FACTORS ASSOCIATED WITH AEFI OF COVID-19 VACCINATION IN PREGNANT WOMEN

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ABSTRAK FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KIPI VAKSINASI COVID-19 PADA IBU HAMIL

Latar Belakang. Kelompok ibu hamil menjadi kelompok yang rentan terhadap infeksi COVID-19 karena pada ibu hamil tubuh mengalami penurunan kekebalan imunitas tubuh, sehingga rentan terinfeksi virus. Perubahan fisiologis juga terjadi pada kehamilan, seperti peningkatan diafragma, peningkatan kebutuhan oksigen, dan edema mukosa saluran pernafasan yang sangat berisiko terkena hipoksia (Prawihardjo,2018).

Tujuan. Diketahuinya Faktor-faktor yang mempengaruhi KIPI Vaksinasi covid-19 pada ibu hamil di Puskesmas Kemayoran Tahun 2022.

Metode. Desain penelitian yang digunakan adalah metode deskriptif kuantitatif dengan pendekatan cross sectional dengan desain penelitian retrospektif suatu penelitian dengan melakukan pengamatan ibu hamil dengan KIPI Vaksinasi covid-19 yang melakukan antenatal care di Puskesmas Kemayoran dalam satu kali waktu pada waktu bersamaan dengan jumlah sampel 80 orang ibu hamil.

Hasil. Berdasarkan hasil penelitian yang telah dilakukan di poli KIA Puskesmas Kecamatan Kemayoran dari 80 responden diperoleh informasi bahwa responden mengalami KIPI sebanyak 69 responden (69%), dan tidak mengalami KIPI hanya 11 responden (31%). Berdasarkan data hasil penelitian bahwa ada sekitar 93,5% responden yang berlatar belakang pendidikan tinggi tentang vaksinasi covid 19. Salah satu faktor yang dapat mempengaruhi pengetahuan seseorang adalah tingkat pendidikan.

Kesimpulan. Hasil analisis didapatkan bahwa variable pengetahuan adalah variable yang paling dominan p value = 0,024. Sehingga dapat disimpulkan bahwa variable yang paling dominan terkait KIPI vaksinasi adalah variable pengetahuan.

Saran Tenaga Kesehatan Puskesmas Kemayoran, Jakarta Pusat, sebaiknya berkolaborasi dengan kader Puskesmas dan tokoh masyarakat untuk memberikan vaksinasi COVID-19 pada ibu hamil, terutama pada usia kehamilan >13 minggu.

Kata kunci : Vaksin, IbU Hamil , KIPI, covid 19

ABSTRACT

Background. Pregnant women are categorized as the vulnerable group to COVID-19 infection due to their decreased immune system, making them susceptible to virus infection. Physiological changes also occur during pregnancy such as an increase in the diaphragm, increased oxygen demand, and edema of the respiratory tract mucosa which is at high risk of hypoxia (Prawihardjo, 2018).

Objective. Determine the factors that influence AEFI of COVID-19 vaccination in pregnant women at Kemayoran Public Health Center in 2022.

Method. The research design used was a quantitative descriptive method with a cross-sectional approach with a retrospective research design by observing pregnant women with AEFI of COVID-19 vaccination who carried out antenatal care at Kemayoran Public Health Center one time at the same time with a sample of 80 pregnant women.

Results. Based on the results of the study conducted at the MCH polyclinic at Kemayoran Public Health Center, of the 80 respondents, 69 respondents (69%) experienced AEFI, and only 11 respondents (31%) did not experience AEFI. Further, 93.5% of respondents who had a higher educational background were well-informed about the covid 19 vaccination. The level of education can affect a person's knowledge.

Conclusion. The results of the analysis found that the knowledge variable was the most dominant variable with a p-value of 0.024. Thus, it could be concluded that the most dominant variable related to the AEFI of vaccination was the knowledge variable.

Suggestion

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Health Workers of Kemayoran Public Health Center, Central Jakarta, should collaborate with cadres of integrated healthcare centers and community leaders to provide COVID-19 vaccinations for pregnant women, especially for those whose gestational age is >13 weeks.

Keywords: Vaccines, Pregnant Women, AEFI, COVID -19

INTRODUCTION

The death of pregnant women with COVID-19 was included in 8 cases of maternal death and 1 infant death (Antoun et al., 2020). A study conducted by London et al. (2020) reported 1 case of fetal death at 17 weeks of gestation. Pregnancy complications in pregnant women with COVID-19 include fetal distress and premature rupture of membranes (Chen et al., 2020). Moreover, a study carried out by Herbawani (2020) revealed that of the 363 total cases of COVID-19 in pregnant women, most of them were in the age criteria of 16-41 years.

Pregnant women are categorized as the vulnerable group to COVID-19 infection due to their decreased immune system, making them susceptible to virus infection. Physiological changes also occur during pregnancy such as an increase in the diaphragm, increased oxygen demand, and edema of the respiratory tract mucosa which is at high risk of hypoxia (Prawihardjo, 2018).

The Indonesian government has enacted a policy of providing COVID-19 vaccination to pregnant women. The Indonesian Obstetrics and Gynecology Association recommends five types of vaccines that can be given to pregnant women, namely the Pfizer, Moderna, Astra Zeneca, Sinovac, and Sinopharm vaccines. COVID-19 vaccination should be given starting at the gestational age of over 12 weeks or in the second trimester of pregnancy and no later than 33 weeks of pregnancy or the third trimester (POGI, 2021).

1.791 pregnant women in Jakarta were vaccinated with Sinovac, Moderna, and Pfizer vaccines in the period 2 - 18 August 2021. Nine of them even had their second dose of vaccination (Anies Baswedan, 2021).

Adverse events following immunization (AEFI) are defined as any untoward medical events following immunization that do not necessarily have a causal relationship to the vaccine. Adverse events can be in the form of detrimental or unintended indications, abnormal laboratory findings, symptoms, or disease (Direktorat Promosi Kesehatan RI, 2022).

A preliminary study conducted by the researchers at the maternal and child health polyclinic at Kemayoran Public Health Center in August - November 2021 showed that 64 pregnant women received the COVID-19 vaccination which 36 pregnant women received the Sinovac vaccine (56.5%), 25 pregnant women received the Pfizer vaccine (39%), and 3 pregnant women received the AstraZeneca vaccine (4.5%). Of the 10 pregnant women who were vaccinated, 6 experienced fever and injection site pain. Based on the explanation above, the researchers were interested in conducting a study to determine "Factors associated with AEFI of COVID-19 vaccination in pregnant women at Kemayoran Public Health Center in 2022".

RESEARCH METHODS

This study applied a quantitative descriptive method using a cross-sectional approach with a retrospective research design by observing pregnant women with AEFI of COVID-19 vaccination who carried out antenatal care at Kemayoran Public Health Center at one time simultaneously.

The dependent variable in this study was AEFI of COVID-19 vaccination in pregnant women, and the independent variables were predisposing factors. The population in this study were all pregnant women who had pregnancy visits at Kemayoran Public Health Center. The sample in this study was determined using a total sampling technique. The sample in this study was 80 pregnant women who had received COVID-19 vaccination and visited Kemayoran Public Health Center.

The data in this study were collected using the primary data method, namely the AEFI of COVID-19 screening form which was filled in by the respondents. This study was carried out in September 2022 at Kemayoran Public Health Center.

The data then were analyzed using a univariate data analysis to determine the distribution of factors associated with AEFI of COVID-19 vaccination in pregnant women. Then, a bivariate data analysis using the chi-square test was carried out to determine the relationship between the independent variables and the dependent variable.

RESEARCH RESULTS
Univariate Analysis

Table 1 above shows that 35 respondents (43.8%) received the Sinovac vaccination, 13 respondents (16.3%) received the AstraZeneca vaccination, and 32 respondents (40%) received the Pfizer vaccination.

Table 1
Frequency Distribution of Types of COVID-19 Vaccines for Pregnant Women

Types of COVID-19 Vaccine	Frequency	Percentage (%)
Sinovac	35	43.8
AstraZeneca	13	16.3
Pfizer	32	40

Table 2
Frequency Distribution of the Characteristics of Pregnant Women

Characteristics	Frequency (n=30)	Percentage (%)
Age		
< 20 years old	16	20
20 – 35 years old	55	68.8
> 35 years old	9	11.3
Education		
High	63	78.8
Low	17	21.3
Occupation		
Having an occupation	33	41.3
Having no occupation	47	58.8
Parity		
Primiparity	35	43.8
Multiparity	42	52.5
Grand Multiparity	3	3.8

Table 2 above shows that of the 80 pregnant women, 55 respondents (68.8%) were categorized into the age group that was not at risk, and 25 respondents (31.3%) were in the age group that was at risk. 63 respondents (78.8%) had higher education, and 17 respondents (21.3%) had lower education. 47 respondents (58.8%) had no occupation or did not work, and 33 respondents (41.3%). %) had an occupation or actively worked. Further, 42 respondents (52.2%) were multiparous, and 35 respondents (43.8) were primiparous. Whilst, 3 respondents (3.8%) were grand multiparous.

Table 3
Frequency Distribution of Gestational Age

Gestational Age	Frequency	Percentage (%)
Trimester II	46	57,5
Trimester III	34	42,5

Table 3 above shows that 46 respondents (57.5%) were in their second trimester, and 34 respondents (42.5%) were in their third trimester.

Table 4
Frequency Distribution of Mother's Knowledge

Knowledge	Frequency	Percentage (%)
Good	75	93,5
Poor	5	6,5

Table 4 above shows that of the 80 pregnant women, 75 respondents (93.5%) had good knowledge, and 5 respondents (6.5%) had poor knowledge

Table 5
Frequency Distribution of AEFI

AEFI	Frequency	Percentage (%)
Having AEFI	53	66,3
Having no AEFI	27	33,7

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Table 5 above shows that of the 80 pregnant women, 53 respondents (66.3%) had AEFI after COVID-19 vaccination, and 27 respondents (33.7%) had no AEFI after COVID-19 vaccination

Bivariate Analysis
Factors Associated with AEFI of COVID-19 Vaccination in Pregnant Women
Table 6 above shows that the correlation coefficient obtained was 0.160, meaning that the relationship is in the medium category (0.40-0.599).

Table 6
Age

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3,661	2	,160
Likelihood Ratio	3,548	2	,170
Linear-by-Linear Association	0,24	1	,877
N of Valid Cases	80		

Table 7
Education

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,710	1	,191		
Continuity Correction	1,038	1	,308		
Likelihood Ratio	1,652	1	,199		
Fishr's Exact Test				,249	,154
Linear-by-Linear Association	0,24	1	,194		
N of Valid Cases	80				

Table 7 above shows that the correlation coefficient obtained was 0.191, meaning that the relationship is in the medium category (0.40-0.599).

Table 8 above shows that the correlation coefficient obtained was 0.305, meaning that the relationship is in the medium category (0.40-0.599).

Table 8
Occupation

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,054	1	,305		
Continuity Correction	,619	1	,432		
Likelihood Ratio	1,068	1	,301		
Fishr's Exact Test				,345	,217
Linear-by-Linear Association	1,041	1	,308		
N of Valid Cases	80				

Table 9
Parity

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2,819	2	,244
Likelihood Ratio	2,755	2	,252
Linear-by-Linear Association	2,531	1	,112
N of Valid Cases	80		

Table 9 above shows that the correlation coefficient obtained was 0.244, meaning that the relationship is in the medium category (0.40-0.599).

Table 10 above shows that the correlation coefficient obtained was 0.227, meaning that the relationship is in the medium category (0.40-0.599).

Table 10
Gestational Age

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,459	1	,227		
Continuity Correction	,938	1	,333		
Likelihood Ratio	1,452	1	,228		
Fishr's Exact Test				,243	,166
Linear-by-Linear Association	1,440	1	,230		
N of Valid Cases	80				

Table 11
Knowledge

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,102	1	,024		
Continuity Correction	3,134	1	,077		
Likelihood Ratio	4,833	1	,028		
Fishr's Exact Test				,042	,042
Linear-by-Linear Association	5,038	1	,025		
N of Valid Cases	80				

Table 11 above shows that the correlation coefficient obtained was 0.024, meaning that the relationship is in the medium category (0.40-0.599).

DISCUSSION
Types of Vaccine

Based on the results of this study carried out at the MCH polyclinic at Kemayoran Public Health Center, 80 respondents (100%) received the COVID-19 vaccination. 35 respondents (43.8%) received the Sinovac vaccination, 13 respondents (16.3%) received the AstraZeneca vaccination, and 32 respondents (40%) received the Pfizer vaccination. This is in line with the Indonesian Government's policy concerning the use of five types of COVID-19 vaccines for pregnant women, namely Sinovac, AstraZeneca, Sinopharm, Moderna, and Pfizer. COVID-19 vaccination is a mandatory vaccination for pregnant women because pregnant women are vulnerable to COVID-19 infection. During pregnancy, the body is in an immunosuppressive state and experiences physiological changes such as an increase in the diaphragm, increased oxygen consumption, and edema of the respiratory tract mucosa which makes pregnant women susceptible to hypoxia. Further, the fetus can be infected by viruses even though the fetus receives immunity from the mother. This is because the fetus's immunity has not perfectly formed, so there is a very high risk of complications during pregnancy (Prawihardjo, 2018).

The Age of Pregnant Women

Based on the results of this study, regarding the age of the pregnant women who had been given COVID-19 vaccination, 18 respondents (20%) were <20 years old, 72 respondents (72%) were 20-35 years old, and 10 respondents (10%) were > 35 years old.

The results of this study are in line with a study carried out by Aisyah (2021) showing that there was a positive and significant relationship between the age level of pregnant women and their willingness to carry out COVID-19 vaccination in which pregnant women in their reproductive age (20-35 years) were 3.22% more likely to carry out COVID-19 vaccination. In terms of beliefs in society, someone who is more mature is considered ready to make decisions than someone who is not yet mature (Kurniawati and Nurdianti, 2018). The age of the pregnant women influences their willingness to carry out COVID-19 vaccination. Pregnant women aged 20-35 years are considered mature enough to decide to carry out vaccinations which aim to make

themselves and the fetus they are carrying immune to the COVID-19 infection (Aisyah, 2021)

Education

Based on the results of this study carried out at MCH polyclinic at Kemayoran Public Health Center, of the 80 respondents who had been vaccinated, 76 respondents (76%) had a high level of education including senior high school – university level. Then, 24 respondents (24%) had primary – middle school education.

The results of this study are in line with the results of a study conducted by Lestari et al. showing that education significantly influenced the absorption of information about health protocols for preventing COVID-19. People who have higher education will better filter the information they receive, especially from social media. This is due to the rise of false/hoax news, especially regarding COVID-19 (Lestari et al., 2020). Higher education influences pregnant women's mindsets and acceptance of information regarding COVID-19 vaccination. This was showed by the number of well-informed respondents of 95 in which 76 highly educated respondents were closely related to questions regarding COVID-19 vaccination.

Occupation

Based on the results of this study carried out at MCH polyclinic at Kemayoran Public Health Center, regarding occupation, 63 respondents (63%) had no occupation or did not work, and 37 respondents (37%) had an occupation or actively worked. Most of the respondents who were given the COVID-19 vaccination at Kemayoran Public Health Center were not working, but the level of their knowledge was good.

The results of this study are in line with a study carried out by Nurrizka et al. entitled Pregnant Women's Access to Health Services during the COVID-19 Pandemic showing that the majority of pregnant women who were not working had the highest proportion of prenatal check-ups in hospitals during the COVID-19 pandemic, as many as 39%. Pregnant women who did not work were 51 % of the respondents. Pregnant women who work will make decisions and efforts to prevent pregnancy complications through prenatal visits as well as carrying out COVID-19 vaccinations according to government recommendations (Nurrizka et al., 2021).

Parity

Based on the results of this study carried out at MCH polyclinic at Kemayoran Public Health

Center, regarding parity, 42 respondents (52.2%) were multiparous, and 35 respondents (43.8) were primiparous. Whilst, 3 respondents (3.8%) were grand multiparous.

The results of this study are in line with a study carried out by Nurrizka et al. showing that the group of pregnant women who had more than 2 children/multiparas had the most pregnancy checks, as many as 45 respondents (54.7%) (Nurrizka et al., 2021). Maternal parity influences the amount of information and experience the mothers obtain. Vaccination information can be obtained by reading or explanations from health workers. The amount of information obtained by pregnant women will further increase their knowledge about COVID-19 vaccination. This is also in line with a theory proposed by Notoatmodjo (2017) stating that information and experience are factors that influence a person's knowledge.

Gestational Age

Based on the results of this study carried out at MCH polyclinic at Kemayoran Public Health Center, regarding gestational age, 46 respondents (57.5%) were in their second trimester, and 34 respondents (42.5%) were in their third trimester.

The results of this study are in line with a study carried out by Nurrizka, et al. showing that 40 respondents (33.3 %) who received COVID-19 vaccination were in the second trimester of pregnancy, and 36 respondents (15%) were in the third trimester of pregnancy (Nurrizka et al., 2021). Gestational age is an important factor in the COVID-19 vaccination program because pregnant women who can receive COVID-19 vaccination are those whose gestational age must have reached the second trimester (14-28 weeks). This is because, in the second trimester, the fetal organs are already perfectly formed and the fetus can form the immune system (POGI, 2021).

Knowledge of COVID-19 Vaccination

Based on the results of this study at MCH Polyclinic at Kemayoran Public Health Center, of the 80 pregnant women, 75 respondents (93.5%) had good knowledge, and 5 respondents (6.5%) had poor knowledge

Regarding the indicators in questionnaire number 19 about whether or not pregnant women need to get the 3rd dose of the COVID-19 vaccine, most respondents (44%) answered incorrectly, meaning that pregnant women should not need the 3rd dose of the COVID-19 vaccine because according to the government recommendations, pregnant women only need to get the 2nd dose of

the COVID-19 vaccine. Meanwhile, in question number 20 in the questionnaire, regarding activities carried out by mothers, if they experience a reaction after vaccination, the majority of respondents (49%) answered incorrectly. If mothers experience reactions after vaccination, they should get enough rest and take medication recommended by health workers.

The results of this study are in line with a study conducted by Fonda Octarianingsih Shariff showing that 67 pregnant women at Talang Ubi Regional Hospital (60.9%) had a good level of knowledge about COVID-19, 37 pregnant women (33.6%) had sufficient knowledge, and 6 pregnant women (5.5%) had poor knowledge (Octarianingsih Shariff et al., 2021). Someone who has good knowledge will influence decisions and efforts to prevent pregnancy complications through prenatal visits. Knowledge is an important factor in shaping the actions of a person. Therefore, a pregnant woman will carry out a COVID-19 vaccination if she has good knowledge about COVID-19 vaccination.

AEFI

Based on the results of this study at MCH polyclinic at Kemayoran Public Health Center, of the 80 pregnant women, 53 respondents (66.3%) had AEFI after COVID-19 vaccination and 27 respondents (33.7%) had no AEFI after COVID-19 vaccination.

This is in line with the data from the Indonesian Obstetrics and Gynecology Association Surabaya indicating that from 11 places in Indonesia that provide vaccines to pregnant women, 80% of whom experienced mild side effects such as fever and pain at the injection site, and 13% of whom did not experience AEFI at all. Chairman of the National Commission on AEFI, Hinky Hindra Irawan Satari, said that every vaccine had to have an AEFI. The Sinovac, AstraZeneca, Sinopharm, and Pfizer vaccines have an AEFI rate below 1%, while the Moderna vaccine has an AEFI rate of 4%.

AEFI is medical events related to immunization in the form of vaccine effects, side effects, toxicity, sensitivity reactions, pharmacological effects or co-occurrence program errors, and injection reactions or causal relationships that cannot be determined (Depkes, 2005: 52). In the guidebook regarding the implementation of COVID-19 vaccination, the reactions that may occur after COVID-19 vaccination are almost the same as other vaccines. Some of the symptoms include pain, redness, swelling at the injection site, and other severe local reactions such as cellulitis. Then, systemic reactions include fever, body muscle pain (myalgia), joint pain (arthralgia), asthenia and headaches, and other reactions such as allergies including urticaria, edema, anaphylactic reactions, and fainting (Kemenkes RI, 2020).

Factors Associated with AEFI of COVID-19 Vaccination in Pregnant Women

The results of the analysis carried out in this study showed that the knowledge variable was the most dominant variable with a p-value of 0.024. This means that the most dominant variable related to the AEFI of COVID-19 vaccination was the knowledge variable. The level of knowledge about the importance of COVID-19 vaccination could be influenced by the lack of information obtained by the respondents or the large number of "hoax" news circulating in society which can lead to misunderstanding of information. Several factors can cause fake news to become rampant. Those factors include looking for sensation, humor, profit-oriented, or just following certain parties either deliberately causing unrest or having a desire to pit one against another.

From all those factors, fake news that spreads rampantly by taking advantage of certain situations such as the pandemic situation is frequently used to corner a party and cause unrest. Different educational backgrounds, varying environments, and receiving diverse messages certainly provide opportunities for the spread of fake news related to the COVID-19 vaccine (Priastuty et al., 2020). Knowledge is the result of knowing, and gained after people sense a particular object. Most human sensations are obtained using the eyes and ears through the process of seeing and hearing. In addition, knowledge is gained through experience and learning processes in formal and non-formal education (Notoatmodjo, 2012). Factors that influence people's knowledge about COVID-19 vaccination include education level.

Based on the results of this study, 93.5% of the respondents with higher educational levels had good knowledge regarding COVID-19 vaccination. Education level influences the knowledge of a person. Budiman and Riyanto (2013) stated that formal education has a significant influence on the knowledge of a person. However, some respondents who had lower education levels had a good level of knowledge about the importance of COVID-19 vaccination. This is because information about the importance of COVID-19 vaccination can be obtained easily via social media, and counseling carried out by the staff of the Public Health Center and the Health Service.

CONCLUSION

Based on the results and discussion presented in this study, the Sinovac vaccine was the most common type of vaccine given to pregnant women, and the age of pregnant women when they got the COVID-19 vaccination was 20-35 years. Pregnant women who got the COVID-19 vaccination were highly educated. Moreover, most pregnant women who got vaccinated did not work, and were multigravida/a woman who had been pregnant more than once. Most pregnant women who got vaccinated were in the second trimester of pregnancy and were well-informed about COVID-19. In addition, most of the pregnant women had no history of COVID-19, and most of them experienced AEFI after COVID-19 vaccination.

SUGGESTION

Health Workers of Kemayoran Public Health Center, Central Jakarta, should collaborate with cadres of integrated healthcare centers and community leaders to provide COVID-19 vaccinations for pregnant women, especially for those whose gestational age is >13 weeks. The collaboration can be carried out by providing information about COVID-19 vaccination and how to prevent COVID-19 so that COVID-19 infection in pregnant women can be prevented, as well as facilitating COVID-19 vaccination service locations.

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