

Public perception of COVID-19 vaccination in Banjar District, Indonesia: the role of sociodemographic factors

Nurul Mardiaty^{1*}, Lina Mersa², Cast Torizellia³

¹Department of Pharmacy, Faculty of Mathematics and Science, Lambung Mangkurat University, Banjarbaru, 70714, Indonesia

²Department of Pharmacy, Faculty of Pharmacy, Borneo Lestari University, Banjarbaru, 70732, Indonesia

³Department of Nutrient, Faculty of Health Sciences and Technology, Borneo Lestari University, Banjarbaru, 70732, Indonesia

*Corresponding Author: nurul.mardiaty@ulm.ac.id

Received: 28 February 2024 / Accepted: 20 April 2024

ABSTRACT: Coronavirus Disease 2019 (COVID-19) is an infectious disease caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-Cov-2) virus. Vaccination is one way to prevent the spread of the COVID-19 virus. One of the factors causing the low acceptance of COVID-19 vaccination in the community is the perception of COVID-19 vaccination. Socio-demographic factors such as age, gender, occupation, last degree of education, and monthly income have a substantial relationship with public perceptions of COVID-19 vaccination. The purpose of this study was to analyze public perceptions of COVID-19 vaccination. This study used an analytical observational method with a cross-sectional study design. The sample in this study employed a consecutive sampling technique, totaling 400 respondents. The majority of respondents have a good perception of COVID-19 vaccination. This study shows that older people have better perceptions than younger people, are workers, are educated respondents, and have higher income levels. There is a relationship between socio-demographic factors of age, occupation, education level, and income level with community perceptions of COVID-19. However, gender is not associated with people's perception of COVID-19. Both men and women have equal access to information related to the Covid-19 vaccine.

KEYWORDS: Community; Covid-19 Vaccine; Indonesia; perception; socio-demographic characteristics.

INTRODUCTION

The novel coronavirus SARS-Cov-2 causes the infectious disease COVID-19, a previously unknown virus in humans. If this infection infects humans, it will cause several symptoms, such as fever, fatigue, dry cough, and the possibility of experiencing pain, diarrhea, loss of smell, loss of sense of taste, and even a rash on the skin [1]. WHO has declared COVID-19 a global pandemic, and in Indonesia, it has been reported a type of disease that causes a public health emergency as well as a non-natural disaster, which not only causes death but also causes significant economic losses, so it is necessary to carry out mitigation efforts including prevention and control. COVID-19 cases as of December 2021 in the world have reached 264 million cases, with the number of cases in Indonesia being 4.26 million and 144,000 people dying. Indonesia itself has examined 777,100 specimens; it knew that positive confirmed cases reached 95,418 sufferers with a death rate of 4,665 (4.9%), of which 470 districts/cities were affected with 189 local transmissions [2]. One possible way to prevent the spread of this virus is by developing a vaccine [3]. Apart from administering vaccines during the pandemic, people must comply with health protocols to prevent the transmission of Covid-19. The health protocol involves adopting a healthy lifestyle and practicing clean living habits. It includes monitoring body temperature, using masks for screening, maintaining a safe physical distance, avoiding crowded places, refraining from shaking hands, frequently washing hands with soap or using hand sanitizer, regularly disinfecting surfaces, practicing proper cough etiquette, and self-quarantining when necessary [4].

Based on data from the Indonesian Ministry of Health [5], vaccine achievements in Indonesia target vaccination of health workers, the elderly, public officials, vulnerable and general communities, and children aged 12-17. The total achievement of first-dose vaccination was 135 million doses (65.16%), and second-dose vaccination was 90 million doses (43.46%) throughout Indonesia. On 21 November 2021, the achievement of COVID-19 vaccination in South Kalimantan was still low, namely 24th of all provinces in Indonesia, namely only 45.76% of vaccination doses and 29.01% of the second dose. Some districts/cities still have low vaccination rates in South Kalimantan province still have pretty low vaccination rates compared to other

How to cite this article: Mardiaty N, Mersa L, Torizellia C Public perception of COVID-19 vaccination in Banjar District, Indonesia: the role of sociodemographic factors. JIFI. 2024; 22(1): 61-69

regions. The three communities/towns with vaccination coverage include Banjar District, Tanah Laut District, and Hulu Sungai Tengah District. Banjar District is in the first down position [6]. The public's reluctance to embrace vaccines is strongly associated with influential factors, one of which can be related to perception. Individual perceptions in choosing to do something related to their health. Several aspects: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. According to research conducted by Génereux et al. The reluctance to get vaccines and the spreading of false information pose substantial obstacles to attaining widespread vaccination and immunity within the community. It investigated to assess the probable level of acceptance of the COVID-19 vaccination among a sample of 13,426 individuals randomly chosen from 19 countries, predominantly those heavily affected by the COVID-19 pandemic. Out of the total respondents, 71.5% expressed their willingness to receive the vaccine if its safety and effectiveness were established scientifically. In comparison, 48.1% indicated their intention to get vaccinated if someone advised it. Moreover, an individual's stated inclination to get vaccinated may not consistently serve as a reliable indicator of their acceptance, as multiple factors influence vaccine choices and might evolve [7]. Argista suggests that socio-demographic characteristics play a significant role in shaping the public's impression of the COVID-19 vaccination [8]. Al-Zalfawi et al. conducted a study that showed how socio-demographic characteristics can impact the probability of obtaining the COVID-19 vaccine [9]. Examining the public's opinions on the COVID-19 vaccination using factual data and real-world evidence is a scientific approach to formulating solutions that address issues and fulfill the objectives set by societal authorities [10]. The efficacy of the vaccination effort, which seeks to attain herd immunity through widespread vaccine, is heavily contingent upon public perception of the COVID-19 vaccine [11-13]. Hence, comprehending the public's perceptions of the Covid-19 vaccine is of paramount significance [14],[15].

Based on the above background, this study aimed to identify the socio-demographic factors, such as age, gender, last degree of education, employment status, and monthly income, of the community in Banjar District. It also sought to assess the public's perception of the COVID-19 vaccine in Banjar District, and examine the correlation between these socio-demographic characteristics and the public's perception of the Covid-19 vaccine in Banjar District.

▪ MATERIALS AND METHODS

Materials

This research took place in Banjar District from February until April 2022. A meticulously designed questionnaire was used as a tool to collect data. The questionnaires, after undergoing rigorous validity and reliability tests, were distributed to 400 respondents.

Study design

This research used an analytical observational method with a cross-sectional study design. This quantitative research was correlational by connecting the independent variable, namely sociodemographics (including age, gender, education level, occupation, and income), with the dependent variable, namely public perception about the Covid-19 vaccine. It was conducted study in Banjar District between January and April 2022.

Sample collection techniques

The sampling method employed was convenience sampling through social media platforms, namely by distributing a modified and refined questionnaire to individuals who fulfill the predetermined criteria for participation in the study. These criteria included being a resident of Banjar District, aged > 17 years, and having access to social media. This approach persisted until the intended number of participants is within three months.

Population and sample

The sample in question was the entire community of those aged >17 years included in Banjar District. The sample size was determined using the Slovin formula, a statistical formula that calculates the sample size needed for a given population size and desired level of precision. The formula was used to ensure a representative sample size of 400 respondents. Flow diagram of survey respondents in Figure 1.

$$n = \frac{N}{1+N.e^2}$$

$$n = \frac{372.645}{1+(372.645 \times 0,05^2)}$$

$$n = \frac{372.645}{932,6125}$$

$$n = 399.57$$

= 400 participants

Information:

n = Sample Size

N = Population Size

e = Tolerable error limit is 5% (0.05)

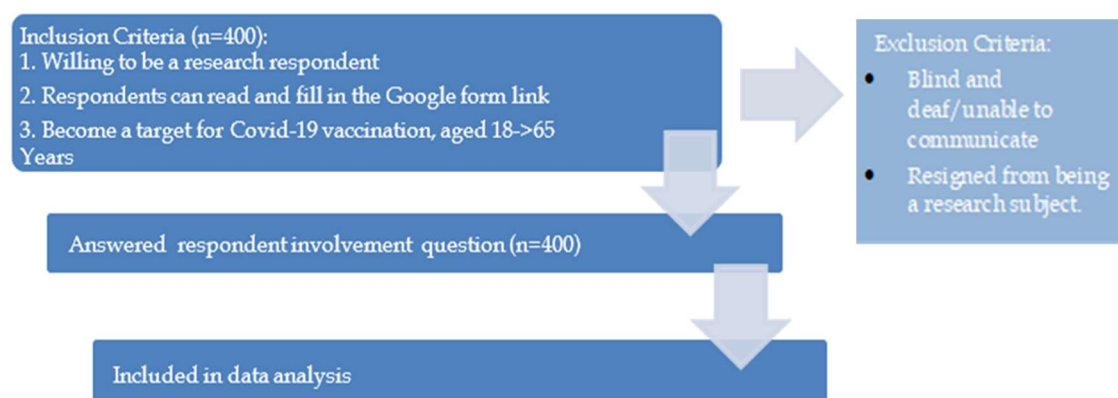


Figure 1. Flow diagram of survey respondents and inclusion in data analysis.

Meanwhile, the exclusion criteria in the research are blind and deaf/unable to communicate. These criteria were set to ensure that all respondents could fully understand and respond to the questionnaire, thereby maintaining the integrity of the data. Resigned from being a research subject.

Ethical approval

This research received permission to obtain permits from educational institutions and has passed the Ethical Clearance test at the Faculty of Medicine, Lambung Mangkurat University, with No.270/KEPK-FK ULM/EC/VIII/2022. The ethical approval process involved a thorough review of the research protocol, including the study design, data collection methods, and participant recruitment strategies, to ensure that the study was conducted in an ethical manner and that the rights and welfare of the participants were protected.

Data analysis

The results study used univariate analysis, a statistical method that describes the distribution of a single variable, namely the results from respondents regarding area of domicile, age, gender, occupation, monthly income, and perception. Univariate analysis aimed to obtain an overview of the frequency distribution and proportions of the various variables studied. Bivariate analysis, on the other hand, determined the relationship between sociodemographics (age, gender, last degree of education, employment, and monthly income) and public perceptions about the COVID-19 vaccine in Banjar District. This was done using a chi-square test, a statistical test used to determine if there is a significant association between two categorical variables. The experimental procedures should be described in sufficient detail to enable others to repeat the experiments.

RESULTS

Distribution and characteristics of respondents

The research findings, a significant contribution to the field, demonstrate the participants' utilization of Google Forms to complete the questionnaire, as presented in Table 1.

Table 1. Frequency distribution and characteristics of respondents in the diverse Banjar District Area.

No.	Item	Category	Number	Percentage (%)
1.	Subdistrict	Martapura	156	39
		Mataraman	11	2.7
		Astambul	14	3.5
		Karang Intan	4	1
		Pengaron	83	20.7
		Sambung	2	0.5
		Gambut	54	13.5
		Sungai Pinang	23	5.7
		Simpang empat	43	10.7
		Sungai Tabuk	10	2.5
		Total	400	100
2.	Age	Young (18-39 Years)	281	70.3
		Old (>39 Years)	119	29.7
		Total	400	100
3.	Gender	Man	242	60.5
		Woman	158	39.5
		Total	400	100
4.	Occupation	Unworker	255	63.8
		Worker	145	36.2
		Total	400	100
5.	Last degree of education	Low (Elementary school to junior high school)	185	46.2
		High (Senior high school-University)	215	53.8
		Total	400	100
6.	Monthly income (According to Banjar District Regional Regulation 2022)	< IDR 2,788,448,	272	68
		≥ IDR 2,788,488,	128	32
		Total	400	100

Source: Primary Data, 2022

Based on the results in Table 1 above, it shows that the distribution of respondents was in Martapura District, with 156 people (39%). Respondents in this study were 400 people, representing a wide range of socio-demographic characteristics, namely age, gender, occupation, last degree of education, and monthly income. Table 1 displays the socio-demographic characteristics of the participants too. The research findings indicated that most respondents fell between the age bracket of 18-39 years, specifically including 281 individuals (70.3%). Age is a determinant that can impact an individual's perception. An individual observes a target and endeavors to offer several perceptual interpretations of the object they perceive. Age is a determining factor in shaping an individual's perception. Consequently, individuals of different ages will have distinct perceptions of an object or stimuli. Age is a determinant that can impact an individual's knowledge and perception.

The research results showed that the majority of respondents were male, namely 242 people (60.5%), and did not work (housewives/students/college students), namely 255 people (63.8%). Knowledge is one of the factors that influences a person's perception. The research indicated that most participants possessed the most significant degree of education, ranging from high school to university. Specifically, 215 individuals, accounting for 53.8% of the total respondents, fell into this category. Education is a crucial element in daily existence. The narrative of schooling will shape an individual's understanding of perception. Education influences and regulates the process of acquiring knowledge. There is a positive correlation between a person's level of education and their ability to receive information. An individual who has achieved a high level of education is considered to possess sophisticated knowledge [16].

The research showed that most respondents had a monthly income < IDR 2,788,447, namely 272 people (68%). This income bracket is significant as it represents a substantial portion of the population and can provide insights into the economic conditions of the area. Economic status is an essential factor in identifying a relationship with people's healthy behavior. It can locate financial status based on family monthly income and predetermined criteria. Family income is income obtained from the total income of husband and wife or parents if they are not married [17].

Public perception of the COVID-19 vaccine

It cannot separate the perception built by the public regarding the COVID-19 vaccination program initiated by the government to establish herd immunity from the influence of various factors.

Table 2. Public perceptions about the COVID-19 vaccine in Banjar District.

Category of perception	Answer frequency distribution	
	Number (n)	Percentage (%)
Bad	14	3.5
Enough	320	80
Good	66	16.5
Total	400	100

Source: Primary Data, 2022

Based on Table 2, the majority (80%) of the respondents had an enough good perception of the COVID-19 vaccine. However, there are still people whose perception of the Covid-19 vaccine is bad (3.5%). Bad perceptions about the COVID-19 vaccine are also shown based on study reports in various provinces or cities in Indonesia such as Southeast Sulawesi 26.7% and Medan 68.2% [18],[19]. Other studies have shown higher rates of bad perception about the COVID-19 vaccine, which showed 27.7% in Saudi Arabia and 10.6% in Sokoto State, Nigeria [20-21]. Although a trend of lower skepticism is illustrated in this research, higher skepticism in country or province/ city-wide reports shows the true level of bad perception.

The relationship between socio-demographic factors and community perceptions of the COVID-19 vaccine in Banjar district.

The data collected for this study was subjected to rigorous analysis using chi-square testing. This statistical method was employed to ascertain the correlation between the independent variable (socio-demographic factors) and the dependent variable (public perceptions of the COVID-19 vaccine). The findings of this analysis, presented in Table 3, provide a robust basis for understanding the relationship between these variables.

Table 3. Sosio-demographic relationship with community perceptions of the COVID-19 vaccine in Banjar District.

Category	Public perception about covid-19						Total		<i>p-value</i>
	Bad		Enough		Good		n	%	
	n	%	n	%	n	%			
Age									
Young (18-39 Years)	12	3	231	57.8	38	9.5	281	70.5	0.040
Old (>39 Years)	2	0.5	90	22.4	27	6.8	119	29.6	
Total	14	3.5	321	80.2	65	16.3	400	100	
Gender									
Man	10	2.5	197	49.2	35	8.8	242	60.6	0.364
Woman	4	1	124	30.9	30	7.5	158	39.4	
Total	14	3.5	321	80.2	65	16.3	400	100	
Occupation									
Unworker	10	2.5	216	54	29	7.3	255	63.8	0.002
Worker	4	1	105	26.1	36	9	145	29.6	
Total	14	3.5	321	80.2	65	16.3	400	100	
Last degree of education									
Low (Primary to Middle School)	9	2,3	155	38.4	22	5.5	185	46.2	0.044

Category	Public perception about covid-19						Total		p-value
	Bad		Enough		Good				
	n	%	n	%	n	%	n	%	
High (High School-University)	5	1.3	167	41.7	43	10.8	215	53.8	
Total	14	3.5	321	80.2	65	16.3	400	100	
Monthly Income									
< IDR 2,887,448,	2	0.5	230	57.5	40	10.1	272	68.1	0,000
≥ IDR 2,887,448,	12	3	91	22.6	25	6.3	128	31.9	
Total	14	3.5	321	80.2	65	16.3	400	100	

Source: Primary Data, 2022

Table 3 reveals that most respondents in the 18-39 age range had a moderate view, consisting of 231 persons (57.8%). The bivariate analysis using the chi-square test reveals that the age factor has a p-value of 0.040, which is less than the significance level α of 0.05. Therefore, the null hypothesis (H_0) is invalidated, revealing a substantial correlation between the age factor and public impression of the COVID-19 vaccine in Banjar District. The findings of this study align with previous research undertaken by Wulandari et al., Subedi et al., and Oche et al., indicating a significant association between age and perceptions of the COVID-19 vaccination (p-value = 0.048). Age is an essential factor that strongly correlates with public perception of the COVID-19 vaccine, as it shapes an individual's perspective and cognition. As you grow older, your perceptions and cognitive processes will continue to evolve [21-23].

In this study, the majority age group category is young and tends to have adequate perceptions of the COVID-19 vaccine with student status; this shows that a person's age when receiving the vaccine may be related to a person's level of education in analyzing the information received from the various information they receive. This data influences people's perception of vaccines and then influences people's willingness to vaccinate against COVID-19.

The cross-tabulation results indicated that most respondents were male, with a specific count of 197 persons, accounting for 49.2%. The chi-square test for bivariate analysis shows that the p-value for the gender component is 0.364, exceeding the significance level α of 0.05. The result suggests that the null hypothesis (H_0) is supported, indicating no statistically significant correlation between the gender component and public impression of vaccines. COVID-19 situation in Banjar District. This research aligns with a study conducted by Argista, which found no significant correlation between gender and general appearance impression of the COVID-19 vaccine (p-value = 0.411) [8]. The results of this study show that both men and women have equal access to information regarding the Covid-19 vaccine. In the cross-tabulation results, most respondents needed to work with sufficient perceptions but did not work with enough perceptions, namely 216 people (54%). The bivariate analysis results obtained by the chi-square test indicate that the work factor exhibits a p-value of 0.002, which is less than the significance level α of 0.05. Therefore, the null hypothesis (H_0) is disproven, indicating a substantial correlation between work variables and the public's impression of the COVID-19 vaccine in Banjar District.

A correlation exists between occupational variables and the public's impression of the COVID-19 vaccine in Banjar District. The findings of this study align with the research conducted by Oche et al., which also showed a correlation between job-related factors and individuals' perceptions of the COVID-19 vaccine [21]. Demonstrates that the work environment can impart knowledge or experience to an individual, directly or indirectly, impacting their ability to assimilate information. Employment is a determinant of an individual's perspective regarding the efficacy of the Covid-19 vaccine. The subset of non-employed respondents remains suboptimal in acquiring information regarding the COVID-19 vaccine, potentially impacting their perceptions of it [8]. Each person's perception is different due to differences in experience and the environment around which the person lives. The work environment can enable a person to gain experience and knowledge both directly and indirectly. Employed individuals generally exhibit a favorable attitude towards the COVID-19 vaccine due to their increased social interactions in the workplace and exposure to a wealth of information [22].

The cross-tabulation results in education indicated that most respondents, specifically 167 individuals (41.7%), possessed a high level of education and had a suitable level of perception. The chi-square test for bivariate

analysis indicates that the education component has a p-value of 0.044, below the significance level α of 0.05. This evidence can refute the null hypothesis (H_0). Hence, there exists a substantial correlation between educational variables and public sentiments on the COVID-19 vaccine in Banjar District.

This research aligns with a study conducted by Argista, which asserts a correlation between education and public perception of the COVID-19 vaccine (P-value = 0.038) [8]. Oche et al.'s findings suggest a positive association between educational variables and individuals' attitudes toward the COVID-19 vaccination [21]. The survey findings indicate that a significant portion of participants possess a high level of education. A solid educational background can positively impact the public's understanding of information regarding COVID-19 vaccination. Education plays a crucial role in the learning process, with higher education facilitating the reception of information. Upbeat news regarding the COVID-19 vaccine will likely influence public perception. A good education also enhances general knowledge and comprehension of COVID-19 vaccine information. Moreover, education fosters intellectual maturity, which is vital for effectively absorbing information. It increased insight and cognitive flexibility subsequently influence individuals' perceptions, values, attitudes, and, ultimately, their decision-making behavior [24].

Based on the cross-tabulation results, most respondents reported an income below the minimum wage of IDR 2,788,447. Specifically, 230 individuals (57.5%) had a sense of having sufficient income. The bivariate analysis, conducted using the chi-square test, indicates that the p-value for the income component of the monthly payment is 0.000, which is lower than the significance level α of 0.05. The rejection of the null hypothesis (H_0) indicates a significant association between the wealth factor and the public perception of COVID-19 vaccination in Banjar District.

It investigated the correlation between monthly income variables and public sentiment towards the COVID-19 vaccine in Banjar District. According to a study conducted by Elhadi et al., there is a significant correlation between individuals' economic situation, namely their monthly income, and their impressions of the COVID-19 vaccine. The study found a p-value of 0.001, indicating a solid statistical significance [25]. Suhadi et al. establish a correlation between the affluent status of a population and the substantial demand for healthcare, particularly regarding health services. Individuals with limited monthly earnings prioritize satisfying their primary needs before addressing other wants. Once an individual meets the criteria for interest, they will fulfill their health requirements. There is a positive correlation between economic status and health costs, meaning that as the financial rate rises, so do health expenditures. An individual's socioeconomic level is a crucial determinant of their willingness to accept the Covid-19 vaccination. Individuals of affluent socioeconomic standing demonstrate a desire to receive vaccination.

CONCLUSION

There is a relationship between socio-demographic factors, namely age, employment, last degree of education, and monthly income, with public perceptions about the COVID-19 vaccine in Banjar District. There is no relationship between socio-demographic characteristic factors, namely gender, and public perceptions about the COVID-19 vaccine in Banjar District.

Acknowledgments: The authors would like to thank the people of Banjar District as they were willing to participate in this research.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The author privately funded the entire cost of the research.

Conflict of interest statement: The authors declared no conflict of interest

REFERENCES

<https://doi.org/10.35814/jifi.v22i1.1565>

JIFI. 2024; 22(1): 61-69

- [1] WHO, "Draft Landscape Of COVID-19 Candidate Vaccines". [Online]. Available: <https://www.who.int/publication/m/draft-landscape-of-covid-19-candidates-vaccines>. [Accessed: Nov. 16, 2021].
- [2] Kementerian Kesehatan Republik Indonesia, *Pedoman Pencegahan dan Pengendalian Corona Virus Disease (Covid-19)*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2020.
- [3] E. Supriyatna, "Wabah Corona Virus Disease Covid-19 dalam Pandangan Islam," *Jurnal Sosial dan Budayaa Syar-i*, vol. 7, no. 6, pp. 555-564, 2020.
- [4] N. Sutrayanti, *Menyemai Benih Dharma Perspektif Multidisiplin*. Makassar: Ahmar Cendikia Indonesia Foundation, 2020
- [5] Kementerian Kesehatan Republik Indonesia, "Situasi Emerging Corona Disease 2019". [Online]. Available: <https://covid19.kemkes.go.id/category/situasi-infection-emerging/info-coronavirus/#.X6VXjsTiK00>. [Accessed: Nov. 20, 2021].
- [6] Kementerian Kesehatan Republik Indonesia, "Vaksinasi Covid-19 Nasional". [Online]. Available: <https://vaksin.kemkes.go.id/#/vaccines>. [Accessed: Nov. 20, 2021].
- [7] M. Génereux, et al., "Communication Strategies and Media Discourses in the Age of COVID-19: An Urgent Need for Action," *Health Promotion International*, vol. 36, no. 4, pp. 1178-1185, 2021
- [8] Z. Argista, "Persepsi masyarakat terhadap vaksin Covid-19 di Sumatera Selatan," Undergraduate Thesis, Faculty of Public Health, Sriwijaya University, 2021.
- [9] M. Al-Mohaithef and B.K. Padhi, "Determinants of COVID-19 Vaccine Acceptance in Saudi Arabia: A Web-Based National Survey," *J. Multidiscip. Healthc.*, vol. 13, pp. 1657-1663, 2020
- [10] D. Almaghaslah, A. Alsayari, G. Kandasamy, and R. Vasudevan, "COVID-19 Vaccine Hesitancy among Young Adults in Saudi Arabia: A Cross-Sectional Web-Based Study," *Vaccines*, vol. 9, no. 330, pp. 1-8, 2021
- [11] M. Alabdulla, S.M. Reagu, A. Al-Khal, M. Elzain, and R.M. Jones, "COVID-19 vaccine hesitancy and attitudes in Qatar: A national cross-sectional survey of a migrant-majority population," *Influenza Other Respir. Viruses*, vol. 15, pp. 361-370, 2021.
- [12] D. Callender, "Vaccine hesitancy: More than a movement," *Hum. Vaccines Immunother.*, vol. 12, no. 9, pp. 2464-2468, 2016
- [13] E.A. Harrison and J.W. Wu, "Vaccine confidence in the time of COVID-19," *Eur. J. Epidemiol.*, vol. 35, pp. 325-330, 2020.
- [14] Y. Lin, Z. Hu, Q. Zhao, H. Alias, M. Danaee, and L.P. Wong, "Understanding COVID-19 vaccine demand and hesitancy: A nationwide online survey in China," *PLoS Negl. Trop. Dis.*, vol. 14, no. 12, pp. e0008961, 2020
- [15] S. Schaffer Deroo, N.J. Pudalov, and L.Y. Fu, "Planning for a COVID-19 Vaccination Program," *JAMA*, vol. 323, no. 24, pp. 2458-2459, 2020
- [16] S. Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta, 2013.
- [17] R. Djola, "Hubungan Antara Tingkat Pendapatan Keluarga dan Pola Asuh dengan Status Gizi Balita di Desa Bongkudai Kecamatan Modayag Barat," Undergraduate Thesis, Sam Ratulangi University School of Public Health, 2011
- [18] Tasnim, "Faktor-Faktor yang Berhubungan dengan Persepsi Tenaga Kesehatan terhadap vaksin Covid-19 di Puskesmas X Tahun 2020", *Jurnal Kesehatan Masyarakat*, vol. 3, no.1, pp. 167-75, 2021.
- [19] R. Amelia, H. Wijaya, J. Harahap, and R. Rusdiana, "Citizens' perception of and willingness to receive COVID-19 vaccination in Medan, Indonesia," *IJID Regions*, vol. 8, pp. S39-S43, 2023
- [20] S.M. Al-Zalfawi, S.I. Rabbani, S.M.B. Asdaq, A.S. Alamri, W.F. Alsanie, M. Alhomrani, Y. Mohzari, A.A. Alrashed, A.H. AlRifdah, and T. Almagrabe, "Public Knowledge, Attitude, and Perception towards COVID-19 Vaccination in Saudi Arabia," *Int. J. Environ. Res. Public Health*, vol. 18, no. 10081, pp. 1-15, 2021.

- [21] O.M. Oche, H. Adamu, M. Yahaya, H.G. Illo, A.M. Danmadami, A. Ijapa, et al., "Perception and willingness to receive COVID-19 Vaccines: A cross-sectional survey of the general population of Sokoto State, Nigeria," *PLoS One*, vol. 17, no. 12, pp. 1-16, 2022.
- [22] D. Wulandari, et al., "Factors Associated with Health Workers' Perceptions of the COVID-19 Vaccine at Puskesmas X in 2020," *Journal of Public Health*, vol. 9, no. 5, pp. 660-668, 2021.
- [23] D. Subedi, S. Pantha, S. Subedi, A. Gautam, A. Gaire, D. Sapkota, S. Sapkota, M. Kandel, A. Parajuli, H. Ghimire, et al., "Perceptions towards COVID-19 Vaccines and Willingness to Vaccinate in Nepal," *Vaccines*, vol. 9, no. 12, pp. 1448, 2021.
- [24] Z. Arifin, *Evaluasi Pembelajaran*. Bandung: PT Remaja Rosdakarya, 2012
- [25] M. Elhadi, et al., "Knowledge, attitude, and acceptance of healthcare workers and the public regarding the COVID-19 vaccine: a cross-sectional study," *BMC Public Health*, vol. 21, no. 955, pp. 1-21, 2021