# A SURVEY OF POST IMMUNIZATION AFFAIRS (AEFI) OF ASTRAZENECA VACCINE IN YOGYAKARTA

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## Abstract

***Introduction:*** *To prevent COVID-19, the government provides vaccines, which are generally safe but can cause adverse events following immunization (AEFIs). AEFIs may include local reactions like pain and swelling, systemic symptoms like fever and fatigue, and serious allergic reactions. This study analyzed AEFIs associated with the AstraZeneca COVID-19 vaccine.*
***Methods:*** *This research is a type of descriptive analytic research with a survey approach. The samples of the research 95 people with method is purposive sampling. The instrument used in this study is the COVID-19 vaccine AEFI questionnaire, with the analysis used is univariate analysis.*
***Results:*** *The AEFIs that emerged after the AstraZeneca vaccine was administered to the community in the Public Health Center Sedayu II Bantul were mild local AEFIs with swelling, pain, redness and itching at the injection site. Systemic mild AEFI with symptoms of fever, headache, joint pain, arm muscle weakness and fatigue. Severe AEFI showed symptoms of arm muscle paralysis and severe allergic reactions. Other AEFIs with symptoms of insomnia and sleepiness*
***Conclusion:*** *There was an AEFI after the AstraZeneca vaccination was carried out in the community in the Public Health Center Sedayu II Bantul. Health workers/nurses are expected to increase their knowledge and increase the attention of health workers/nurses to develop appropriate intervention strategies and participate in vaccination training to deal with AEFIs that occur in the community..*

***Keywords:*** *Covid-19; AstraZeneca vaccine, AEFI*

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## INTRODUCTION

Coronavirus Disease 2019 (COVID-19) was first discovered in Wuhan City, Hubei Province, China in the form of Pneumonia and the World Health Organization (WHO) declared Coronavirus Disease 2019 (COVID-19) to have become a pandemic since 31 December 2019 (Wheatley et al., 2021).

The number of COVID-19 cases in the world based on data from WHO totaled 236,991,904 cases, of which 4,838,344 people were declared dead, and 214,114,911 people were declared cured. The number of confirmed cases of COVID-19 in Indonesia alone reached 4,223,094 people with a death rate of 142,413 people. An initial survey conducted at the Yogyakarta Health Office confirmed cases of COVID-19 in Yogyakarta from March 2020 to November 2021 reaching 156,477 people the death rate reached 5,236 people and especially in the Bantul area, the Sedayu Health Center as a research location, confirmed cases of 51,631 thousand people and those who died reached 1,371 people (Dinas Kesehatan DIY, 2021).

Based on the Decree of the Minister of Health of the Republic of Indonesia of 2020, Concerning Guidelines for the Prevention and Control of Corona Virus Disease (COVID-19) in 2020, states that prevention and control of the spread of COVID-19 by means of supportive care and symptomatic oxygenation therapy (Karyono et al., 2020). Providing oxygen therapy where more than 75% of patients hospitalized with COVID-19 require additional oxygen therapy (Noviantari et al., 2021).

In addition to the several efforts to prevent COVID-19 above that have been established by the government, other efforts used by the government to tackle the spread of COVID-19 are vaccines where the COVID-19 vaccine aims to create herd immunity so that people can be more productive in carrying out their activities. everyday (Dewi & Bustan, 2021). According to the article, there are 8 types of vaccines circulating in the world, namely the Sinovac, AstraZeneca, Sinopharm, CanSino, Moderna, Pzifer-BioNTech, Janssen and Sputnik V vaccines. (Rusmiati, 2021). There are several types of vaccines given to people in Indonesia, consisting of vaccines produced by P.T. Bio Farma (Persero), AstraZeneca, China National Pharmaceutial Group Corporation (Sinopharm), Moderna, Novavax Inc Pfizer-BioNTech, and Sinovac Biotech Ltd. (Ministry of Health, 2020).

One of the vaccines used in the working area of the Sedayu II Health Center in Bantul is the AstraZeneca vaccine. The Orfox/AstraZeneca vaccine is a vaccine using an adonevirus (Chimpanzee Adenovirus Orfox 1) originating from chimpanzees (Elidya et al., 2021). The vaccine had side effects such as local pain, headache, muscle aches, fever and malaise which were common, but were similar to the placebo group, only 0.9% of those vaccinated. have serious side effects (Medeiros-Ribeiro et al., 2021). While the results obtained after a preliminary study in the working area of the Sedayu II Bantul Health Center in September 2021, a number of 20 people experienced fever, dizziness, nausea, headaches and experienced local pain after the AstraZeneca vaccine was administered. Based on the description above, the aim of this study is knowing the AEFI of the Astrazeneca vaccine in the community in Yogyakarta.

## METHOD

### Study Design

This type of research is a type of quantitative research with an analytical descriptive approach method with a survey research design. This research was carried out in August 2022 - September 2022, with a population of people in the Working Area of the Sedayu II Health Center, Bantul, D.I Yogyakarta. The sampling method in this study used non-probability sampling and the type of sampling in this study used purposive sampling with a total sample of 95 respondents with inclusion and exclusion criteria. The inclusion criteria are as follows: people who have received the AstraZenca vaccine in the

Working Area of the Sedayu II Health Center, Bantul, people who have received one and/or two and/or three doses of the AstraZeneca vaccine, people who have an android cellphone and can access it to fill out a questionnaire in the form of google forms.

While the exclusion criteria: people who experience pain during the research process, people who have co-morbid diseases such as autoimmune, heart disease, and other medical history such as ongoing treatment, pregnant women and people who received the Pzifer, Sinovac, and Moderna. The research instrument used in this study was the AEFI COVID-19 questionnaire with 23 question items. The results of the validity and reliability tests conducted at the Pandak 2 Health Center on 30 respondents with r table 0.361, the results of the validity test with 23 questions were stated to be valid for the reason that r count > r table, the reliability test obtained a coefficient value of 0.83 from 23 questions so that the questionnaire declared feasible and can be used as a research measurement tool.

The researcher conducted this research by paying attention to research ethics including informed consent, anonymity, confidentiality, beneficience and ethical clearance which was conducted at STIKES Guna Bangsa Yogyakarta in April 2022 with number 002/KEPK/V/2022.

**Population, Samples, and Sampling**

The population of the community in the Working Area of the Sedayu II Health Center, Bantul, D.I Yogyakarta. The sampling method in this study used non-probability sampling and the type of sampling in this study used purposive sampling with a total sample of 95 respondents with inclusion and exclusion criteria. The inclusion criteria are as follows: people who have received the AstraZenca vaccine in the Working Area of the Sedayu II Health Center, Bantul, people who have received one dose and/or two and/or three doses of the AstraZeneca vaccine, people who have an android cellphone and can access it to fill out a questionnaire in the form of google forms.

While the exclusion criteria: people who experience pain during the research process, people who have co-morbid diseases such as autoimmune, heart disease, and other medical history such as ongoing treatment, pregnant women and people who received the Pzifer, Sinovac, and Moderna.

**Instruments**

The research instrument used in this study was the AEFI COVID-19 questionnaire with 23 question items. The results of the validity and reliability tests conducted at the Pandak 2 Health Center on 30 respondents with r table 0.361, the results of the validity test with 23 questions were stated to be valid for the reason that r count > r table, the reliability test obtained a coefficient value of 0.83 from 23 questions so that the questionnaire declared feasible and can be used as a research measurement tool.

**Data Analysis**

The analysis of study should be explained about software that help the analysis, type of analysis, and who is study analysis conducted.

**Ethical Clearance**

The researcher conducted this research by paying attention to research ethics including informed consent, anonymity, confidentiality, beneficience and ethical clearance which was conducted at STIKES Guna Bangsa Yogyakarta in April 2022 with number 002/KEPK/V/2022.

## RESULTS

1. Characteristics of Respondents

Characteristics of Respondents Based on the calculation of the research sample, it was found that the number of respondents in this study was 95 respondents who were members of the community in the Working Area of the Sedayu II Health Center, Bantul. As for the characteristics of the respondents, namely age, gender, last education are described in the following table:

**Table 1.** Characteristic distribution

| Characteristics | Category | Frequency (n) | Percentage(%) |
|---|---|---|---|
| Age | 18-25 Years | 7 | 7,4 |
| | 26-35 Years | 11 | 11,6 |
| | 36-45 Years | 32 | 33,7 |
| | 46-55 Years | 23 | 24,2 |
| | 56-65 Years | 17 | 17,9 |
| | >65 Years | 5 | 5,2 |
| Gender | Woman | 71 | 74,7 |
| | Man | 24 | 25,3 |
| Last education | Primary school | 4 | 4,2 |
| | Junior high school | 19 | 20 |
| | Senior high school | 62 | 65,3 |
| | Perguruan tinggi | 10 | 10,5 |
| Work | Tidak Bekerja | 15 | 15,8 |
| | Petani | 13 | 13,7 |
| | Buruh | 5 | 5,3 |
| | Mahasiswa | 7 | 7,4 |
| | Wirausaha | 34 | 35,8 |
| | Wiraswasta | 19 | 20 |
| | ASN | 1 | 1 |
| | Other | 1 | 1 |

Source: Primary Data, 2022

Based on the results of the study in table 1, the age of the respondents was dominated by late adults aged 36-45 years as many as 39 respondents (33.7%), this is because this age is the age group most exposed to COVID-19 (Kementerian Kesehatan, 2022). The administration of the AstraZeneca type vaccination in the first dose is carried out at an early stage for health workers and is continued for people aged ≥ 18 years. Vaccines at that age will produce a strong immune response (Safira et al., 2021). In terms of gender, there were 71 female respondents (74.7%). This is in line with research conducted by Veri et al. (2022) where the majority of respondents in the study were female exposed to Covid-19.

The respondents with high school education were 62 respondents (65.3%). This is in line with research conducted by Utami & Sani (2021) which in his research on the characteristics of respondents based on education were dominated by high school/high school as many as 209 respondents (54.4%). Respondents based on work are entrepreneurs as many as 34 respondents (35.8%). This is in line with research conducted by Aufah & Utami (2021) which obtained results on job characteristics dominated by entrepreneurs as many as 85 respondents (35.4%).

2. History of Vaccination

In the history of giving COVID-19 vaccinations there are several questions about the history of giving vaccinations used in the community in the working area of the Sedayu II Bantul Health Center which have been prepared by researchers regarding vaccine status, past medical history, conditions before being vaccinated and complaints after carrying out the COVID-19 vaccination Astrazeneca which is described in the following table:

**Table 2.** Frequency distribution of history of vaccination (n=95)

| Characteristics | Category | Frequency (f) | Percentage (%) |
|---|---|---|---|
| Vaccine Dosage | Dose 1 | 2 | 2,1 |
| | Dose 2 | 64 | 67,4 |
| | Dose 3 | 29 | 30,5 |
| Past medical history | None | 80 | 84,2 |
| | Hypertension | 14 | 14,7 |
| | Pulmonary Disease | 1 | 1,1 |
| Conditions Before Vaccination | None | 91 | 95,8 |
| | Cough and cold | 1 | 1,1 |
| | Vomit | 1 | 1,1 |
| | Shortness of breath | 2 | 2 |
| AEFI | There are Complaints | 89 | 93,6 |
| | No Complaints | 6 | 6,4 |

Source: Primary Data, 2022

Based on the characteristics of the vaccination, it can be seen from table 2 that the majority of respondents had received the 2nd dose of vaccine, 64 respondents (67.4%), history of past illness was 80 respondents (84.2%), conditions before being vaccinated were 91 respondents (95.8%), KIPI characteristics have complaints as many as 89 respondents (93.6%).

3. Category of AEFI

The AEFI category was examined based on 23 questions. This could assist researchers in identifying or determining the AEFI categories experienced by respondents. The results of these questions can be seen in the following table:

**Table 3**. Frequency distribution based on AEFI (n=89)

| Category | Frequency (f) | Percentage(%) |
|---|---|---|
| Local AEFI | 14 | 15,7 |
| Systemic AEFI | 63 | 70,8 |
| Severe AEFI | 12 | 13,5 |

Source: Primary Data, 2022

Based on the data in table 3 above, it can be seen that 14 respondents (15.7%) experienced mild local AEFI, 63 respondents (70.8%) experienced mild systemic AEFI and 12 respondents experienced severe AEFI 5%).

**Table 4** Frequency distribution based on local mild AEFI (n=14)

| AEFI | Experiencing Incident | | Not Experiencing | |
|---|---|---|---|---|
| | f | % | f | % |
| Swollen | 3 | 21,4 | 11 | 78,6 |
| Pain | 9 | 64,3 | 5 | 35,7 |
| Redness | 2 | 14,3 | 12 | 85,7 |

Source: Primary Data, 2022

Based on table 4 for the local mild AEFI category, it was found that the majority of respondents who experienced swelling at the injection site were 3 respondents (21.4%), pain was experienced by 9 respondents (64.3%) and redness and itching at the injection site by 2 respondents ( 14.3%).

**Table 5**. Frequency distribution based on mild systemic AEFI (n=63)

| AEFI | Experiencing Incident | | Not Experiencing | |
|---|---|---|---|---|
| | f | % | f | % |
| Swelling at the injection site | 3 | 21,4 | 11 | 78,6 |
| Pain at the injection site | 9 | 64,3 | 5 | 35,7 |
| Redness and itching at the injection site | 2 | 14,3 | 12 | 85,7 |

Source: Primary Data, 2022

Based on the data in table 5 for the mild systemic AEFI category, it was found that 37 respondents (58.7%) had fever, 6 respondents (9.5%) had headaches, 9 respondents had joint pain (13.7%), muscle weakness 2 respondents (3%), weak 4 respondents (6.3%) and easily tired 5 respondents (7.9%).

**Table 6.** Frequency distribution based on severe AEFIs (n=12)

| AEFI | Experiencing Incident | | Not Experiencing | |
|---|---|---|---|---|
| | f | % | f | % |
| Arm muscle paralysis | 10 | 83,3 | 2 | 16,7 |
| Severe allergic reactions (swelling, itching and redness) almost all over the body | 2 | 16,7 | 10 | 83,3 |

Source: Primary Data, 2022

Based on the data in table 6 for the severe AEFI category, it was found that 10 respondents (83.3%) experienced paralysis of the arm muscles and severe allergic reactions in the form of swelling, itching and redness almost all over the body were 2 respondents (16.7%).

**Table 7.** Frequency distribution based on other AEFI reactions (n=4)

| Category | Frequency (f) | Percentage(%) |
|---|---|---|
| Insomnia | 3 | 75 |
| Easily sleepy | 1 | 25 |
| total | 4 | 50 |

Source: Primary Data, 2022

Berdasarkan data pada tabel 7 dapat diketahui bahwa reaksi KIPI lainnya yang dirasakan oleh responden adalah gejala susah tidur sebanyak 3 responden (75%) dan mudah mengantuk sebanyak 1 responden (25%).

## DISCUSSION

Based on post-vaccination conditions, the majority of respondents in this study showed that 89 (93.6%) experienced adverse events following immunization (AEFI), while 6 (6.4%) did not. This aligns with the understanding that no vaccine is entirely without risk, as AEFIs can result from the intrinsic properties of the vaccine product (Seviriana Dewi, 2022). These findings are consistent with a study by Lidiana et al. (2021), which reported 89.5% of respondents experiencing no significant complaints post-vaccination. Since COVID-19 vaccines are relatively new, their safety requires ongoing active and passive monitoring (Koesnoe, 2021). Furthermore, each COVID-19 vaccine has its unique benefits and limitations, including differences in effectiveness, safety, and storage (Rengganis, 2021).

The government ensures that only vaccines proven safe through clinical trials and authorized for emergency use by BPOM are provided to the public (Kementerian Kesehatan, 2022). AEFIs are classified as serious when medical events such as death, hospitalization, or life-threatening conditions result from vaccination (Lidiana, 2021). Despite this, the majority of individuals in the Sedayu II Bantul Health Center area reported no severe complaints, likely due to strong immunity among respondents.

The study found that 14 respondents (15.7%) experienced mild local AEFI, including swelling, pain, redness, and itching at the injection site. The most common symptom was pain at the injection site (6.3%), while redness and itching were the least frequent (14.3%). Local AEFIs, such as pain, redness, and swelling, align with findings by Hartutik & Lidiana (2022), which also reported mild reactions in 60% of respondents. Overall, the incidence of mild AEFIs in Indonesia remains low and non-threatening (Tanmo, 2022).

Mild systemic AEFI was reported by 63 respondents (70.8%), with fever (58.7%) being the most common symptom and arm muscle weakness the least (3%). Symptoms such as fever, fatigue, and headaches are consistent with findings by Dhita Koesno (2021) and typically last 1-2 days. These mild systemic reactions are manageable with fever-reducing medications, as recommended by Hartutik & Lidiana (2022).

The Ministry of Health has implemented various strategies to address AEFIs, including public education on adequate rest, hydration, and symptom management (Kudesiah & Budiman, 2022). For persistent or severe symptoms, individuals are advised to seek immediate medical attention.

Severe AEFIs were reported by 12 respondents (13.5%), with the most common symptom being arm muscle paralysis (83.3%) and the least frequent severe allergic reactions (16.7%). Severe AEFIs, such as widespread redness, itching, or muscle paralysis, are rare and manageable at primary healthcare facilities (Safira et al., 2021). This is consistent with research highlighting the need for prompt medical attention in cases of life-threatening AEFIs (Yanti, 2022).

Other AEFIs, such as insomnia and drowsiness, were reported by 4 respondents (4.2%), with insomnia being more prevalent (75%). These findings align with the study by Romlah & Darmayanti (2022), which also observed similar symptoms. However, the study's limitation was the sample size, as data were collected from only 8 out of 27 hamlets due to the vast coverage area, potentially affecting the representativeness of the findings.

## CONCLUSION

The study revealed that the majority of

respondents were late adults aged 36–45 years, predominantly female, with high school education, and working as entrepreneurs. Most respondents had received the AstraZeneca vaccine, primarily the second dose, with no significant pre-existing conditions or contraindications, yet a majority reported experiencing AEFIs. The AEFIs observed were predominantly mild, including local reactions such as swelling, pain, redness, and itching, as well as systemic symptoms like fever and fatigue, indicating manageable and non-severe side effects.

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## CONFLICT OF INTEREST

The Authors declares that there is no conflict of interest.

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