

# Determinants of Social Media Utilization as a Source of Information Regarding COVID-19 Vaccine among Generation Z in Indonesia <sup>†</sup>

Elsa Roselina <sup>1,\*</sup>  and Taufik Asmiyanto <sup>2</sup>

<sup>1</sup> Applied Health Department, Vocational Education Program, Universitas Indonesia, Depok 16431, Indonesia

<sup>2</sup> Department of Library and Information Science, Faculty of Humanities, Universitas Indonesia, Depok 16431, Indonesia

\* Correspondence: elsa@vokasi.ui.ac.id

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**Abstract:** This study aimed to determine the determinants of seeking information related to COVID-19 vaccination by Generation Z through the use of social media. This study used a cross-sectional design. The total sample was 588. Data collection was carried out in July 2021 and analyzed using the Chi-square test. The results showed a significant relationship between gender and the type of social media; education level with a duration of social media; gender and basic information about vaccines; gender and information about the side effects and safety of vaccines; gender and reinvestigation of vaccine information; gender and ability to recognize hoaxes on social media. Gender has a more significant relationship than education level in using social media as a source of information on COVID-19 vaccines.



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## 1. Introduction

Since the outbreak of COVID-19 in Indonesia, the government has implemented various initiatives and measures to limit the spread and reduce the number of fatalities. To combat the spread of COVID-19 and improve people's economic conditions, the government has implemented policies including social restrictions, self-isolation, travel restrictions, and cash aid for those who cannot afford it. Another effort made by the government to build community immunity (herd immunity) is vaccination, as stated in the Presidential Decree 14 of 2021 concerning Amendments to Presidential Regulation Number 99 of 2020 concerning Vaccine Procurement and Vaccination Implementation in the Context of Combating the 2019 Corona Virus Disease Pandemic (COVID-19).

Vaccination is widely known as an effective method of preventing infection and significantly reducing fatalities from various infectious diseases, including influenza and Human Papilloma Virus (HPV). However, vaccine uncertainty and the delayed acceptance or refusal of vaccines despite the availability of vaccination services has polarized vaccine supporters and anti-vaccine protesters. This problem was ranked as one of the top ten global health hazards by the World Health Organization (WHO) in 2019 [1].

During the COVID-19 pandemic, people have been bombarded with information via social media. Social media is one of the most important sources of information concerning COVID-19 [2–6].

Generation Z (Gen Z) is the most internet-dependent generation and is at the forefront of technological use. Generation Z interacts and communicates over the internet; they have a digital bond with the internet that is emotionally intense [7]. Gen Z is more inclined to trust the information on the COVID-19 vaccination found on social media [8], and the majority prefers to learn about the COVID-19 pandemic via social media [9].

COVID-19 control relies heavily on information. Its elements raise public awareness and affect health behavior [10]. The frequency of active interaction about COVID-19 vaccination on social media and passive exposure to information about COVID-19 vaccination on social media can impact Generation Z's decision to receive COVID-19 vaccination [4]. Other research has found that exposure to disinformation reduces a person's intention to receive the COVID-19 vaccine [11–13]. WhatsApp, Facebook, and YouTube are examples of social media platforms where misinformation can be found [14]. Therefore, this study investigated factors that influence Generation Z's usage of social media as a source of information on the COVID-19 vaccinations in Indonesia.

## 2. Materials and Methods

This quantitative study used a cross-sectional design and was conducted in Jakarta, Bogor, Depok, Tangerang, and Bekasi. The data were collected on July 2021. The research sample was Generation Z. Purposive sampling was used to determine the sample. The sample size was 588 persons by using Slovin formula, based on N (population number) from the Central Statistics Agency in 2020 from the Jakarta, Bogor, Depok, Tangerang, and Bekasi areas, with 95% confidence level and 5% margin of error. Ethical compliance was fulfilled at the start of the study by informed consent, and respondents declared their readiness voluntarily. The survey was distributed via Google Forms. Analysis of data was carried out using univariable and bivariable techniques (Chi-square tests).

## 3. Results and Discussion

### 3.1. Demographic Characteristics

The respondents' demographic characteristics were classified into three categories: age, gender and education. The average age of the respondents was 19 years old, followed by the youngest at 14 years old and the oldest at 24 years old. Table 1 shows that most respondents were women (69.2%) with a high school diploma or equivalent (90.8%).

**Table 1.** Respondents' Characteristics (N = 588).

Variable	Category	n	%
Gender	Male	189	30.8
	Female	407	69.2
Education	Middle School	6	1.0
	High School	534	90.8
	Diploma	22	3.8
	Bachelor's Degree	26	4.4

### 3.2. Social Media Usage

Respondents searched for information about the COVID-19 vaccination on social media. Instagram (56.3%) and Twitter (17.3%) were the most popular social media platforms. Most respondents (63.8%) viewed the information about COVID-19 vaccination for less than 30 min daily. The information requested was regarding the recipient criteria and type of vaccine (26.0%) and the vaccine's adverse effects and safety (74.0%). Table 2 shows these data further.

**Table 2.** Social Media Usage (N = 588).

Variable	Category	n	%
Social Media	Facebook	12	2.0
	Instagram	331	56.3
	WhatsApp	34	5.8
	Twitter	102	17.3
	Line	15	2.6
	YouTube	44	7.5
	TikTok	50	8.5
Duration of use	Less than 30 min	338	63.8
	30 min to 1 h	170	28.6
	1 h to 1.5 h	25	4.4
	1.5 h or more	19	3.2
Accessed Information: Recipient criteria and type of vaccine	Yes	153	26.0
	No	435	74.0
Accessed Information: Side Effects and vaccine safety	Yes	435	74.0
	No	153	26.0

Several earlier COVID-19 studies, including the COVID-19 vaccination, that were linked to social media, yielded consistent results with the findings, particularly regarding social media use. The public can obtain information on the COVID-19 vaccination via several social media platforms, including Facebook [15,16], Twitter [15,17,18], Instagram [15,16,18], TikTok [15], and Line [18]. Instagram was the most popular social media platform for Gen Z to learn more about COVID-19 [18]. The majority of time spent on social media for COVID-19 pandemic information was less than one hour per day [17]. The concern about vaccine side effects and safety was prevalent in information about the COVID-19 vaccine on social media [16,19].

*3.3. Trust, Double-Checking Information, and the Capacity to Recognize Hoaxes*

According to Table 3, the majority of respondents agreed that they believed in information about the COVID-19 vaccination circulating on social media (59.4%), re-checked information about the COVID-19 vaccination obtained from social media using other sources (58.0%), and recognized hoaxes related to information about the COVID-19 vaccination obtained from social media (59.0%).

**Table 3.** Trust, double-checking information, and the capacity to recognize hoaxes (N = 588).

Variables	Categories	n	%
Trust in information about the COVID-19 vaccination circulating on social media	Strongly disagree	8	1.4
	Disagree	164	27.9
	Agree	349	59.3
	Strongly agree	67	11.4
Re-checking information about the COVID-19 vaccination with other sources	Strongly disagree	6	1.0
	Disagree	36	6.1
	Agree	341	58.0
	Strongly agree	205	34.9
Ability to recognize hoaxes related to information about the COVID-19 vaccination circulating on social media	Strongly disagree	9	1.5
	Disagree	115	19.6
	Agree	341	58.0
	Strongly agree	123	20.9

Findings from other studies indicate that the majority of Gen Z believes in information about COVID-19 circulating on social media; they double-check information, and they can detect hoaxes regarding COVID-19 obtained on social media [17].

### 3.4. Bivariable Result: Chi-Square Test

According to the findings of the Chi-square analysis, there was a link between demographic variables and the search for information on the COVID-19 vaccination on social media. Gender is one of the factors associated with the search for information related to the COVID-19 vaccination on social media, where a significant relationship was found in terms of choosing the type of social media in accessing information about COVID-19 vaccination ( $p = 0.002$ ), seeking information about recipient criteria and the type of vaccine ( $p = 0.031$ ), searching for information on side effects and safety of the COVID-19 vaccine ( $p = 0.031$ ), re-checking information related to the COVID-19 vaccine on social media with other sources ( $p = 0.004$ ), and the ability to recognize hoaxes related to information about COVID-19 vaccination on social media ( $p = 0.008$ ). The time spent on social media was highly connected to education level ( $p = 0.048$ ). Table 4 shows the bivariable result in greater depth.

**Table 4.** Bivariable Result: Chi-Square Test (N = 588).

Variables	p-Values	Significance
Gender and type of social media	0.002	Yes
Education Level and type of social media	0.109	No
Gender and duration of access to social media	0.280	No
Education level and duration of access to social media	0.048	Yes
Gender and information on recipient criteria and vaccine type	0.031	Yes
Education level and information on recipient criteria and vaccine types	0.249	No
Gender and information on side effects and vaccine safety	0.031	Yes
Education level and information on side effects and vaccine safety	0.249	No
Gender and trust in vaccine-related information on social media	0.055	No
Education level and trust in vaccine-related information on social media	0.141	No
Gender and double-checking vaccine-related information on social media with other sources	0.004	Yes
Education level and double-checking vaccine-related information on social media with other sources	0.078	No
Gender and ability to recognize vaccine-related hoaxes on social media	0.008	Yes
Education level and ability to recognize vaccine-related hoaxes on social media	0.936	No

#### 3.4.1. The Link between Gender and Social Media Type

According to the Chi-square analysis results, there was a relationship between gender and the choice of social media types in receiving information about COVID-19 vaccination ( $p = 0.002$ ). According to the findings, the three most popular types of social media identified by 181 male respondents were Instagram (56.4%), Twitter (13.3%), and YouTube (11.0%). In comparison, the three most popular types of social media selected by 407 female respondents were, as stated in Table 5, Instagram (56.3%), Twitter (19.2%), and TikTok (10.6%).

**Table 5.** The link between gender and social media type (N = 588).

Gender	Social Media Platforms Used to Obtain COVID-19 Vaccination Information							N	p-Value
	F	I	W	Tr	L	Y	Tk		
Male	7 (3.9%)	102 (56.4%)	15 (8.3%)	24 (13.3%)	6 (3.3%)	20 (11.0%)	7 (3.9%)	181	0.002
Female	5 (1.2%)	229 (56.3%)	19 (4.7%)	78 (19.2%)	9 (2.2%)	24 (5.9%)	43 (10.6%)	407	
N	12 (2.0%)	331 (56.3%)	34 (3.9%)	102 (3.9%)	15 (3.9%)	44 (3.9%)	50 (3.9%)	588	

F = Facebook, I = Instagram, W = WhatsApp, Tr = Twitter, L = Line, Y = YouTube, Tk = TikTok.

### 3.4.2. The Link between Education Level and Duration of Social Media Access

According to the findings of the Chi-square analysis, there was a relationship between education level and the duration of social media access to COVID-19 vaccine material ( $p = 0.048$ ). The results showed that most access to social media related to information about COVID-19 vaccination was less than 30 min across all education levels. However, the proportions differed by level of education (Junior High School 83.3%, Senior High School 64.6%, Diploma 63.7%, and Bachelor 42.3%), as shown in Table 6.

**Table 6.** The link between education level and duration of social media access (N = 588).

Education	Duration of Social Media Access to Information on the COVID-19 Vaccination				N	p Value
	<30 min	30 min to 1 h	1 to 1.5 h	>1 h		
Midde School	5 (83.3%)	1 (16.7%)	0 (0.0%)	0 (0.0%)	6	0.048
High School	345 (64.6%)	151 (28.3%)	23 (4.3%)	15 (2.8%)	534	
Diploma	14 (63.7%)	7 (31.8%)	1 (4.5%)	0 (0.0%)	22	
Bachelor	11 (42.3%)	9 (34.6%)	2 (7.7%)	4 (15.4%)	26	
N	375 (63.8%)	168 (28.6%)	26 (4.4%)	19 (3.2%)	588	

### 3.4.3. The Link between Gender and the Need for Information about COVID-19 Vaccination: Recipient Criteria and Types of Vaccine

According to the findings of the Chi-square analysis, there is a link between gender and the requirement for information on recipient criteria and the type of COVID-19 vaccine ( $p = 0.031$ ). According to this study, only a few men and women required information on recipient requirements and types of vaccines (19.9% for men and 28.7% for women), as indicated in Table 7.

### 3.4.4. The Link between Gender and the Requirement for Information about COVID-19 Vaccination: Adverse Effects and Vaccine Safety

According to the findings of the Chi-square analysis, there was a link between gender and the need for information on the adverse effects and safety of the COVID-19 vaccine ( $p = 0.031$ ). As demonstrated in Table 8, most of the men and women required information concerning side effects and vaccine safety (80.1% for men and 71.3% for women).

**Table 7.** The link between gender and the need for Information about COVID-19 vaccination: recipient criteria and types of vaccines (N = 588).

Gender	Details on the Recipient Criteria and the Several Types of COVID-19 Vaccines		N	p Value
	No	Yes		
Male	145 (80.1%)	36 (19.9%)	181	0.031
Female	290 (71.3%)	117 (28.7%)	407	
N	435 (74.0%)	153 (26.0%)	588	

**Table 8.** The link between gender and the requirement for COVID-19 vaccination information: adverse effects and vaccine safety (N = 588).

Gender	Information about the COVID-19 Vaccine’s Side Effects and Safety.		N	p Value
	No	Yes		
Male	36 (19.9%)	145 (80.1%)	181	0.031
Female	117 (28.7%)	290 (71.3%)	407	
N	153 (26.0%)	435 (74.0%)	588	

### 3.4.5. The Link between Gender and Cross-Referencing of Information about the COVID-19 Vaccination on Social Media and Other Sources

Based on the results of the Chi-square analysis, it was found that there was a relationship between gender and re-checking information related to the COVID-19 vaccine on social media with other sources ( $p = 0.004$ ). The results showed that of 181 male respondents, the majority agreed (51.9%) and strongly agreed (35.4%) in checking information, while from 407 female respondents, the majority agreed (60.7%) and strongly agreed (34.6%), as shown in Table 9.

**Table 9.** The link between gender and cross-referencing of information about the COVID-19 vaccination on social media and other sources (N = 588).

Gender	Re-Checking Information Regarding the COVID-19 Vaccination				N	p Value
	Strongly Disagree	Disagree	Agree	Strongly Agree		
Male	4 (2.2%)	19 (10.5%)	94 (51.9%)	64 (35.4%)	181	0.004
Female	2 (0.5%)	17 (4.2%)	247 (60.7%)	141 (34.6%)	407	
N	6 (1.0%)	36 (6.1%)	341 (58.0%)	205 (34.9%)	588	

### 3.4.6. The Link between Gender and the Ability to Recognize COVID-19 Vaccination Hoaxes on Social Media

According to the findings of the Chi-square analysis, there is a link between gender and the ability to recognize hoaxes about the COVID-19 vaccine on social media ( $p = 0.008$ ).

According to the findings, the majority of 181 male respondents agreed (48.6%) and strongly agreed (28.7%) in checking information, while the majority of 407 female respondents agreed (62.2%) and strongly agreed (17.4%), as shown in Table 10.

**Table 10.** The link between gender and the ability to recognize COVID-19 vaccination hoaxes on social media (N = 588).

Gender	Ability to Recognize Hoaxes Related to the COVID-19 Vaccination				N	p-Value
	Strongly Disagree	Disagree	Agree	Strongly Agree		
Male	3 (1.7%)	38 (21.0%)	88 (48.6%)	52 (28.7%)	181	0.008
Female	6 (1.5%)	77 (18.9%)	253 (62.2%)	71 (17.4%)	407	
N	9 (1.5%)	115 (19.6%)	341 (58.0%)	123 (20.9%)	588	

#### 4. Conclusions

The current findings revealed significant relationships between gender and the type of social media accessed; education level and the length of time spent on social media; gender and basic information about COVID-19 vaccines; gender and information about the side effects and safety of COVID-19 vaccine; gender and re-investigation of information about COVID-19 vaccination; and gender and the ability to recognize hoaxes on social media. Gender is a more significant than the academic level when accessing social media to learn about COVID-19 vaccination.

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