certificate to travel.²⁴ Shortly, the vaccine will also be applied as a requirement to enter public spaces, such as shopping centers, malls, and offices.²⁵

Other factors contributing to booster vaccination acceptance in the elderly are doctors' opinions, endemic transformation, and media coverage. Doctors' opinion is vital in supporting the booster vaccine for the elderly. Qualitative research in Hong Kong also showed that trust in doctors could increase motivation toward vaccination.¹⁸ Concerning change to endemic, this theme is similar to the outcome of a qualitative research in southern Switzerland, where some recipients desire vaccination since it can facilitate a return to normal life.²⁶ Furthermore, the media is one of the supporting factors for the elderly to receive the vaccination because they can obtain information from various media, including news, television, and social media. However, the media could also spread incorrect information, leading to confusion.

Inhibiting factors

The hoax circulated on social media or word of mouth can hinder the acceptance of the COVID-19 booster vaccine in the elderly. Portugal's cross-sectional research showed that anti-vaccine content is circulating on social media. The circulating hoaxes can create doubts, fears, and concerns about the effectiveness and safety of the vaccine.²² This result is similar to a research in Singapore which showed that one of the factors that can significantly increase vaccine hesitancy is the belief in conspiracy theories and false news due to the use of certain sources of information, specifically social media.²⁷ Hoaxes related to political issues can raise doubts for potential vaccine recipients.¹⁸ A cross-sectional research in Portugal also showed that the lack of data and reports on the safety and long-term efficacy of the vaccine might increase the doubts of the elderly.²² Siu et al. indicated concerns about the vaccine's safety for the elderly with comorbidities.¹⁸ However, patients can still receive a booster for the COVID-19 vaccine when their condition is declared stable by the doctor.²⁸ It is essential to educate the elderly with comorbidities regarding the safety of the booster vaccine.

Family factors can be a supporting and inhibiting factor. This factor is under the qualitative research in Hongkong, which examined perceptions and doubts about the vaccine in Hong Kong. This research showed that some older adults who doubt or refuse the COVID-19 vaccine have family members who are hesitant to receive the vaccine. Therefore, education about the importance of booster vaccines also needs to be conducted for the elderly, families, and society in general.

The discussion above showed that to counteract inhibiting factors, the primary step that needs to be taken is education. To enhance public confidence in the COVID-19 vaccine, specifically among the elderly and their families, it is vital to educate the public on the efficacy and safety of vaccines, as well as the role played by education in preventing hoaxes. Therefore, the reception of booster vaccines in the elderly is expected to increase people's hopes of returning to normal life.

Limitations of the study

This research was conducted in North Jakarta, which is only a part of Special Capital Region of Jakarta as the state capital of Indonesia. The results may not represent the whole country's perception of accepting booster vaccines for the elderly.

CONCLUSIONS

Most of the elderly showed a positive attitude towards booster vaccination. However, several inhibiting factors need to be corrected. The role of government through regulation and education is highly needed to improve the perception of the elderly in accepting booster vaccines.

DATA AVAILABILITY STATEMENT

All information can be accessed and obtained from the corresponding author.

CONFLICTS OF INTEREST

There are no conflicts of interest regarding this work's writing, research, and publication.

CREDIT AUTHOR STATEMENT

Fonny Cokro: Conceptualization, Methodology, Formal Analysis, Investigation, Resources, Writing – Review and Editing
Sharon: Methodology, Investigation, Validation, Formal Analysis, Writing – Original Draft
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