Jurnal Berkala Epidemiologi
Volume 11 No 1. January 2023. 60 – 67
p-ISSN: 2301-7171; e-ISSN: 2541-092X

DOI: 10.20473/jbe.v11i12023.60–67
https://e-journal.unair.ac.id/JBE/
Email: jbe@fkm.unair.ac.id / jbepid@gmail.com

JBE Jurnal Berkala EPIDEMIOLOGI

Jurnal Berkala
EPIDEMIOLOGI
PERIODIC EPIDEMIOLOGY JOURNAL

ORIGINAL ARTICLE

BARRIER PERCEPTION FACTORS AFFECTING THE ACCEPTANCE OF THE COVID-19 VACCINE IN SALATIGA CITY

Hubungan Faktor Penghambat Vaksinasi dengan Penerimaan Vaksin COVID-19 di Kota Salatiga

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ARTICLE INFO

Article History:
Received August, 25th, 2021
Revised form June, 8th, 2022
Accepted January, 7th, 2023
Published online January, 29th, 2023

Keywords:
Acceptance;
barriers;
COVID-19;
vaccine

Kata Kunci:
Penerimaan;
hambatan;
COVID-19;
vaksin

ABSTRACT

Background: In Salatiga City, COVID-19 immunization still needs to meet the 70% vaccination target needed to generate herd immunity. Vaccine scepticism and injection phobia can be barriers. A study of community barriers to COVID-19 vaccination and vaccine uptake is needed. **Purpose:** This study aimed to analyze barriers affecting the acceptance of the COVID-19 vaccine in Salatiga City. **Methods:** The study collected data from 323 Salatiga City people. Fear of pain, doubts about the COVID-19 vaccine, perception of fear of AEFI (Adverse Events Following Immunization), perception of accessibility of the COVID-19 vaccine, and the perception of information about the COVID-19 vaccine were independent variables in this study. Acceptance of COVID-19 vaccination is dependent. Data analysis using Chi-Square with 0.05 significance. **Results:** The results of this study found a relationship between fear of pain (p-value = 0.00), doubt about the COVID-19 vaccine (p-value = 0.00), perception of fear of AEFI (p-value = 0.00), perception of accessibility of COVID-19 vaccine (p-value = 0.00), and perception of information about COVID-19 vaccine (p-value = 0.00) and acceptance of the COVID-19 vaccine by Salatiga City residents. **Conclusion:** Perceived COVID-19 vaccination barriers affected vaccine acceptance. Acceptance of COVID-19 vaccination in Salatiga City is related to fear of pain, doubt about the COVID-19 vaccine, perception of fear of AEFI, perception of accessibility of the COVID-19 vaccine, and perception of information about the COVID-19 vaccine. Salatiga City's COVID-19 education efforts should focus on vaccine safety and side effects in collaboration with health cadres and cross-sector collaboration.

ABSTRAK

Latar Belakang: Pelaksanaan vaksinasi COVID-19 di Kota Salatiga belum dapat mencapai target vaksinasi, yaitu minimal 70% masyarakat harus

How to Cite: Ma'rifati, L., Udijono, A., & Kusariana, N. (2023). Barrier perception factors affecting the acceptance of the COVID-19 vaccine in Salatiga city. *Jurnal Berkala Epidemiologi, 11(*1), 60-67. https://dx.doi.org/10.20473/jbe.11i1 2023. 60-67

melakukan vaksinasi COVID-19 untuk dapat membentuk kekebalan kelompok. Hal tersebut dapat disebabkan oleh adanya berbagai faktor penghambat, seperti takut disuntik dan keraguan pada vaksin. Oleh karenanya, kajian mengenai hambatan vaksinasi COVID-19 yang dirasakan oleh masyarakat yang berkaitan dengan penerimaan vaksin COVID-19 perlu dilakukan. **Tujuan:** Tujuan dari penelitian ini adalah menganalisis hubungan faktor penghambat vaksinasi dengan penerimaan vaksin COVID-19 di Kota Salatiga. **Metode:** Penelitian menggunakan studi analitik observasional berbasis metode *cross sectional* dengan sampel masyarakat umum Kota Salatiga yang berusia minimal 18 tahun sebanyak 323 responden. Variabel bebas dalam penelitian ini yaitu ketakutan akan rasa sakit, keraguan akan vaksin COVID-19, persepsi ketakutan KIPI (Kejadian Ikutan Pasca Imunisasi), persepsi aksesibilitas vaksin COVID-19, dan persepsi informasi vaksin COVID-19. Sedangkan variabel terikat adalah penerimaan vaksin COVID-19. Data penelitian didapatkan melalui wawancara menggunakan kuesioner. **Hasil:** Penelitian ini menunjukkan adanya hubungan antara ketakutan rasa sakit (nilai p=0,00), keraguan pada vaksin COVID-19 (nilai p=0,00), persepsi ketakutan KIPI (nilai p=0,00), persepsi aksesibilitas vaksin COVID-19 (nilai p=0,00), dan persepsi informasi vaksin COVID-19 (nilai p=0,00) dengan penerimaan vaksin COVID-19 pada masyarakat Kota Salatiga. **Kesimpulan:** Penerimaan vaksin COVID-19 secara statistik dipengaruhi oleh hambatan vaksinasi COVID-19 yang dirasakan.

INTRODUCTION

Since its discovery in China in December 2020, COVID-19 has created a pandemic in practically every country worldwide (1). According to a report released on July 16, 2021, by the Committee for the Handling of COVID-19 and National Economic Recovery (KPC-PEN), 2,983,830 people have been proven to have COVID-19, with 77,583 people dying in Indonesia (COVID-19 Case Fatality Rate = 2.60%). This percentage is still higher than the global CFR of 2.56% (2).

Central Java Province was ranked third in the number of confirmed cases of COVID-19, which accounted for 11.20% of confirmed cases of COVID-19 throughout Indonesia. With 14,974 deaths, Central Java also has Indonesia's second-highest death rate of any province. With a CFR of 4.55%, the COVID-19 fatality rate in Central Java is higher than the national rate. One of the Central Java regencies with the most COVID-19 cases is Salatiga City. Salatiga City is also one of 28 Central Java regencies with a high risk of COVID-19 infection (2). On July 21, 2021, there were 8,328 confirmed cases of COVID-19 in Salatiga City, with 214 persons dying (CFR=2.57%) (3).

The government has declared that one of the attempts to limit the spread of COVID-19 is the implementation of the COVID-19 vaccine. Vaccination is believed to create herd immunity, linked to future community productivity increases (4). The percentage of COVID-19 vaccination coverage in Indonesia until July 2021 has only reached 20.46% of the total planned vaccination target (2).

A survey conducted by the Indonesian Ministry of Health (Kemenkes RI) with ITAGI (Indonesian Technical Advisory Group on Immunization) in Indonesia in 2020 showed that 26% of the population refused to vaccinate against COVID-19 (5). According to the findings of a preliminary study conducted in Salatiga, 48% of persons declined COVID-19 immunization. It demonstrates that less than 70% of people are receiving vaccines. A minimum vaccination rate of 70% is required to build herd immunity (6).

The Health Belief Model theory explains that the perception of obstacles preventing disease will affect a person's willingness to take preventive action (7). Acceptance rates for COVID-19 vaccination will increase in individuals with low perceived barriers (8). According to studies conducted in China, 47.80% of respondents decided to delay vaccination until the vaccine's safety and effectiveness were verified (8). The acceptance rate of the COVID-19 vaccine is also significantly related to public confidence in the news about COVID-19 and scientific research (9). Several studies show a link between worries

regarding COVID-19 vaccine side effects (AEFI) and vaccine acceptance (10).

One of the barriers to vaccination is doubt regarding the halal issue, safety, and efficiency of the COVID-19 vaccine in generating protection in the body. Furthermore, the notion that the vaccine production process is rushed and risky can lead to rejecting of the COVID-19 vaccine (11). According to Reiter et al (12), there is a link between a person's impression of the COVID-19 vaccine's hazards and their decision to receive the vaccine. This study aimed to analyze barriers affecting the acceptance of the COVID-19 vaccine in Salatiga City.

METHODS

This research has passed the ethical review by the Health Research Ethics Committee, Faculty of Public Health, Universitas Diponegoro, with the number 92/EA/KEPK-FKM/2021. This study uses an observational analytic method with a cross-sectional study design in the general public of Salatiga City, who is at least 18 years old and has lived for at least 6 months before the study was conducted. This study was conducted in January 2021, before the Indonesian Ministry of Health announced vaccination instructions. Therefore respondents were only identified by age and length of stay in Salatiga City. The research sample was 323 respondents who were taken using a non-probability sampling technique, namely accidental sampling. This study relied on accidental sampling because the number of Salatiga City residents aged 18 and older who are eligible for the COVID-19 vaccine and have lived in Salatiga City for at least 6 months cannot be determined with absolute certainty. The independent variables are the fear of pain, doubts about the COVID-19 vaccine, the fear of the emergence of AEFIs, the perception of the accessibility of the COVID-19 vaccine, and the perception of information about the COVID-19 vaccine, and the dependent variable is the receipt of the COVID-19 vaccine.

The fear of vaccination pain variable measures the respondent's fear of the pain caused during and after being injected with the COVID-19 vaccine. The variable of doubt about the COVID-19 vaccine measures the respondent's level of doubt about the COVID-19 vaccination, where the doubts about vaccines are viewed from the perspective of the halal issue, safety, effectiveness, quality, and the process of forming a COVID-19 vaccine. The AEFI (Adverse Events Following Immunization) perception variable is the respondent's opinion about being exposed to AEFI. The vaccine accessibility perception variable assesses respondents' willingness and ability to obtain vaccines. The variable perception of COVID-19 vaccine information is an opinion about how much influence information and issues regarding vaccines have on the level of acceptance of COVID-19 vaccination. In contrast, the variable acceptance of the COVID-19 vaccine measures the willingness of respondents to vaccinate against COVID-19.

The independent variable was assessed using remarks on a Likert scale in the form of straightforward statements. The information for this study was gathered through interviews and a questionnaire. The research took place between December 2020 and June 2021. Data analysis used Chi-Square statistical test with a significance value of $\alpha < 0.05$.

RESULTS

According to Table 1, there were more women (62.54%) than men (37.46%) among the respondents in this study, with half of them being between the ages of 18 and 25 (50.50%). Respondents willing to get vaccinated against COVID-19 (61.30%) are more than those not vaccinated (38.70%). However, most respondents were unwilling to pay the vaccination fee (88.50%).

Table 2 shows that respondents with a high fear of vaccination pain (41.50%) were more likely to refuse immunization than those with a low fear of vaccination pain (16.70%). Respondents with high COVID-19 vaccine doubt (76.20%) had a more significant proportion value of not being willing to vaccinate than respondents with low COVID-19 vaccine doubt (0%).

Then respondents with a high perception of AEFI fear (53%) had a higher proportion of not willing to vaccinate than respondents with a low AEFI fear perception (0%). Fourth, respondents with a high perception of the COVID-19 vaccine's accessibility (74.80%) had a more significant percentage of unwillingness to vaccinate than respondents who had a low perception of the COVID-19 vaccine's accessibility (1.90%). Last, respondents with a high perception of COVID-19 vaccine information (68.20%) were more likely to be unwilling to vaccinate than those with a low perception of COVID-19 vaccine information (3.40%).

Table 1
Characteristics of Research Respondents

Characteristics	n	%
Gender		
Female	202	62.54
Male	121	37.46
Total	323	100.00
Age (years)		
18 – 25	163	50.50
26 – 35	31	9.60
36 – 45	60	18.60
46 – 55	44	13.60
56 – 65	18	5.60
>65	7	2.20
Total	323	100.00
Acceptance of the COVID-19 Vaccine		
Willing	198	61.30
Not willing	125	38.70
Total	323	100.00
Willingness to pay for vaccines		
Willing	37	11.50
Not willing	286	88.50
Total	323	100.00

According to Table 2, fear of pain (p-value= 0.00), doubts about the COVID-19 vaccine (p-value = 0.00), perception of AEFI (p-value = 0.00), perception of vaccine accessibility (p-value = 0.00), and perception of COVID-19 vaccine information (p-value = 0.00) were all statistically related to COVID-19 vaccine acceptance.

DISCUSSION

Salatiga City has a reasonable vaccination rate; however, it falls short of the COVID-19 vaccination target of 70% (6). Based on the result of this study, we know that fear of pain is related to vaccination against COVID-19, and it has a barrier to the vaccination of COVID-19 in Salatiga City. Fear of pain is one of the things that prevents people from being vaccinated (13). There is a relationship between fear of injections and acceptance of the COVID-19 vaccine, one of the barriers to vaccination (13,14). This solution is intended to increase people's willingness to vaccinate, exceedingly those afraid of injections, so other COVID-19 vaccines need to be considered.

In this study, it was discovered that there was a statistical relationship between doubt about the COVID-19 vaccine and their acceptance of the vaccine in Salatiga City. Vaccination doubts caused by doubts about the halal issue, safety, and effectiveness of the COVID-19 vaccine are also barriers for someone to vaccination (15). Concern about vaccine safety is a significant factor contributing to the increase in vaccination doubt, defined as delaying acceptance or refusal of a vaccine even though a vaccine is readily available (16). This result is in line with the research of Hossain et al (17), which stated that there was a negative relationship between the potential dangers posed by the COVID-19 vaccine and the acceptance of the COVID-19 vaccine in the community.

Vaccine safety concerns were more likely to deter people from vaccination than cost concerns (18). The public will tend not to be willing to vaccinate against COVID-19 if its safety and effectiveness have not been proven, even though the vaccine has been made accessible by the government (19). The acceptance rate of the COVID-19 vaccine will increase significantly to 63.20% if its safety and effectiveness have been proven (13).

Low public confidence in the COVID-19 vaccination could be related to a lack of public knowledge about the vaccine (20). Based on the result of interviews, most respondents believe that the COVID-19 vaccine will prevent them from becoming infected with COVID-19. As a result, most people are beginning to doubt the function and benefits of vaccination after observing some persons who have been vaccinated but remain diseased.

This study also found that the perception of fear of AEFI statistically correlates with acceptance of the vaccine in Salatiga City. The fear of being exposed to AEFI was the barrier to immunization that the community encountered (21). This result is in line with the findings of Goruntla et al (22), a study in India, which found that respondents with high perceptions of COVID-19 vaccination side effects had lower intentions to receive the vaccine. The Indonesian Ministry of Health has tried to disseminate information about AEFI. However, some people received information about a more severe AEFI, such as news that the vaccine caused several people to faint, become infected with COVID-19, and even die (23). This statement shows that concerns about AEFI have raised public doubts and rejection of the COVID-19 vaccine (24).

Table 2
Bivariate Analysis of Independent Variables with COVID-19 Vaccine Acceptance in Salatiga City

Factor	%	Vaccine Acceptance				P-value	Prevalence Ratio	95% CI	
		Willing		Not Willing					
		n	%	n	%				
Fear of Pain									
High	88.10	168	58.50	119	41.50	0.00	0.28	0.11	0.70
Low	11.10	30	83.30	6	16.70				
Doubt about the COVID-19 Vaccine									
High	50.80	39	23.80	125	76.20	0.00	0.24	0.18	0.31
Low	49.20	159	100.00	0	0.00				
Perception of Fear of AEFI									
High	71.80	109	47.00	123	53.00	0.00	0.02	0.01	0.08
Low	28.20	89	97.80	2	2.20				
Perception of Accessibility of COVID-19 Vaccine									
High	50.50	41	25.20	122	74.80	0.00	0.01	0.00	0.02
Low	49.50	157	98.10	3	1.90				
Perception of Information about COVID-19 Vaccine									
High	54.50	56	31.80	120	68.20	0.00	0.02	0.01	0.04
Low	45.50	142	96.60	5	3.40				

In this study, we know that the perception of accessibility of the COVID-19 vaccine is related to the acceptance of the COVID-19 vaccine in Salatiga City. The research by Wong et al (19) and Callaghan et al (25) is in line with the results of this study that there is a negative relationship between barriers to access to vaccines and acceptance of COVID-19 vaccines.

This study found that individuals who are unwilling to take the COVID-19 vaccine have a higher perception of the vaccine's accessibility than those who are willing to receive it. Vaccine accessibility is seen from how easy it is for someone to get the vaccine and be able to get the COVID-19 vaccine. Getting a COVID-19 vaccine is based on a person's ability to pay for the vaccine. A person with a high perception of accessibility is defined as someone with a higher barrier to access (26). People are willing to vaccinate if the available vaccine is free. Several studies have shown that some people will refuse to vaccinate if the vaccine is paid for (27,28). Another study found that one of the reasons people decline to be vaccinated is the belief that vaccinations are limited and that many people require vaccines more than they do (29).

A person who does not work has a lower rate of receiving vaccines than someone who is employed or retired (29). This result shows that one of the factors preventing people from receiving the COVID-19 vaccine is the cost of the vaccine. As a result, everyone from all walks of life should be able to get the COVID-19 vaccine, and it should be free of charge. If a paid COVID-19 vaccine is launched in the future, the vaccination price must be reviewed to ensure that it is acceptable and affordable for the community (27).

Based on the data from this study, a statistical relationship was also found between perceptions of COVID-19 vaccine information and acceptance of COVID-19 vaccinations. The respondent's perception of COVID-19 vaccine information is their assessment of how much information and issues about vaccines influence community acceptance of COVID-19 immunization. According to the study's findings, hoaxes or negative news regarding the COVID-19 vaccination have captured the public's attention, making people fearful of vaccinating against COVID-19. This shows that the public knows vaccine-related issues and information can influence people's willingness to vaccinate.

Based on information from respondents, it was also known that most of the research respondents did not receive counseling from local health workers regarding COVID-19 vaccination. This is possible because all information regarding the COVID-19 vaccination is only disseminated online or on social media, where not all people have access to social media. In reality, counseling is one technique to sway a person's interest in adopting healthy habits and taking preventive actions (30). As a result, both online and offline

immunization campaigns for COVID-19 must continue to increase awareness and direct public participation.

One factor directly associated with the acceptance of the COVID-19 vaccine is public trust in the vaccination (16). The government, health workers, and local community leaders must work together to combat this problem. Conversely, the government plays a crucial role in preventing incorrect vaccine information from spreading on social media (24).

Health staff should be concerned with public complaints, particularly concerning the COVID-19 vaccine. Community leaders must be included as immunization role models in each location to promote public confidence and reduce public worries, particularly with AEFI. The government must also actively ensure that any news the public consumes is accurate. This significantly impacts public trust in the government, which has a good impact on people's willingness to vaccinate (19).

The government must take an active role in dealing with this situation. Government support and recommendations are more vital than support from doctors and families as the essential factors for immunization (aOR = 10.20) (Wong et al., 2021). The government plays an essential role in educating the public about the effectiveness, halal issues, and safety of vaccine brands used by the government (24).

Research Limitations (Optional)

Because the researcher did not employ a probability sampling technique to choose the research sample, the findings could not be applied to a larger population. Research data might be utilized as an example for future studies. This research is also limited to an individual's perception of the COVID-19 vaccine, which may impede community acceptance. As a result, many barriers to the COVID-19 vaccination program have yet to be investigated, such as individual health factors, public knowledge about vaccines, and others. Consequently, future studies must evaluate additional impeding factors to strengthen research findings.

CONCLUSION

The study's results found that a small part of the people of Salatiga City was still reluctant to vaccinate against COVID-19. It can be influenced by several aspects, one of which is the aspect of vaccination barriers. This study shows the fear of pain, doubts about the COVID-19 vaccine, the perception of fear of AEFI, the perception of the accessibility of the COVID-19 vaccine, and the perception of information about the COVID-19 vaccine have a relationship with the acceptance of the COVID-19 vaccine in Salatiga City. Someone with high barriers to COVID-19 vaccination will tend to want to avoid vaccination. Efforts to increase public participation in COVID-19 vaccination must also pay attention to the barriers to COVID-19 vaccination that are felt by the community.

CONFLICT OF INTEREST

The authors declare no known competing conflicts of interest.

AUTHOR CONTRIBUTIONS

All authors contributed significantly to this study. LM and AU supervised data collection. LM was responsible for the analysis of the data. LM and NK led the initial drafting of the manuscript. All authors provided critical revisions to manuscript drafts adding important intellectual content. All authors approve of the final version of the manuscript and agree to be accountable for all aspects of the work.

ACKNOWLEDGMENTS

The government of Salatiga City and the Salatiga City Health Office have given space and permission to the authors to conduct research in Salatiga City. The authors also thank the Faculty of Public Health at Universitas Diponegoro for all the facilities supporting this research implementation.

REFERENCES

1. Acter T, Uddin N, Das J, Akhter A, Choudhury TR, Kim S. Evolution of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as coronavirus disease 2019 (COVID-19) pandemic: A global health emergency. Sci Total Environ. 2020;730:138996.
2. KPC-PEN. Data sebaran kasus COVID-19 dan capaian vaksinasi COVID-19. Covid19.go.id. 2021.
3. Dinkes Kota Salatiga. Update informasi COVID-19 Kota Salatiga 16 Juli 2021.

Humas Setda Kota Salatiga. 2021.

4. Permenkes RI. Pelaksanaan vaksinasi dalam rangka penanggulangan pandemi Corona Virus Disease 2019 (COVID-19). Jakarta; 2020 p. 1–22.
5. Kemenkes RI, ITAGI, WHO, UNICEF. Survei penerimaan vaksin COVID-19 di Indonesia. Jakarta; 2020.
6. Bartsch SM, O'Shea KJ, Ferguson MC, Bottazzi ME, Wedlock PT, Strych U, et al. Vaccine efficacy needed for a COVID-19 Coronavirus Vaccine to prevent or stop an epidemic as the sole intervention. Am J Prev Med. 2020;59(4):493–503.
7. Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the Health Belief Model. Heal Educ Behav. 1988;15(2):175–83.
8. Wang J, Jing R, Lai X, Zhang H, Lyu Y, Knoll MD, et al. Acceptance of COVID-19 vaccination during the COVID-19 pandemic in China. Vaccines. 2020;8(482):1–14.
9. Murphy J, Vallières F, Bentall RP, Shevlin M, McBride O, Hartman TK, et al. Psychological characteristics associated with COVID-19 vaccine hesitancy and resistance in Ireland and the United Kingdom. Nat Commun. 2021;12(1):1–15.
10. Lin Y, Hu Z, Zhao Q, Alias H, Danaee M, Wong LP. Understanding COVID-19 Vaccine Demand and Hesitancy: A Nationwide Online Survey in China. PLOS Neglected Trop Dis. 2020;14(12).
11. Ward JK, Alleaume C, Peretti-watel P. Social Science & Medicine The French public's attitudes to a future COVID-19 vaccine : The politicization of a public health issue. Soc Sci Med. 2020;265(113414).
12. Reiter PL, Pennell ML, Katz ML. Acceptability of a COVID-19 vaccine among adults in the United States : How many people would get vaccinated ? Vaccine. 2021;38(42):6500–7.
13. Tran VD, Pak T V., Gribkova EI, Galkina GA, Loskutova EE, Dorofeeva V V., et al. Determinants of COVID-19 Vaccine Acceptance in a High Infection-rate Country: A Cross-sectional Study in Russia. Pharm Pract (Granada). 2021;19(1):1–9.
14. Neumann-Böhme S, Varghese NE, Sabat I, Barros PP, Brouwer W, van Exel J, et al. Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. Eur J Heal Econ. 2020;21(7):977–82.
15. Ali M, Hossain A. What is the extent of COVID-19 vaccine hesitancy in Bangladesh? A cross-sectional rapid national survey. BMJ Open. 2021;11(8).
16. Borriello A, Master D, Pellegrini A, Rose JM. Preferences for a COVID-19 vaccine in Australia. Vaccine. 2021;39(3):473–9.
17. Hossain MB, Alam MZ, Islam MS, Sultan S, Faysal MM, Rima S, et al. COVID-19 vaccine hesitancy among the adult population in Bangladesh: A nationwide cross-sectional survey. PLoS One. 2021;16(12):e0260821.
18. Chu H, Liu S. Integrating health behavior theories to predict American's intention to receive a COVID-19 vaccine. Patient Educ Couns. 2021;S0738-3991(21):00129–4.
19. Wong MCS, Wong ELY, Huang J, Cheung AWL, Law K, Chong MKC, et al. Acceptance of the COVID-19 vaccine based on the health belief model: A population-based survey in Hong Kong. Vaccine. 2021;39(7):1148–56.
20. Raja AS, Niforatos JD, Anaya N, Graterol J, Rodriguez RM. Vaccine hesitancy and reasons for refusing the COVID-19 vaccination among the U.S. public: A cross-sectional survey. medRxiv. 2021;
21. Zhao Y-M, Liu L, Sun J, Yan W, Yuan K, Zheng Y-B, et al. Public Willingness and Determinants of COVID-19 Vaccination at the Initial Stage of Mass Vaccination in China. Vaccines. 2021;9(10):1172.
22. Goruntla N, Chintamani SH, P B, S S, Veerabhadrappa KV, Bhupalam P, et al. Predictors of acceptance and willingness to pay for the COVID-19 vaccine in the general public of India: A health belief model approach. Asian Pac J Trop Med. 2021;14(4):165–75.
23. Dwipayana IDAP, Sutarini IDAAD. COVID-19 vaccination options for immunosuppressed cancer patients. J Berk Epidemiol. 2021 Jan 29;9(1).
24. Shekhar R, Sheikh AB, Upadhyay S, Singh M, Kottewar S, Mir H, et al. COVID-19

Vaccine acceptance among health care workers in the United States. Vaccines. 2021;9(2):119.

25. Callaghan T, Moghtaderi A, Lueck JA, Hotez P, Strych U, Dor A, et al. Correlates and disparities of intention to vaccinate against COVID-19. Soc Sci Med. 2021;272(113638).
26. Crawshaw AF, Deal A, Rustage K, Forster AS, Campos-Matos I, Vandrevala T, et al. What must be done to tackle vaccine hesitancy and barriers to COVID-19 vaccination in migrants? J Travel Med. 2021;28(4):1–4.
27. Schwarzinger M, Watson V, Arwidson P, Alla F, Luchini S. COVID-19 vaccine hesitancy in a representative working-age population in France: a survey experiment based on vaccine characteristics. Lancet Public Heal. 2021;6(4):e210–21.
28. Wang J, Lyu Y, Zhang H, Jing R, Lai X, Feng H. Willingness to Pay and Financing Preferences for COVID-19 Vaccination in China. Vaccine. 2020;39(14):1968–76.
29. Robertson E, Reeve KS, Niedzwiedz CL, Moore J, Blake M, Green M, et al. Predictors of COVID-19 vaccine hesitancy in the UK household longitudinal study. Brain Behav Immun. 2021;94:41–50.
30. Herdyana E, Husnunisa W. Perbedaan minat ibu hamil trimester III dalam menggunakan AKDR pasca plasenta sebelum dan sesudah penyuluhan. J Kebidanan Dharma Husada. 2017;6(2):147–52.