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ADVERSE EVENTS AFTER IMMUNIZATION (AEFI) POST COVID-19 VACCINATION IN THE WORK AREA OF THE HEALTH DEPARTMENT OF SURAKARTA

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ABSTRACT

Background *COVID-19 pandemic was designated as a health disaster by the government of the Republic Indonesia Number 11 of 2020 concerning the Determination of a Public Health Emergency of Corona Virus Disease 2019 (COVID-19) on March 31, 2020. In tackling Covid 19, the Government has issued several policies, one of the policies that has been implemented the provision of the national covid 19 vaccination. AEFI is a follow-up event after immunization, all medical events or reactions that occur after the patient is injected with the vaccine.* ***Objective*** *To find out the description of post-immunization follow-up events (Aefi) after the Covid 19 vaccination in the Ministry of Health Surakarta.* ***Methods*** *The quantitative descriptive research method uses a simple random sampling technique with inclusion criteria. Age>18 years, has been vaccinated covid 19 for 2x and has symptoms of Aefi.* ***Results*** *respondents who experienced AEFI after the Covid 19 Vaccine were mostly Young Adult Age, Female gender, marital status married, history of disease/comorbid most of the respondents who experienced AEFI was mild hypertension.* ***Conclusion*** *Most of the AEFI symptoms felt by respondents were fever and the type of Aefi of respondents was mostly non-serious/mild.*

INTRODUCTION

COVID-19 pandemic has been designated as a health disaster by the government of the Republic of Indonesia through Presidential Decree of the Republic of Indonesia Number 11 of 2020 concerning the Determination of a Public Health Emergency of Corona Virus Disease 2019 (COVID-19) on March 31, 2020. The determination is based on the fact that the spread of the Corona Virus Disease 2019 (COVID-19) is extraordinary, marked by the increasing number of cases and deaths that spread across regions and across countries and have a broad impact on political,

economic, social, cultural, defense and security aspects, as well as the welfare of the people in Indonesia. President Joko Widodo issued Presidential Decree No. 12 of 2020 concerning the Determination of Non-Natural Disasters for the Spread of Corona Virus Diseases 2019 (COVID-19) as a national disaster. (Titik, 2020)

According to WHO, 2021 data on confirmed cases of Covid 19 in the world until February 8, 2022 reached 394,381,395 with a total number of deaths of 5,735,179 people. Based on the countries/regions with the highest number of confirmed positive cases in the world, America has the highest number of confirmed cases in the world, followed by Europe, Southeast Asia, Africa and western Pacific countries. (World Health Organization, 2021)

Data on the distribution of confirmed cases of Covid-19 in Indonesia on February 8, 2022 reached 4,580,093 confirmed cases, with a total number of deaths reaching 144,719 people and total recovering cases reaching 4,202,312 people. Based on the provinces in Indonesia, the highest confirmed cases are DKI Jakarta, West Java, Central Java, East Java, Banten, East Kalimantan, DIY, and other provinces. Central Java province has the third highest number of confirmed cases after DKI Jakarta and West Java. (Satgas Covid, 2022)

The number of confirmed positive cases of Covid 19 in the Surakarta City Region on February 8, 2022 reached 30,220 cases, with a total number of 1395 deaths and a total of 27,698 recovered cases. (Pemerintah Kota Surakarta, 2022)

In tackling Covid 19, the Government has issued several policies in tackling the Covid 19 pandemic, one of which has been implemented by providing national vaccinations. Vaccination is the most effective and efficient public health effort in preventing several dangerous diseases. (Komnas KIPI, 2021). Vaccines are an attempt to cause / increase a person's immunity actively by the act of giving antigens on purpose. Vaccination aims to stimulate the formation of anti-disease substances so that the body is expected to be immune to a disease. The process of the given antigen is made in such a way that it does not cause pain, but is able to stimulate lymphocyte cells to produce antibodies. (Komnas KIPI, 2021)

Vaccination is a business to cause or increase a person's active immunity to a disease. However, the vaccine also has an adverse reaction known as adverse events following immunization (AEFI). AEFI is a medical event that is thought to be related to immunization, either from vaccine reactions or side effects, pharmacological effects, reactions injection induction or procedural errors. (Hulu et all, 2022)

The purpose of the COVID-19 vaccination is to reduce morbidity and mortality due to COVID-19, achieve herd immunity to prevent and protect public health,

protect and strengthen the overall health system, maintain productivity and minimize social and economic impacts. (Nadia, 2020). The COVID-19 vaccination targets include several priority stages in accordance with the availability of vaccines which include the front line (health workers), public service sector groups, the community, all educators and government employees. (Nadia, 2020)

Side effects can occur after vaccination vary, are generally mild and temporary, and depend on the condition of a person's body. (Hasbi, 2021). Mild side effects such as fever and muscle aches or rash on the injection beam. Through the complete stages of vaccine development and testing, severe side effects can be detected first so they can be evaluated further. The benefits of the vaccine far outweigh the risks of being infected if not vaccinated.(Hasbi, 2021)

Aefi is a post-immunization co-occurrence. All medical events or reactions that occur after the patient is injected with the vaccine will be brought to the attention of the medical personnel on duty. (Maharani, 2021). Aefi is any unwanted medical event for a person that occurs after vaccination. This event can be a vaccine reaction or not. Events that are not vaccine reactions can be coincidental events with or after vaccination. Under the conditions and method of administration according to the SOP, all types of vaccines used in the national vaccination program are safe and effective, but the reality on the ground is that no type of vaccine is said to be free from the possibility of Aefi. (Lasmanah, 2022)

Covid-19 is the virus that causes the current pandemic. Various efforts have been made to control the pandemic, one of which is vaccination. Currently, there are various types of Covid- 19 vaccines with various side effects or Post Immunization Adverse Events (AEFI). AEFIs can range from mild to severe. The news about AEFI that is widely circulated can cause anxiety in teenagers and make them hesitate or be afraid to vaccinate against Covid-19. (Sari, 2021)

Adverse Events Following Immunization (AEFI) is defined as 'any adverse medical event that occurs after immunization, but which does not necessarily have a cause-and-effect relationship with vaccine use. Research conducted by krammer, et al said that vaccine recipients with pre-existing immunity (seropositive) experienced systemic side effects with a much higher frequency than antibody-nave vaccines. (Simanjuntak, 2022)

Based on WHO data on the safety of the Sinovac vaccine, the most common complaints are: pain at the injection site, dizziness, fatigue and myalgia 15. According to the results of the study by Zang et al, 2021 in 144 participants who received the Sinovac vaccine. less than 48 hours. No serious side effects within 28 days. (Basuki et all 2022). The novelty in this research is types of AEFI, there is seriously types of experiencing AEFI

after covid 19 vaccination and must be treat at hospital.

METHODS AND MATERIALS

The type of research used descriptive quantitative. The population of the research were respondents who had received the covid 19 vaccines for 2x under the work area of the Surakarta city health office. The population of respondents who have received the 2nd doses of the covid 19 vaccines was 191,141 people. This research using a simple random sampling technique with inclusion criteria > 18 years old, has received 2x covid 19 vaccinations in the Surakarta City Health Office Work Area and has Aefi symptoms. The sampling of the research was 100 respondents who have received the 2nd doses of the covid 19 vaccines and has Aefi symptoms.

The independent variable in this study is vaccination and the dependent variable is Aefi. The data collection technique in this study was by means of a questionnaire through a Google form by giving several questions to the respondents to be answered. The primary data was obtained by interviewing respondents and distribunting of questionnares by the Google form with the closed questions in the form of questions according to the research being conducted. Analized data used SPSS to make distribution of the frequency to description of post immunization events following the covid 19 vaccinations in the Surakarta City.

RESULTS AND DISCUSSION

The results of this study was conducted to determine the description of post-immunization events following the Covid-19 vaccination in the Surakarta City Health Office working area with the following results:

1. Results of the distribution of respondent characteristics (age, gender & marital status) of respondents experiencing AEFI after Covid 19 vaccination

Table 1 Distribution of the frequency of age, gender & marital status of respondents who experienced AEFI after covid 19 vaccination

No	Characteristics	Classification	Total	
			F	%
Age				
1	18 yo	Teenager	5	5
2	19 -40 yo	Young Adults	78	78
3	41 – 60 yo	Middle Adult	14	14
4	> 60 yo	Elderly	3	3
Gender/sex				
1	Male		25	25
2	Female		75	75
Marital Status				
1	Married		66	66
2	Unmarried		34	34
	Total		100	100

Based on table 1 shows that the age of respondents who experience AEFI are mostly Young Adults (19-40 years old) with a total of 78 people (78%), Middle Adult Age with a total of 14 people (14%), Teenagers (18 years old) with a total of 14 people. 5 people (5%) and elderly age with 3 people (3%). The gender of respondents who experienced AEFIs were mostly women with a total of 75 people (75%), and men 25 people (25%). The marital

status of the respondents is mostly married with a total of 66 people (66%), and unmarried with a total of 34 people (34%).

The majority of respondents who experienced AEFI after the Covid 19 Vaccine were mostly Young Adults with a total of 78 (78%). This is because this age group is the most exposed to COVID-19. Neutralizing antibody titers decrease with age. Respondents with a young age group of 18-39 years had a higher neutralizing antibody titer. Vaccination is carried out at an early stage for health workers and continued with people aged 18-59 years. Vaccines at that age will produce a strong immune response.(Lidiana *et al.*, 2021)

The majority of respondents based on gender of respondents who experienced AEFI after Covid 19 vaccination were mostly women with 75 people (75%). This is supported by research by Lidiana et al 2021, the majority of respondents with an AEFI incidence rate based on gender are women as much as 89.5%. (Lidiana *et al.*, 2021)

Based on research by Basuki et all, 2022 the majority of respondents were female, namely 354 peopole (62%). For the category of age group 31-40 years because this group with the most immunizations, there are 223 people (39). (Basuki et all, 2022)

The results by Safira et al in 2021, it was stated that the majority of respondents who experienced AEFI after the covid 19 vaccination based on age were 31-40 years old, namely 53 respondents (42.74%). This is because that age is very productive in working health workers in hospitals.(Safira, et all 2021)

Based on research by Romlah & Darmayanti, 2022, it was stated that respondents who experienced AEFI after the COVID-19 vaccination were more than some of the respondents, namely 178 people (54.1%) who were in adulthood, namely 26-45 years. Based on gender, more than half of the respondents, namely 195 people (59.3%) were female.(Romlah and Darmayanti, 2022)

The majority of respondents based on the marital status of respondents who experienced AEFI after Covid 19 vaccination were mostly married with a total of 66 people (66%).(Saraswati, 2019) research states that people who suffer from mild depression are found in married people (including widows and widowers). Married people have a risk of depression because they have many needs that are thought of to meet the daily needs of the family, this is prone to depression so that it reduces a person's body power and immunity. When the body's resistance / immunity decreases, it is very likely that AEFI will also occur in someone who has been given the Covid 19 vaccine.

2. Results of the distribution of disease history / comorbidities with AEFI after Covid 19 vaccination

Table 2 Frequency distribution of disease history / comorbidities experiencing AEFI after covid-19 vaccination

No	Comorbidities	Total	
		F	%

1	Mild Hypertension	35	35
2	Diabetes Melitus	28	28
3	Gastritis	5	5
4	Artritis Gout	2	2
5	No disease	30	30
	Total	100	100

Based on table 2 shows that the disease history of respondents who experienced AEFI after covid 19 vaccination was mostly mild hypertension with 35 people (35%), Diabetes mellitus 28 people (28%), Gastritis 5 people (5%), Arthritis Gout 2 people (2%) and no disease as many as 30 people (30%).

The majority of respondents based on previous medical history were 86 respondents (90.5%). There are several criteria for individuals or groups who should not be vaccinated against Covid-19. One of the respondents who have comorbidities. People with uncontrolled comorbidities such as diabetes or hypertension are advised not to receive the vaccine. Therefore, before the implementation of vaccination, everyone will be checked for their body condition first. Those with comorbid diseases must be in a controlled condition to obtain vaccination approval from the treating doctor. This is because people who have certain diseases do not have a good resistance to make antibodies. (Lidiana *et al.*, 2021).

The majority of respondents based on past medical history were 86 respondents (90.5%). The vaccine is given only to those who are healthy. There are several criteria for this individual or group that should not be vaccinated against Covid-19. One of them is respondents who have comorbidities. People with uncontrolled comorbidities such as diabetes or hypertension are advised not to receive the vaccine. Therefore, before administering the vaccination, everyone will have their body condition checked first. (Lidiana et all 2021)

Research Simanjuntak, et all, 2022 described that the disease history of respondents who experienced AEFI after covid 19 vaccination was 6.7% have congenital disease (comorbid), with the highest percentage of disease is asthma (58.3%), followed by hyperthyroidism and diabetes mellitus (8.3%). (Simanjuntak, 2022)

3. Results of the distribution of Post-Immunization Post-Covid-19 Vaccination Follow-Up Events in the Surakarta

Table 3 Distribution of AEFI frequency after Covid 19 vaccination

No	Post Vaccine Complaints/AEFI	Total	
		F	%
1	Fever	37	37
2	Injection pain/Swelling	17	17
3	Dizzy	6	6
4	Nauseous	5	5
5	Weak	5	5
6	Feverish	11	11
7	Muscle ache	3	3
8	Throw up	2	2
9	Shiver	3	3
10	Joint paint	2	2
11	Heart burn	4	4
12	Out of Breath	4	4
13	Chest pain	1	1
	Total	100	100

Based on table 3 shows that most of the respondents who experienced Post Immunization Adverse Events (AEFI) were with fever symptoms with a total of 37 people (37%), pain/swelling from the injection site with a total of 17 people (17%), dizziness 6 people (6%), Nausea 5 people (5 %), weakness 5 people (5 %), chills 11 people (11 %), Muscle pain 3 people (3 %), Vomiting 2 people (2 %), Chills 3 people (3 %). , joint pain 2 people (2 %), heartburn 4 people (4 %), shortness of breath 4 people (4%) and chest pain 1 person.

The majority of respondents who experienced Post Immunization Adverse Events (AEFI) with symptoms of fever with a total 0f 37% people (37%). Based on Romlah research, 2021 stated that the type of AEFI experienced by respondents on the first day after the vaccine, a small percentage of respondents, namely 7 people (15,9%) had a high fever (>39 ^{o}C), half of the respondents who experienced this type of infection. Other AEFI such as soreness at the injection site, flu, inhibiting menstruation, dizziness, sore throat, pain, anosmia, difficulty moving the back and legs. (Romlah and Darmayanti, 2022)

Based on the results of research conducted by Hulu et al 2022 on 96 respondents, it was found that respondents who received immunization with the Pfizer type vaccine reported experiencing AEFI symptoms, namely 62 people (64.6%) and 34 people (35.4%).) reported no symptoms of AEFI. The proportion of the Pfizer type of COVID-19 Vaccine AEFI in the community in the working area of the Namorambe Health Center is 64.58%. This shows that more than half of the respondents experienced AEFI.(Hulu, et all, 2022)

Based on the results of research conducted by Basuki et all in 2022 on 572 respondents, it was found that respondents who received immunization with the Sinovac vaccine reported experiencing AEFI symptoms, namely 312 people (54.5%) and as many as 260b people (45.5%) reporting no symptoms. experiencing AEFI symptoms. (Basuki, et all, 2022).

Post-vaccination Adverse Events or commonly called AEFIs are medical events that are suspected to be related to vaccination. An AEFI can be a vaccine reaction, a procedural error, an accident, an anxiety reaction, or an undetermined causal relationship. AEFI is classified as serious if a medical event resulting from each dose of vaccination that is given results in death, the need for hospitalization, and persistent and life-threatening sequelae. Some of the symptoms include: Local reactions, such as: pain, redness, swelling at the injection site, other severe local reactions, eg acellulitis. Systemic reactions such as fever, muscle aches throughout the body (myalgia), joint pain (arthralgia), weakness, headache. Other reactions, such as: allergic reactions such as urticaria, edema, anaphylactic reactions, syncope fainting. (Koesnoe, 2021)

The incidence of AEFI in Indonesia so far has symptoms of side effects that are still in the mild and harmless category. Reports received by the National Commission of Post-Vaccination Adverse Events include aches, pain at the injection site, redness, weakness, fever, nausea, changes in appetite. (Komnas KIPI, 2021)

4. Result of the Types AEFI of respondents experiencing AEFI after Covid 19 vaccination

Table 4 Distribution of the frequency of AEFI types of respondents experiencing AEFI after Covid 19 vaccination.

No	Types of AEFI	total		Description
		F	%	
1	Serious	1	1	Hospitalized
2	Non serious	99	99	Not Hospitalized
	Total	100	100	

Based on table 4, it shows that most of the Respondents who experienced Post Immunization Adverse Events (AEFI) after the Covid 19 vaccination experienced Non-serious AEFIs of 99 people (99%) without being treated in hospital and Serious AEFIs of 1 person (1%) were treated at hospital.

The results by Safira, et all 2021, the AEFI level data on the side effects of phase I and phase II vaccines are mild, moderate, and severe symptoms. In the phase I vaccine side effects, mild symptoms were 22 (17.74%), moderate symptoms were 49 (39.51%), and severe symptoms were 1 (0.80%). In Phase II vaccine side effects, mild symptoms were 20 (16.12%), moderate symptoms were 54 (43.54%) and severe symptoms were 3 (2.41%). The highest degree of AEFI in the administration of Coronavac vaccine to health workers at Imanuel Hospital was the administration of Phase II vaccine with a moderate degree of 54 (43.54%). (Safira, et all 2021)

CONCLUSIONS AND SUGGESTION

Based on the results of research and discussion on the Description of Post-Immunization Adverse Events (KIPI) Post-Covid-19 Vaccination in the Ministry of Health of Surakarta, it can be concluded as follows:

1. Distribution of respondent experiencing AEFI after Covid 19 vaccination are young adults, female, married.
2. Characteristics of previous medical history/comorbidities the majority of respondents are mild hypertension
3. Characteristics of the types of symptoms of AEFI respondents after the Covid-19 vaccine were majority with symptoms of fever, pain/swelling from injections, dizziness, Nausea, weakness, fever, Muscle pain, Vomiting Chills, joint pain, heartburn, shortness of breath and chest pain.
4. Types of AEFI of respondents experiencing AEFI after Covid 19 vaccination are non serious.
5. We advise to everyone to cary out of the covid 19 vaccine without fear and doubt and participate in the success of the covid vaccination programme in indonesia.

6. We advise to the next research to determine of the effect of different types of Vaccines who has received the 3rd and 4th doses of the covid 19 vaccines.

REFERENCE

Ade Cahayani Saraswati (2019) 'Gambaran Depresi Pada Orang Lanjut Usia Di Perhimpunan Werdha Sejahtera (Pws) Kota Denpasar', *Jurnal Medika Udayana*, 8(9). Available at: https://ojs.unud.ac.id/index.php/eum/article/view/53026.

Basuki, A.R., Mayasari, G. and Handayani, E. (2022) 'Gambaran Kipi (Kejadian Ikutan Pasca Imunisasi) Pada Karyawan Rumah Sakit yang Mendapatkan Imunisasi Dengan Vaksin Sinovac di RSUD Kota Yogyakarta', *Majalah Farmaseutik*, 18(1), pp. 30–36. Available at: https://doi.org/10.22146/farmaseutik.v18i1.71908.

Hasbi, U.F. (no date) 'Jangan Takut Efek Samping Vaksin - Diskominfo Prov'. Available at: https://mekarsari-pacet.desa.id/artikel/2021/6/24/cari-tahu-apa-itu-vaksin-dan-vaksinasi.

Hulu, V.T., Lubis, A. and Mahyuni, S. (2022) 'Gambaran Karakteristik Kejadian Ikutan Pasca Imunisasi Vaksin Covid-19 Di Puskesmas Namorambe Tahun 2021. *Jurnal Kedokteran Ibnu Nafis*. 11(1), pp. 37–48.

Koesnoe, S. (2021) 'Teknis Pelaksanaan Vaksin Covid dan Antisipasi KIPI', *Perhimpunan Dokter Spesialis Penyakit Dalam Indonesia*, pp. 1–65.

Komnas KIPI (2021) *Penanganan , Rujukan Dan Pembiayaan Kipi Vaksinasi Covid-19, PERSI (Perhimpunan Rumah Sakit)*. Available at: https://in.vaccine-safety-training.org/.

Lasmanah, A. (2022) 'KIPI (Kejadian Ikutan Pasca Imunisasi) Setelah Vaksin', p. 2022. Available at: https://rsud.banjarnegarakab.go.id/?p=2381.

Lidiana,EH. Permatasari H, Pradana, KA., Permatasari, A. (2021) 'Gambaran Karakteristik Kejadian Ikutan Pascavaksinasi Covid-19pada Tenaga Kesehatan Alumni Universitas 'Aisyiyah Surakarta', *Jurnal Ilmiah Kesehatan*, 11(1), pp. 11–17. Available at: https://ojs.unsiq.ac.id/index.php/jik/article/view/1817/1106.

Maharani, A. (2021) 'KIPI Vaksin COVID-19 dan Penanganannya'. Available at: https://www.klikdokter.com/info-sehat/read/3647060/mengenal-kipi-pada-vaksin-covid-19.

Nadia, S. (2020) 'Kebijakan Pelaksanaan Vaksinasi COVID-19', *Direktorat Jenderal Pencegahan dan Pengendalian Penyakit Kementerian Kesehatan*, 1, pp. 1–46.

Pemerintah Kota Surakarta (2022) 'COVID-19 SURAKARTA – Pemerintah Kota Surakarta'. Available at: https://surakarta.go.id/?page_id=20970.

Romlah, S.N. and Darmayanti, D. (2022) 'Kejadian ikutan pasca imunisasi (KIPI) vaksin Covid-19', *Holistik Jurnal Kesehatan*, 15(4), pp. 700–712. Available at: https://doi.org/10.33024/hjk.v15i4.

5498.

Safira, M., Peranginangin, M. and Saputri, G.A.R. (2021) 'Evaluasi Monitoring Kejadian Ikutan Pasca Imunisasi (KIPI) Vaksin Covid-19 (Coronavac) pada Tenaga Kesehatan di Rumah Sakit Imanuel Bandar Lampung', *Jurnal Mandala Pharmacon Indonesia*, 7(2), pp. 251–262.

Sari, M.K. (2021) 'Edukasi Kejadian Ikutan Pasca Imunisasi Terhadap Tingkat Kecemasan Remaja Menghadapi Vaksinasi Covid-19', *Jurnal Karya Abdi*, 5(3), pp. 542–546.

Satgas Covid (2022) 'Beranda _ Covid19', *2022* [Preprint]. Available at: https://covid19.go.id/.

Simanjuntak, D.R. (2022) 'Prolife', Gambaran Kejadian Ikutan Pasca Imunisasi COVID-19 pada Mahasiswa Fakultas Kedokteran UKI Penyintas Covid-19 dan Non Penyintas COVID-19. *Jurnal Pendidikan Biologi*, 9(1), pp. 347–364.

Titik, R.H.S.R. (2020) 'Bunga Rampai Artikel Penyakit Virus Korona (COVID-19) Editor : Titik Respati', *Kopidpedia*, pp. 203–215. Available at: http://repository.unisba.ac.id:8080/xmlui/bitstream/handle/123456789/26743/fulltext_bc_16_feriandi_kopidpedia_fk_p2u_unisba_2020.pdf?sequence=1%0Ahttp://repository.unisba.ac.id.

World Health Organization (2021) 'WHO Coronavirus Disease (COVID-19) pp. 1–5. Available at: https://covid19.who.int/%0Ahttps://covid19.who.int/%0Ahttps://covid19.who.int/region/searo/country/bd.