

Acceptance of the COVID-19 vaccine in Generation Z: A cross-sectional study in Southeast Sulawesi, Indonesia

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Abstract

Background: Adequate health systems and effective strategies are needed to increase trust and acceptance in vaccines. Generation Z is more concerned with environmental issues related to the pandemic situation.

Objective: This study aimed to assess the acceptance of the COVID-19 vaccine in Generation Z.

Methods: This was an observational analytical study with a cross-sectional design on generation Z in Southeast Sulawesi, Indonesia, from May to July 2021. The samples were taken by cluster sampling using faculty classification. Data was collected using a questionnaire with a google form, included the characteristics, knowledge regarding COVID-19 and vaccine, and the media information.

Results: There were 396 participants. Most of them were <20 years (52.6%), female (74.8%), and Muslim (93.7%). About 61.6% live outside the city and had insurance (77.3%). Half of the participants knew the COVID-19 symptoms (51.26%), some participants were hesitant (11.8%) and did not even know (0.76%). Almost all participants were aware of the COVID-19 vaccination program (99.2%), benefits (95.2%), side effects (84.1%), and knew the contents of the COVID-19 vaccine (62.1%). Most of them were willing to take the COVID-19 vaccine (77.8%). However, 17.93% were hesitant, and 4.29% were unwilling to participate. Most participants were not trusting vaccines (43.9%), did not feel the need (29.3%), and felt access was not easy (26.8%). Most of them used social media to get information about COVID-19 (89.1%).

Conclusion: Generation Z has a good acceptance of the COVID-19 vaccine, even though there are still doubts and rejects. Accurately and sustainable information is needed.

Keywords: acceptance; COVID-19; Generation Z; vaccine; Indonesia

Background

The World Health Organization (WHO) has declared COVID-19 as a global pandemic on March 12, 2020 (Tosepu et al., 2020). The COVID-19 pandemic

impacts health, economic, social, and other sectors (Abas et al., 2021). The government has made efforts to reduce transmission, cases of COVID-19, and deaths by increasing herd immunity (Irnaningsih et al., 2021; Argo et al., 2021). The COVID-19

vaccination aims to achieve herd immunity in the community and protect the public from this virus (Kementerian Kesehatan Republik Indonesia, 2021).

Adequate health system capacity and effective strategies are needed to increase trust and acceptance in vaccines. Concerns about vaccine doubts are growing worldwide (Joshi et al., 2021). In 2015, the World Health Organization (WHO) Strategic Advisory Group of Immunization Experts expressed vaccine doubt as "delayed acceptance or refusal of vaccination despite vaccination services being available" (Macdonald, 2015). The main factor of doubts or reluctance to accept vaccines is the concern on various aspects such as safety, effectiveness, and "halal" of vaccines (Kementerian Kesehatan Republik Indonesia, 2021).

Trust needs to be built to overcome doubts about vaccines. Continuous effective communication from government officials in building public confidence in the vaccine program has an important role (Joshi et al., 2021). Generation Z is a generation that is more concerned with environmental issues, which are related to the current pandemic situation. Effective strategic steps are needed to address public doubts and concerns about the existing COVID-19 vaccine in the community.

Generation Z is expected to be an agent of change to improve the situation in Indonesia. Therefore, the purpose of this study is to assess the acceptance of the COVID-19 vaccine in Generation Z represented by Halu Oleo University Students.

Methods

Study Design

This study was an empirical social-humanistic study conducted among generation Z in Southeast Sulawesi, Indonesia, from May to July 2021. The study design was an observational analytical with a cross-sectional method.

Participants

The population of the study was students of Halu Oleo University, Indonesia. The samples were taken

by cluster sampling using faculty classification. The number of participants was 396 from 15 faculties.

Instrument

A modified questionnaire was used from the COVID-19 Vaccine Acceptance Survey in Indonesia by the Indonesian Ministry of Health, which was by adding questions about knowledge and desired platforms to obtain information about vaccines (Kementerian Kesehatan Republik Indonesia, 2021). The validity and reliability tests of the questionnaire were carried out before use, and the results indicated good validity and reliability.

Data Collection

Data was collected using a questionnaire with a google form. The questionnaire contains the objectives, willingness, and research questions. Participants read the objective study if they are willing to participate, continue to the next page is research questions. The research questions included the characteristics of participants, knowledge regarding COVID-19 and COVID-19 vaccine, the media information used, and desire to get information about COVID-19.

Data Analysis

The data obtained were tabulated and presented in the form of tables and narratives. The analysis was done by descriptive statistical method.

Ethical Consideration

This research has been approved by the Health Research Ethics Commission, Faculty of Medicine, Halu Oleo University, Indonesia (No.160/UN29.17.1.3/ETIK/2021). Informed consent has also been signed by each participant in this study.

Results

There were 396 participants in this study, 26 of each from 15 faculties. As shown in Table 1, most of the participants were ≤ 20 years old (52.6%), female (74.8%), and Muslim (93.7%). They live in the city (38.4%) and outside the city (61.6%). Based on insurance, most of them had insurance (77.3%) (Table 1).

Table 1 Characteristics of participants

Characteristics		n	%
Age (years)	>20	152	38.4
	≤20	244	52.6
Gender	Female	296	74.8
	Male	100	25.2
Religion	Islam	371	93.7
	Christian	12	3
	Hindu	9	2.3
	Buddha	0	0
	Kong hu chu	0	0
	Belief	2	0.5
	Catholic	2	0.5
Residence	In the city	152	38.4
	Outside the city	244	61.6
Insurance	Yes	306	77.3
	No	90	22.7

Table 2 Knowledge about COVID-19 and COVID-19 vaccine

Knowledge	Yes		No		Doubtful	
	n	%	n	%	n	%
Symptoms of COVID-19	203	51.3	146	36.9	47	11.8
COVID-19 vaccination program from the government	393	99.2	3	0.76	0	0
Contains of COVID-19 vaccine	246	62.1	150	37.9	0	0
Benefits of COVID-19 vaccine	378	95.2	19	4.8	0	0
Side effects of COVID-19 vaccine	333	84.1	63	15.9	0	0

Most of the participants knew the symptoms of COVID-19 (51.26%), but there were still participants who were hesitant (11.8%) and did not even know the COVID-19 symptoms (0.76%). Almost all participants answered 'yes' that they were aware of the government's COVID-19 vaccination program

(99.2%), the benefits of the COVID-19 vaccine (95.2%), and the side effects of the COVID-19 vaccine (84.1%). A total of 62.1% of participants knew the contents of the COVID-19 vaccine (Table 2).

Table 3 Behavior during COVID-19 pandemic

Behavior	Always		Sometimes		Not at all	
	n	%	n	%	n	%
Following the number of people who have been vaccinated in Indonesia	29	7.3	254	64.1	113	28.6
Implementation of health protocols, especially when out of the house	348	87.9	45	11.4	3	0.8

Generation Z behavior is shown in Table 3. About 7.3% of participants followed the development of the number of vaccinated in Indonesia, sometimes (64.1%), and not at all (28.5%). Most participants answered "always" with the implementation of health protocols, especially when leaving the house (87.9%) (Table 3).

Table 4 Willingness to participate in the COVID-19 vaccination

Willingness	n	%
Yes	308	77.8
No	17	4.3
Doubtful	71	17.9

Table 4 shows that most participants were willing to take the COVID-19 vaccination (77.8%). But there are still 17.93% who are hesitant to follow the COVID-19 vaccination, even 4.29% who are not willing to participate in the COVID-19 vaccination. (Table 4).

In Table 5, there are reasons for not being willing for COVID-19 vaccination. Most participants were not trusting vaccines (43.9%), did not feel the need for

vaccines (29.3%), and felt access to vaccines was not easy to reach (26.8%).

Table 5 Reasons for not being willing for COVID-19 vaccination

Reasons	n	%
No belief in vaccines	18	43.9
No feeling need a vaccine	12	29.3
Vaccination access is difficult	11	26.8

Table 6 Media information about COVID-19

Media	Used media		Desired media	
	n	%	n	%
Social media: Whatsapp, Facebook, Instagram, Twitter	353	89.1	333	86.3
Telecommunications: SMS and telephone	2	0.5	6	1.6
Online Platforms: Zoom, Skype.	0	0	3	0.8
Print and electronic media: TV, newspapers, blogs, websites	32	8.1	27	6.9
Face-to-face communication (from individual to individual or group)	7	1.8	12	3.1
Others	2	0.5	15	1.3

Social media such as *Whatsapp*, *Facebook*, *Instagram*, and *Twitter* are the most widely used social media to get information about COVID-19 (89.1%). But Generation Z's desire to get information about COVID-19 through social media decreased (86.3%). Meanwhile, telecommunications media, online platforms, face-to-face communication, and others have increased (Table 6).

Discussion

This study shows that Generation Z has good knowledge about COVID-19 and the COVID-19 vaccine, although some still do not know the contents of the COVID-19 vaccine. Most Generation Z are willing to accept the COVID-19 vaccination, but some are still hesitant and refuse. The relationship between knowledge and doubt about vaccines was found in another study previously in 2020 that doubts about vaccines are mostly related to poor vaccine knowledge (Issanov et al., 2021).

Generation Z, who always follows the number of people in Indonesia who have been vaccinated, is very low. Some even do not follow at all. However, Generation Z has good behavior in implementing health protocols, especially when leaving the house. This result is similar to a previous study in Kendari City that the community has good knowledge, attitudes, and behavior towards new-normal policy

(Saimin et al., 2020). The factors most related to behavior to health protocols are sociodemographic variability, beliefs, and attitudes associated with COVID-19, trust in institutions, media, ability to follow guidelines, scientific literacy, social relations, and the effects of public health communication strategies (Moran et al., 2021).

Success in fulfilling herd immunity to COVID-19 infection among the population depends on the results of the COVID-19 vaccination. The results of this study indicate that there are still Generation Z who has not received the COVID-19 vaccination program because of doubt and refusal, namely 17.93% and 4.29%, respectively. This result is similar to a survey conducted in 2020 that about 64.8% were willing to receive the COVID-19 vaccine (Kementerian Kesehatan Republik Indonesia, 2021). Several other developing countries, Malaysia (Mohamed et al., 2021) and India (Joshi et al., 2021), experienced the same thing. The limit of herd immunity is assumed to be around 67%. The incidence of infection decrease if the proportion of individuals who acquire SARS-CoV-2 immunity in the population reaches 0.67 (Randolph & Barreiro, 2020)

The majority of the reasons for not accepting the COVID-19 vaccination in this study were distrust in vaccines. This result is similar to a survey conducted by the government that the common reasons for

rejection of the COVID-19 vaccine are not sure of its safety (30%) and distrust of vaccines (13%) (Kementerian Kesehatan Republik Indonesia, 2021). On the other hand, a study in Egypt showed that most medical students believe in the COVID-19 vaccine, although almost half are still hesitant to follow the COVID-19 vaccination (Saied et al., 2021).

During the pandemic, the media has an essential role in providing information to the public. Mass media and social media are easily accessible to the public (Shu et al., 2017). The public relies on the media to access health-related information (Wu & Shen, 2021). This study shows that most Generation Z uses social media, such as WhatsApp, Facebook, Instagram, and Twitter, to get information about COVID-19. However, they also want to use other media such as other online platforms such as zoom and skype. This result is similar to a previous study that the community in Kendari City read news on social media but still consider the information from official government sources and WHO (Saimin et al., 2020). In addition, Knowledge and acceptance of the COVID-19 vaccine are closely related to information about the COVID-19 vaccination program. Information can influence opinions and beliefs in society. Therefore, accurate and continuous information is needed.

Conclusion

Based on this study, we concluded that Generation Z has a good acceptance of the COVID-19 vaccine, even though there are still doubts and rejects. However, accurate and sustainable information is needed.

Declaration of Conflicting Interest

The authors declare no conflict of interest.

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Author Contributions

All authors contributed equally in all stages of the study and agreed with the final version of the article to be published and accountable in all phases of the work.

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