



KNOWLEDGE ABOUT COVID-19 VACCINE IN COMMUNITY: CROSS SECTIONAL STUDY

Mahdaniah^a ; Nurul Mardiaty^{b*} ; Wahyudi^c

^{a,b} *Departement of Social Behavior and Administration ; Faculty of Pharmacy ; Borneo Lestari University ; Kelapa Sawit 8 Street Bumi Berkat ; Banjarbaru 70714 ; Indonesia*

^c *Departement of Management ; Faculty of Social Sciences and Humaities ; Faculty of Pharmacy ; Borneo Lestari University ; Kelapa Sawit 8 Street Bumi Berkat ; Banjarbaru 70714 ; Indonesia*

Abstract

COVID-19 is an infectious disease that spreads through fluids when the infected person coughs or sneezes. Vaccination is one of the effective ways to prevent COVID-19. Good knowledge of COVID-19 vaccines will increase the willingness of people to get vaccinated. If the vaccination program is successful, it can reduce and prevent the transmission of COVID-19. Sociodemographic characteristics like education and income are significantly related to a person's knowledge of COVID-19 vaccination. The study aims to determine the relationship between the sociodemographic characteristics with the knowledge of the COVID-19 vaccine in the community of Banjar Regency. This study used a cross-sectional design and a descriptive-analytic analysis. There are 400 samples used and obtained using an accidental sampling technique. In the data analysis, univariate and bivariate analysis was used with the chi-square test. It found that the level of public knowledge of the COVID-19 vaccine in the Banjar Regency area is poor knowledge (40.3%) of the COVID-19 vaccine. There is a relationship between gender, age, education, income, and sources of knowledge about the COVID-19 vaccine in the community of Banjar regency.

Keywords: *sociodemographic characteristics; knowledge; COVID-19 vaccine*

1. Introduction

In December 2019, unidentified pneumonia first emerged in Wuhan, China. The World Health Organization (WHO) has officially announced the name of the new virus infection as (COVID-19) (Meskini et al., 2021). COVID-19 is an infectious disease that spreads through fluids when the infected person coughs or sneezes (WHO, 2021). Vaccination is one of the effective ways to prevent COVID-19 (Jiang et al., 2021). The COVID-19 vaccine is used to boost the body's immunity against the cause of COVID-19 (Abu Hammour, Abu Farha, Manaseer, & Al-Manaseer, 2022).

Based on the data from the Ministry of Health of Indonesia on November 6, 2021, for COVID-19 vaccination in South Kalimantan Province, especially Banjar Regency, the

vaccination only reached around 29.76% for the first dose and around 15.38% for the second dose (Kementerian Kesehatan RI, 2021). The other research recommends that to achieve herd immunity, at least 70% of the population should be vaccinated (Abu-Farha et al., 2021). In an interview with online media on December 9, 2021, The head of the South Kalimantan provincial health officials stated that the current stock of vaccines in districts/cities is sufficient to achieve the 70% target (Abadi, 2021). It shows that the success of the vaccination program in accelerating the decline of the pandemic depends on people's willingness to be vaccinated. Acceptance and rejection of the COVID-19 vaccine are primarily determined by public knowledge of the COVID-19 vaccine program's effectiveness, safety, hazards, and advantages (Kumari et al., 2021).

Proper knowledge has a big influence on determining the success of disease prevention, especially in preventing COVID-19 (Rusida,

^{*)} Corresponding Author (Nurul Mardiaty)
E-mail: nurulmardiaty2@gmail.com

Ramadhani, & Akbar, 2021). Previous research in Malaysia showed that sociodemographic characteristics like education and income were significantly related to a person's knowledge of the COVID-19 vaccination (Mohamed, Solehan, Mohd Rani, Ithnin, & Isahak, 2021). Thus, sociodemographic factors and the primary source of knowledge about the COVID-19 vaccine are essential to evaluate (Mardiati & Akbar, 2019). Good knowledge will increase the willingness of people to get the COVID-19 vaccine. Therefore, ensuring vaccine acceptance in the community is very important for a successful vaccination program to reduce and prevent the transmission of COVID-19. The research aims to determine the relationship between sociodemographic characteristics and the knowledge of the COVID-19 vaccine in the community in the Banjar Regency, South Kalimantan Province.

2. Method

This study used a cross-sectional design and a descriptive-analytic analysis. The study was carried out from January to March 2022 in Banjar Regency, South Kalimantan Province. The population in this study was people from Banjar Regency, about 372,645 people. There were 400 samples used and obtained using an accidental sampling technique with the inclusion and exclusion criteria. Inclusion criteria in this study included people who were domiciled in the Banjar Regency area (18-59 years old). The people had seen, heard, known, and used the COVID-19 vaccine and were willing to sign the form and take part in the study after getting an explanation of the research procedure. Those who had difficulty communicating (deaf and speech impaired) were excluded from this study.

Data were collected using a questionnaire that was implemented from the previous studies. The questionnaire used consisted of the primary and informed consent forms: section 1. Sociodemographic characteristics include gender, age, occupation, education, income, history of chronic disease, sources of knowledge of vaccines, and COVID-19 vaccination status; Section 2. Knowledge of the COVID-19 vaccine (vaccine benefits, post-vaccination clinical symptoms, high-risk populations, vaccine types and doses, and ingredients of the COVID-19 vaccine) consists of 8 statements. The validity and reliability of the questionnaire have been examined and show a valid and reliable questionnaire with a Cronbach's Alpha value of 0.705.

In this study, the researcher used univariate and bivariate data analyses. A univariate analysis was to describe the properties of each variable in the form of a frequency distribution. Two associated variables were put to bivariate analysis. The bivariate analysis used was a chi-square test. The Ethical Committee of Medical Research has approved ethical clearance for this study, Medical Faculty, University of Lambung Mangkurat (No.08/KEPK-FK ULM/EC/IV/2022).

3. Result and Discussion

Based on table 1, the study shows that the majority of respondents' gender were female with a total of 245 people (61.3%), young adults (18-40 years) 295 people (73.8%), not working people were 222 (55.5%), higher education as many as 214 people (53.5%), income is <minimum wage of South Kalimantan Province in 2022 which is IDR 2,906,473 as many as 303 people (75.8%), the respondents who did not have a history of chronic disease as many as 367 people (91.8%), sources of knowledge were electronic media (social media and TV) as many as 324 people (81%), those who had received dose 2 of vaccination as many as 231 people (57.8%).

Based on table 2, the study shows that the majority of respondents' level of knowledge of the COVID-19 vaccination is poor, as many as 161 people (40.3%). Mohamed et al (2021) stated that low educational background, low socioeconomic level, or knowledge about vaccinations from non-medical peers might all contribute to a lack of knowledge about vaccinations. Thus, the public needs to be provided with information to increase knowledge and awareness of the importance of COVID-19 vaccination (Abu Hammour et al., 2022).

The urgency of the COVID-19 vaccination constituted by the government, which includes public health services and collaboration with the health department, must encourage the community's behavior receiving COVID-19 vaccinations by providing accurate information about the vaccine and prioritizing the provision of vaccination for those who are most vulnerable to contracting COVID-19, such as the elderly, those with chronic diseases, those who do not have formal education and have poor knowledge of COVID-19 (Abebe, Shitu, & Mose, 2021).

Table 1. Sociodemographic Characteristics

Sociodemography	Frequency (n=400)	Percentage (%)
Gender		
Male	155	38.8
Female	245	61.3
Age		
Young Adults (18-40 Years Old)	295	73.8
Older Adult (>40 Years Old)	105	26.3
Occupation		
Not working	222	55.5
Working	178	44.5
Education		
Low education	186	46.5
Higher education	214	53.5
Income		
< Minimum Wage in South Kalimantan Province in 2022 (Rp2,906,473)	303	75.8
≥ Minimum Wage in South Kalimantan Province in 2022 (Rp2,906,473)	97	24.3
Chronic Disease History		
Yes	33	8.3
No	367	91.8
Sources of knowledge about the COVID-19 vaccine		
Family/Friends	76	19
Electronic Media (Social Media & TV)	324	81
COVID-19 Vaccination Status		
Not vaccinated	44	11
1 dose	70	17.5
2 dose	231	57.8
3 dose	55	13.8

Based on table 3, the study shows that there was a relationship between gender ($P=0.038$), age ($P=0.007$), education ($P=0.004$), income ($P=0.031$), and sources of knowledge of the COVID-19 vaccine ($P=0.023$) on knowledge of the COVID-19 vaccine in Banjar Regency community.

Table 2. Knowledge Level About COVID-19 Vaccine

Category	Sample (n=400)	
	Frequency (n)	Percentage (%)
Good	110	27.5
Enough	129	32.3
Poor	161	40.3

The findings of the relationship between gender and knowledge revealed that there is a relationship between gender and knowledge of the COVID-19 vaccination. This study's findings align with the other study by Duong et al (2022), which declared that the level of knowledge is significantly related to gender. In line with the study, another research in Saudi Arabia showed that women were found to be more knowledgeable about COVID-19 conducted

among the Saudi community (Duong, Duong, Nguyen, Nguyen Thi Quynh, & Nguyen, 2022).

Table 3. The Relationship between Sociodemographic Characteristics and Knowledge of the COVID-19 Vaccine

Sociodemographic characteristics	Knowledge level about COVID-19 vaccine			<i>p-value</i>
	Good n(%)	Enough n(%)	Poor n(%)	
Gender				
Male	33 (21.3)	49 (31.6)	73 (47.1)	0.038
Female	77 (31.4)	80 (32.7)	88 (35.9)	
Age				
Young adults (18-40 years old)	73 (24.7)	90 (30.5)	132 (44.7)	0.007
Older adults (>40 years old)	37 (35.2)	39 (37.1)	29 (27.6)	
Occupation				
Not working	69 (31.1)	67 (30.2)	86 (38.7)	0.195
Working	41 (23)	62 (34.8)	75 (42.1)	
Education				
Low education	45 (24.2)	50 (26.9)	91 (48.9)	0.004
Higher education	65 (30.4)	79 (36.9)	70 (32.7)	
Income				
< Minimum Wage in South Kalimantan Province	87 (28.7)	105 (34.7)	111 (36.6)	0.031
≥ Minimum Wage in South Kalimantan Province	23 (23.7)	24 (24.7)	50 (51.5)	
History of chronic disease				
Yes	12 (36.4)	10 (30.3)	11 (33.3)	0.473
No	98 (26.7)	119 (32.4)	150 (40.9)	
Sources of knowledge about the COVID-19 vaccine				
Family/friends	26 (34.2)	30 (39.5)	20 (26.3)	0.023
Electronic media (social media,TV)	84 (25.9)	99 (30.6)	141 (43.5)	

Compared to males, women typically have more knowledge of how to prevent COVID-19. Women have more time to read or discuss with others how to prevent COVID-19 (Wulandari et al., 2020).

The findings of the relationship between age and level of knowledge revealed that there is a relationship between age and knowledge of the COVID-19 vaccination. This study's findings align with other studies (Duong et al., 2022) which declared age and knowledge were significantly correlated. In line with the study, a different study by (Abu Hammour et al., 2022) found that participants over 45 had a higher knowledge score than others about the COVID-19 vaccination. Mature age is considered

to be between 36 and 45, considering that people at that age will have a good grasping pattern and thinking capacity, allowing their knowledge to improve. However, physical problems, such as visual and hearing impairments, can impede adult learning and, at times, reduce their capacity to think and work (Wulandari et al., 2020).

The finding of the relationship between work and level of knowledge revealed that there is no relationship between work and knowledge of the COVID-19 vaccination. This study's findings align with other studies by (Huynh et al., 2021), which declare no association between knowledge of the COVID-19 vaccine and work. In line with these results, a different study in Saudi Arabia showed that there wasn't any connection between health-related employment and unemployment with knowledge of the COVID-19 vaccine (Almalki, 2021).

The findings of the relationship between education and level of knowledge revealed that there is a relationship between education and knowledge of the COVID-19 vaccination. The findings of this study are consistent with those of other studies by (Abu Hammour et al., 2022) who found that higher knowledge scores about the COVID-19 vaccines were significantly connected with those with greater levels of education. In line with these studies, another study in Vietnam showed that education level was significantly associated with lower levels of general health knowledge, perhaps because this population was less likely to hear health information. In other words, higher educated individuals are more informed and concern themselves with potential health risks, such as the COVID-19 vaccination, and have more sources of health information at their disposal (Duong et al., 2022).

The findings of the analysis of the relationship between income and level of knowledge revealed that there is a relationship between income and knowledge of the COVID-19 vaccination. The findings of this study are consistent with those of other studies by (Mohamed et al., 2021), who stated that income was significantly associated with higher knowledge scores. In line with this study, another study in Vietnam showed that low income was significantly related to the knowledge about vaccines, perhaps because this population was less likely to hear health information (Duong et al., 2022).

The analysis of the relationship between a history of chronic disease and a level of

knowledge revealed no relationship between work and knowledge of the COVID-19 vaccination. The findings of this study are consistent with those of other studies by (Mohamed et al., 2021), which stated that there was no significant correlation between knowledge of the COVID-19 vaccine and a history of chronic disease. In line with these results, according to a different study conducted in Vietnam, there wasn't any connection between knowledge level and chronic health issues (Duong et al., 2022). People with chronic diseases have a high risk of getting a more severe COVID-19 infection if they have got COVID-19. The more chronic diseases they have, the higher their knowledge. Respondents with chronic diseases visit healthcare facilities for medical care, where they will quickly get information about COVID-19 (Afifah, Adi, Wurjanto, & Sarawati, 2021).

The analysis of the relationship between the source of knowledge about the COVID-19 vaccine and the level of knowledge revealed a relationship between the source of knowledge about the COVID-19 vaccine and knowledge of the COVID-19 vaccination. The findings of this study are consistent with those of other studies in India, which stated that the public's understanding of vaccines is greatly influenced by a variety of information sources, such as from health professionals, family, close friends, state institutions, media sources (radio and TV), and social media. Although many people rely on trustworthy sources of information, information from social media is a problem because it sometimes contains inaccurate information (Kumari et al., 2021). The government must take action to spread information about COVID-19 vaccines, such as through social media, to spread proper knowledge from trustworthy sources to the general community, especially those who are in remote areas and with a low socioeconomic status background. Additionally, collaboration with local community leaders can help influence the decisions of the community to get vaccinated (Kumari et al., 2021).

Limitations in this study, namely the sample distribution is not includes all sub-districts in Banjar Regency because limited time and resources. So therefore this study only covers 11 districts out of a total of 20 district in Banjar Regency.

4. Conclusion and Suggestion

There is a relationship between gender, age,

education, income, and sources of knowledge on knowledge of the COVID-19 vaccine in the community of Banjar Regency. We suggest other researchers with the same topic by informing the correct knowledge of the COVID-19 vaccine, which includes the benefits of vaccines. They must still get the vaccine even though they have been infected before and the age group that targets COVID-19 vaccination. This study aims to give trust and increase public knowledge of COVID-19 vaccination. Further research is expected to provide information regarding public knowledge of the behavior of COVID-19 vaccination.

5. Acknowledgments

All participants in the Banjar Regency, South Kalimantan Province, who agreed to participate as respondents in this study are acknowledged.

6. References

- Abadi. (2021). Dinkes Kalsel Ungkap Alasan Capaian Vaksinasi di Daerah Melempem. Retrieved December 13, 2021, from <https://klikkalsel.com/dinkes-kalsel-ungkap-alasan-capaian-vaksinasi-di-daerah-melempem/>
- Abebe, H., Shitu, S., & Mose, A. (2021). Understanding of COVID-19 vaccine knowledge, attitude, acceptance, and determinates of COVID-19 vaccine acceptance among adult population in Ethiopia. *Infection and Drug Resistance*, 14. <https://doi.org/10.2147/IDR.S312116>
- Abu-Farha, R., Mukattash, T., Itani, R., Karout, S., Khojah, H. M. J., Abed Al-Mahmood, A., & Alzoubi, K. H. (2021). Willingness of Middle Eastern public to receive COVID-19 vaccines. *Saudi Pharmaceutical Journal*, 29(7). <https://doi.org/10.1016/j.jsps.2021.05.005>
- Abu Hammour, K., Abu Farha, R., Manaseer, Q., & Al-Manaseer, B. (2022). Factors affecting the public's knowledge about COVID-19 vaccines and the influence of knowledge on their decision to get vaccinated. *Journal of the American Pharmacists Association*, 62(1). <https://doi.org/10.1016/j.japh.2021.06.021>
- Afifah, S. M., Adi, M. S., Wurjanto, M. A., & Sarawati, L. D. (2021). Gambaran Tingkat Pengetahuan Tentang Pencegahan Covid-19 Berdasarkan Karakteristik Masyarakat Di Kota Administrasi Jakarta Timur. *Jurnal Kesehatan Masyarakat*, 9(4).
- Almalki, M. J. (2021). Knowledge, Attitudes, and Practices Toward COVID-19 Among the General Public in the Border Region of Jazan, Saudi Arabia: A Cross-Sectional Study. *Frontiers in Public Health*, 9. <https://doi.org/10.3389/fpubh.2021.733125>
- Duong, M. C., Duong, B. T., Nguyen, H. T., Nguyen Thi Quynh, T., & Nguyen, D. P. (2022). Knowledge about COVID-19 vaccine and vaccination in Vietnam: A population survey. *Journal of the American Pharmacists Association*. <https://doi.org/10.1016/j.japh.2022.01.014>
- Huynh, G., Nguyen, T. Van, Nguyen, D. D., Lam, Q. M., Pham, T. N., & Nguyen, H. T. N. (2021). Knowledge about covid-19, beliefs and vaccination acceptance against covid-19 among high-risk people in ho chi minh city, vietnam. *Infection and Drug Resistance*, 14. <https://doi.org/10.2147/IDR.S308446>
- Jiang, N., Wei, B., Lin, H., Wang, Y., Chai, S., & Liu, W. (2021). Nursing students' attitudes, knowledge and willingness of to receive the coronavirus disease vaccine: A cross-sectional study. *Nurse Education in Practice*, 55. <https://doi.org/10.1016/j.nepr.2021.103148>
- Kementerian Kesehatan RI. (2021). Vaksinasi COVID-19 Nasional. Retrieved November 6, 2021, from <https://vaksin.kemkes.go.id/>
- Kumari, A., Ranjan, P., Chopra, S., Kaur, D., Kaur, T., Upadhyay, A. D., ... Vikram, N. K. (2021). Knowledge, barriers and facilitators regarding COVID-19 vaccine and vaccination programme among the general population: A cross-sectional survey from one thousand two hundred and forty-nine participants. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 15(3). <https://doi.org/10.1016/j.dsx.2021.04.015>
- Mardiati, N., & Akbar, D. O. (2019). Pengaruh Faktor Karakteristik Sociodemografi Terhadap Pengetahuan Tentang Obat Generik. *Jurnal Ilmiah Ibnu Sina*, 4(1), 137–148.
- Meskini, M., Rezghi Rami, M., Maroofi, P., Ghosh, S., Siadat, S. D., & Sheikhpour, M. (2021). An Overview on the Epidemiology and Immunology of COVID-19. *Journal of Infection and Public Health*, Vol. 14, pp. 1284–1298. <https://doi.org/10.1016/j.jiph.2021.07.021>
- Mohamed, N. A., Solehan, H. M., Mohd Rani, M. D., Ithnin, M., & Isahak, C. I. C. (2021).

- Knowledge, acceptance and perception on COVID-19 vaccine among Malaysians: A web-based survey. *PLoS ONE*, Vol. 16. <https://doi.org/10.1371/journal.pone.0256110>
- Rusida, E. R., Ramadhani, S., & Akbar, D. O. (2021). Hubungan Pengetahuan Terhadap Perilaku Penggunaan Suplemen dan Obat Herbal dalam Mencegah Penularan Covid-19 di Banjarbaru Selatan. *Jurnal Ilmiah Ibnu Sina*, 6(2), 292–300.
- WHO. (2021). Coronavirus Disease (COVID-19). Retrieved November 7, 2021, from <https://www.who.int/healthtopics/coronavirus>
- Wulandari, A., Rahman, F., Pujianti, N., Sari, A. R., Laily, N., Anggraini, L., ... Prasetio, D. B. (2020). Hubungan Karakteristik Individu dengan Pengetahuan tentang Pencegahan Coronavirus Disease 2019 pada Masyarakat di Kalimantan Selatan. *Jurnal Kesehatan Masyarakat Indonesia*, 15(1). <https://doi.org/10.26714/jkmi.15.1.2020.42-46>