KESANS: International Journal of Health and Science
e-ISSN: 2808-7178, p-ISSN: 2808-7380
Web: http://kesans.rifainstitute.com/index.php/kesans/index

Difference in Secondary Effects Between AstraZeneca Vaccine and Sinovac Vaccine for Females Aged 18 and above in 2023

Ermelinda da Costa Monteiro, Sandra da Costa Neto, Jose Dionisio Ximenes, Livio da Conceição Matos, Eugenia Carvalho de Araújo, Etelvina Jose Soares Tilman

Department of Midwifery, National University of Timor Lorosa'e, Timor-Leste
ermelindamonteiro30@gmail.com, sandradacostaneto@gmail.com, josedionisioximenes@gmail.com, li.conceicao@yahoo.com, aroujogina5@gmail.com, etelsalsinha@gmail.com

Article Information
Submitted: **10 April 2024**
Accepted: **13 April 2024**
Online Publish: **20 April 2024**

Abstract

Introduction*: The COVID-19 pandemic has had a severe impact on health, economy, and society worldwide. According to WHO, COVID-19 vaccines are safe and effective in protecting individuals from the risk of severe COVID-19 disease and death. COVID-19 vaccines have received Emergency Use Listing (EUL) and Emergency Use Authorization (EUA) licenses. According World in Data, 53.8% of the global population has received the first dose of COVID-19 vaccination, with 7 million doses provided globally. Timor Leste has vaccine coverage of 78% and 65.1% for the first and second doses of AstraZeneca and 6.3% and 5.9% for Sinovac.* ***Objective:*** *To determine the difference in the secondary effects of AstraZeneca and Sinovac vaccines for females aged 18 or older in Becora village, Cristo Rei administrative post, Dili municipality, in the year 2023.* ***Method:*** *A quantitative analytical method with a cross sectional approach was used with a total sample population of 325 female respondents aged 18 or older who had received the AstraZeneca or Sinovac vaccines.* ***Results and Discussion:*** *Out of the 325 female respondents, 173 (53.2%) received the AstraZeneca vaccine, and 152 (46.8%) received the Sinovac vaccine. 142 (82.1%) of the AstraZeneca vaccine recipients and 92 (60.5%) of the Sinovac vaccine recipients experienced side effects classified as mild. 89 (51.4%) of the AstraZeneca vaccine recipients reported lower body pain. The Sinovac vaccine accounts for 44 (28.9%) of the total. The statistical test results show that there is a significant difference in secondary effects between the AstraZeneca and Sinovac vaccines (p value: 0.000) in cotton thread. The secondary effects in the body are different between the AstraZeneca and Sinovac vaccines (p value: 0.000).* ***Conclusion:*** *Based on the results from female respondents aged 18 and above who have received COVID-19 vaccines, it shows that there is a difference in secondary effects between the AstraZeneca and Sinovac vaccines.*

Key word: Secondary Effects; AstraZeneca vaccine; Sinovac Vaccine;

How to Cite **Ermelinda da Costa Monteiro, Sandra da Costa Neto, Jose Dionisio Ximenes, Livio da Conceição Matos, Eugenia Carvalho de Araújo, Etelvina Jose Soares Tilman/Difference in Secondary Effects Between AstraZeneca Vaccine and Sinovac Vaccine for Females Aged 18 and above in 2023, Vol. 3, No. 7, 2024**
DOI https://doi.org/10.54543/kesans.v3i7.289
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **Rifa'Isntitute**

Introduction

Corona Virus Disease 2019 (COVID-19) is an infectious disease caused by the severe acute respiratory syndrome 2 (SARS CoV 2) virus that has spread worldwide. This disease was first reported in the city of Wuhan, China, on December 31, 2019. On February 11, 2020, WHO officially named the disease Corona Virus Disease 2019 (COVID-19), while on March 11, 2020, it declared the disease a pandemic or a global disease. This has had a significant impact on the health system, economic progress, and social life worldwide. Since its initial confirmation in January 2020, the number of COVID-19 cases has continued to rise globally, reaching a total of 116.1 million confirmed cases and 2.5 million deaths as of March 7, 2021, according to WHO (MdS, 2021). To reduce the number of positive COVID-19 cases, WHO declares that the COVID-19 vaccine is safe and effective at protecting people from serious risks associated with COVID-19, including death, hospitalization, and severe illness. The COVID-19 vaccine has been given Emergency Use Listing (EUL) by WHO and Emergency Use Authorization (EUA) certification (WHO, 2021).

A vaccine is identified as a substance made up of microorganisms that are either weakened or killed to produce antibodies or immunity in the body (Rachmawati et al., 2019). According to data reported by Our World in Data, 53.8% of the world's population has received the first dose of the COVID-19 vaccine and 7 million doses have been provided globally. Singapore has the highest percentage of vaccinated population with 91% having received complete doses, followed by United Arab with 88%. Many nations are currently developing the COVID-19 vaccine like the United States of America, Germany, Austria, England, China, Australia, France, India, and Hong Kong. (Khan et al., 2021)

Timor Leste confirmed its first COVID-19 case on March 21, 2020, and as of June 30, 2021, there have been a total of 9,222 confirmed cases with 8360 recovered, 839 active cases, and 23 deaths. The Timor Leste government has authorized healthcare agents to offer health services to all people to receive the COVID-19 vaccine. The first vaccine launched in Timor Leste was the AstraZeneca vaccine on April 7, 2021, followed by the Sinovac vaccine on June 14, 2021. Both vaccines are effective in providing significant protection against COVID-19. The vaccination campaign aims to reduce the impact of COVID-19 on the community, complement health protocols, normalize the situation, and recover the economy. According to data on the WHO page, as of February 8, 2022, the total vaccine coverage in Timor Leste for AstraZeneca was 588.869 (78.0%) for the first dose, 491.392 (65.1%) for the second, while for Sinovac it was total 47.191 (6.3%) for the first dose and 44.557 (5.9%) for the second dose (WHO, TL, 2022)

According to data from the Dili Municipal Health Services (SSM), in 2021 2022, the vaccine coverage for AstraZeneca and Sinovac was 192,848 (86.7%) for the first dose and 181,433 (81.5%) for the second dose. Based on data taken from the Becora Community Health Center in Cristo Rei Administrative Post, Dili Municipality, in 2021 2022, a total of 4,087 women aged 18 and above received the first dose of AstraZeneca and 2,776 received the second dose, while a total of 1,853 received the first dose and 1,802 received the second dose of Sinovac.

In the Becora village, a total of 1,665 women aged 18 and above received the first dose of AstraZeneca and 848 received the second dose, while a total of 81 received the first dose and 54 received the second dose of Sinovac. According to Retno et al. (2021), COVID-19 vaccination is an important prevention mechanism in the fight against the pandemic, but the use of vaccines may also create secondary effects and become a concern for some community members. Given the data above on the number of people who received the COVID-19 vaccine in the first and second doses, researchers are interested in investigating the difference in secondary effects between the AstraZeneca and Sinovac vaccines for women aged 18 and above in the Becora village, Cristo Rei Administrative Post, Dili Municipality.

Method

Is a quantitative analytical approach with a cross sectional sampling method, with a total of 325 participants to analyze the difference in secondary effects between the AstraZeneca and Sinovac vaccines for women aged 18 and above in the Becora village, Cristo Rei Administrative Post, Dili Municipality, Timor-Leste.

Result and Discussion

Result

Table 1

Distribution of Respondents who Received COVID-19 Vaccine Types in Becora Village, Cristo Rei Administrative Post, Dili Municipality, Timor-Leste in the Year 2023

No	Vaccine Type	Frequency	Percentage %
1	AstraZeneca Vaccine	173	53.2
2	Sinovac Vaccine	152	46.8
Total		**325**	**100**

Based on the results of table no. 1 above, it shows that the majority of respondents, total 173 (53.2%), received the AstraZeneca Vaccine.

Table 2

Distribution of Respondents Who Experienced Secondary Injection Symptoms at Injection Sites at Becora Village, Cristo-Rei Administrative Post, Dili Municipality, Timor-Leste in the Year 2023.

No	Symptoms at Cotton Sites	Injection Site			
		AstraZeneca Vaccine		Sinovac Vaccine	
		Frequency	Percentage %	Frequency	Percentage %
1	Feeling Sick	142	82.1	92	60.5
2	Heavy	96	55.5	28	18.4
3	Swollen	71	41.0	30	19.7
4	Toos	56	32.4	19	12.5
5	No effect	17	9.8	54	35.5
6	Read	8	4.6	1	0.7
7	Itchy	3	1.7	1	0.7
	Total	**393**		**225**	**325**

Sources: Primary data from the 2023 research results.

Based on the results of table no. 2 above, it shows that AstraZeneca Vaccine caused more respondents to feel sick, total 142 (82.1%), compared to Sinovac Vaccine which caused 92 (60.5%)

Table 3

Distribution of Respondents who received the AstraZeneca and Sinovac vaccines and experienced secondary effects on their body in Suco Becora, Cristo Rei Administrative Post, Dili Municipality Timor-Leste in the year 2023

No	Symptoms in body part	Place of injection			
		AstraZeneca Vaccine		Sinovac Vaccine	
		Frequency	Percentage %	Frequency	Percentage %
1	Tired body	89	51.4	44	28.9
2	Sickness	73	42.2	19	12.5
3	Cold and feverish body	73	42.2	30	19.7
4	Tired foot and leg	67	38.7	44	28.9
5	Sick head	67	38.7	10	6.6
6	No effects	33	19.1	78	51.3
7	No appetite	18	10.4	4	2.6
8	Clear inside and vomit	12	6.9	2	1.3
9	Fleeing face	11	6.4	2	1.3
10	Pull on the hand and serious	6	3.5	0	0
11	Sick stomach inside	3	1.7	1	0.7
	Total	**452**		**233**	

Sources: Primary research data 2023 survey results

Based on the results in table no. 3 above, the secondary effects in respondents who received AstraZeneca and felt tired body are the majority, a total of 89 (51.4%), compared to Sinovac Vaccine, which has 78 (51.3%)

Table 4

Distribution of Respondents who received the AstraZeneca and Sinovac vaccines and showed signs before taking them in Suco Becora, Cristo Rei Administrative Post, Dili Municipality Timor-Leste in the year 2023.

No	Sin	Before taken			
		AstraZeneca Vaccine		Vasina Sinovac	
		Frequency	Percentage	Frequency	Percentage
1	Many signs appeared	147	85	115	75.7
2	Clear inside and vomit	26	17.1	0	0
3	Sick head	5	2.9	0	0
4	Cold	3	1.7	0	0
5	Tired body	3	1.7	1	0.7
6	Sickness	1	0.6	2	1.3
7	Cold and feverish body	1	0.6	0	0
8	Sick stomach inside	1	0.6	0	0
9	Pull on the hand and serious	1	0.6	0	0

Sources: Primary research data 2023 survey results.

Based on the results in the table no. 4 above, the signs mostly appeared before respondents received AstraZeneca vaccine, a total of 147 (85%), when compared to Sinovac Vaccine which had 115 (75.7%).

Table 5

shows the difference in secondary effects in cotton or frying spots between the AstraZeneca vaccine and the Sinovac vaccine for women aged 18 and above in Becora, Cristo-Rei Administrative Post, Dili municipality Timor-Leste in the year 2023.

No	Vaccine Type	Effects in the body		Total	*p-value*
		Effect	No effect		
1	Vaccine AstraZeneca	156	17	173	0.000
		90.2%	9.8%	100%	
2	Vaccine Sinovac	98	54	152	
		64.5%	35.5%	100%	
Total		**254**	**71**	**325**	
		78.2%	**21.8%**	**100%**	

Based on table number 5, it indicates that girls aged 18 and above who have received the AstraZeneca vaccine injection, which is made from cotton thread, have a total number of secondary school side effects. 156 (90.2%) experienced secondary effects, while out of the 152 women who received the Sinovac vaccine, 98 (64.5%) experienced secondary effects. On the other hand, 54 (35.5%) of those who received the Sinovac vaccine did not experience any secondary effects, while 17 (9.8%) of those who received the AstraZeneca vaccine did not experience any secondary effects. The statistical test results show a significant difference in the secondary effects in cotton or frying spots between the two vaccines (p-value: 0.000).

Table 6

Shows the difference in secondary effects in the body's flesh between the AstraZeneca vaccine and the Sinovac vaccine for women aged 18 and above in Becora, Cristo Rei Administrative Post, Dili municipality Timor-Leste in the year 2023.

No	Vaccine Type	Effects in the body		Total	*p-value*
		Effect	No effect		
1	AstraZeneca vaccine	140	33	173	0.000
		80.9%	19.1%	100%	
2	Sinovac vaccine	74	78	152	
		48.7%	51.3%	100%	
Total		**214**	**111**	**325**	
		65.8%	**34.2%**	**100%**	

Based on table number 6 above, it shows that females aged 18 and above who received the AstraZeneca vaccine experienced secondary effects in the body at a total of 140 (80.9%), while those who received the Sinovac vaccine showed a total of 74 cases (48.7%) without secondary effects in the body. For the AstraZeneca vaccine, there were 33 cases (19.1%) of no secondary effects and for the Sinovac vaccine there were 78 cases (51.3%). The statistical test results show a significant difference between the secondary effects in the body between the AstraZeneca and Sinovac vaccines (p-value: 0.000).

Discussion

The difference in secondary effects of the AstraZeneca and Sinovac vaccines on women in the village Becora, Cristo Rei Administrative Post, Dili Municipality, Timor-Leste

Based on the research results, a total of 325 respondents who received either AstraZeneca or Sinovac vaccines, out of which 173 received AstraZeneca and 152 received Sinovac. Among the AstraZeneca vaccine recipients, a total of 156 (90.2%) experienced secondary effects including feeling sick (82.1%), heavy body sensations (55.5%), swollen areas (41%), difficult labor (32.4%), redness/golden areas (4.6%), and itching (1.7%). Meanwhile, there were 17 (9.8%) recipients who did not experience any secondary effects. On the other hand, among the Sinovac vaccine recipients, a total of 98 (64.5%) experienced secondary effects including feeling sick (60.5%), swollen areas (19.7%), heavy body sensations (18.4%), difficult labor (12.5%), redness/golden areas (0.7%), and itching (0.7%). With statistical test results indicating a significant difference (p value: 0.000),

Based on the research results, it shows that females aged 18 and above who have received the AstraZeneca vaccine mostly experienced secondary effects at a total of 156 cases (90.2%), compared to those who received the Sinovac vaccine with a total of 98 cases (64.5%). According to Waluyo (2021), after receiving the AstraZeneca vaccine, secondary effects such as feeling sick, swollen, or inflamed area, tiredness, headache, muscle pain, and itchiness may occur at the injection site. According to Marwan (2021), after receiving the Sinovac vaccine, secondary effects such as feeling sick, swollen, or inflamed area, and muscle pain may occur at the injection site.

The research results also indicate a difference in secondary effects in the body between the AstraZeneca and Sinovac vaccines in Suco Becora, Cristo Rei Administrative Post, Dili Municipality, Timor-Leste.

Based on the research, out of the females aged 18 and above who have received the AstraZeneca vaccine, a total of 140 cases (80.9%) experienced secondary effects in the body. These effects include feeling tired (51.4%), being sick (42.2%), feeling cold/chills and experiencing body heat (42.2%), hand/arm swelling (38.7%), headache (38.7%), loss of appetite (10.4%), feeling nauseous or vomiting (6.9%), running or swollen feet/legs (6.4%), high fever (3.5%), stomach pain (1.7%), and 33 cases (19.1%) experienced no secondary effects. For those who received the Sinovac vaccine, a total of 74 cases (48.7%) experienced secondary effects in the body. These effects include being tired (28.9%), hand/arm swelling (28.9%), feeling cold/chills and experiencing body heat (19.7%), being sick (12.5%), headache (6.6%), loss of appetite (2.6%), feeling nauseous or vomiting (1.3%), running or swollen feet/legs (1.3%), stomach pain (0.7%), and 78 cases (51.3%) experienced no secondary effects in the body. The statistical test results show that there is a significant difference between the two vaccines. The test results show a significant difference in the secondary effects in the body between the AstraZeneca vaccine and the Sinovac vaccine (p value: 0.000). Based on research results, it shows that females aged 18 and above who received the AstraZeneca vaccine mostly experienced secondary effects in their bodies; a total of 140 (80.9%) reported these effects.

In comparison, females aged 18 and above who received the Sinovac vaccine mostly experienced secondary effects in their bodies, with a total of 74 (48.7%) reporting them. According to Waluyo (2021), the secondary effects of the AstraZeneca vaccine in the body include muscle pain, headaches, fever, fatigue, a lack of appetite, joint pain, swollen lymph nodes, stomachache, and the possibility of serious secondary effects such as blood clots. These secondary effects may occur depending on everyone's body immunity and may last from one to two days or up to a week. According to Marwan (2021), the Sinovac vaccine's secondary effects in the body include muscle pain, joint pain, fever, fatigue, and a stomach ache.

These secondary effects may also occur depending on everyone's body immunity and may last from one to two days. COVID-19 vaccination is a crucial mechanism in the fight against the pandemic. The AstraZeneca and Sinovac vaccines help all nations, including Timor Leste, fight COVID-19. However, these vaccines may create secondary effects and become a concerning factor for some community members. Therefore, those who wish to receive these vaccines should prepare to face these secondary effects According to the Centers for Disease Control and Prevention (CDC) (2023), the best way to prevent secondary effects from COVID-19 vaccination is to:

Use cotton for dressing and apply a cold compress on the injection site. - Move the affected hand (or arm) regularly. - You can take a nap. - Drink lots of water and juice. - Wear comfortable clothes. - Consult with the doctors regarding taking pain relievers such as Ibuprofen, Acetaminophen, and Aspirin (allowed for people aged 18 and above).

Conclusion

Based on the research results conducted on "the difference in side effects between the AstraZeneca vaccine and the Sinovac vaccine for women aged 18 and above in Suco Becora, Cristo-Rei Administrative Post, Dili Municipality, in 2023", with a total sample of 325 respondents consisting of 173 who received the AstraZeneca vaccine and 152 who received the Sinovac vaccine.

The research results showed that 142 (82.1%) respondents who received the AstraZeneca vaccine and 92 (60.5%) who received the Sinovac vaccine experienced pain at the injection site. Symptoms of lumpy flesh appeared in 89 (51.4%) respondents who received the AstraZeneca vaccine and 78 (51.3%) who received the Sinovac vaccine. The statistical test results showed that there was a significant difference in the side effects at the injection site between the AstraZeneca vaccine and the Sinovac vaccine (p-value: 0.000). In terms of symptoms of lumpy flesh, there was also a significant difference between the two vaccines (p-value: 0.000).

Reference

Arsunan Arsin, A., Daud, A., Syam, A., & Hanafiah, S. S. (2020). Penanganan CORONAVIRUS (COVID-19) ditinjau dari Perspektif Kesehatan Masyarakat. Yogyakarta: Gosyen Publishing.

Bakri, A., Novia, K., Tangadatu, H., & Pantas, K. C. (2022). Faktor-Faktor yang Berhubungan Dengan Penerimaan Masyarakat Terhadap Vaksinasi COVID-19 di Puskesmas Makkasau. Jurnal Keperawatan Flrorence Nightingale (JKFN), Vol. 5, No.1, PP. 31-36.

Bramasta, D. B. (03 de 10 de 2021). Mengenal Vaksin AstraZeneca, dari Diproduksi Inggris hingga Efek Sampingnya Obtido de kompas.com: https://www.kompas.com/tren/read/2021/03/10/104500165/mengenal-vaksin-astrazeneca-dari-diproduksi-inggris-hingga-efek-sampingnya?page=all.

CDC Center for Disease Control and Prevention. (2023, May 05). Possible Side Effects After Getting a COVID-19 Vaccine. Retrieved from Common Side Effects: cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html

Governu Timor-Leste. (14 de Juñu de 2021). Doze dahuluk husi Vasina Sinovac hahú distribui ohin. Obtido de http://timor-leste.gov.tl/: http://timor-leste.gov.tl/?p=28506&n=11&lang=tp

Hidayat, A. A. (2017). Metodologi Penelitian Keperawatan dan Kesehatan. Jakarta: Salemba Medika.

Khairinal, H. (2016). Menyusun: Proposal, Skripsi, Tesis dan disertasi. Jambi: Salim media Indonesia (anggota IKAPI).

Marawan, d. (2021). Pandemik COVID-19 Persoalan dan Refleksi di Indonesia. Surabaya: Yayasan Kita Menulis.

MdS TL, OMS TL no UNICEF TL. . (2021). Kampaña Vasinasaun ba COVID-19 ba 2021. Em Gia Planeamentu no Implementasaun (pp. 1-6). Dili: Ministériu Saúde Timor-Leste.

Notoatmodjo. (2018). METODOLOGI PENELITIAN KESEHATAN. Jakarta: Rineka Cipta.

Octafia, L. A. (2021). Vaksin COVID-19: Perdebatan, Persepsi dan Pilihan. Jurnal Emik, Volume 4 nomor 2.

Panenggak, N. S., Pembayun, N. S., Erta, Puspita Dewi, H. s., & Nurhasan. (2021). Efek Samping dan Reaktogenisitas Vaksin COVID-19: Survei. Jurnal Ilmiah Indonesia p–ISSN: 2541-0849 , Vol.6, Special Issue No.2.

Rachmawati, S. D., Barlianto, W., & Ariani. (2019). Pedoman Praktis Imunisasi pada Anak. Em Hockenberry, &, & Wilson, Definisi Imunisasi (pp. 1-2). Malang: UB Press.

Rahayu, S., Nugraha, S. M., Manik, C., Handayani, N., Jovina, T., & Budiati, N. (2020). COVID-19: The Nightmare or Rainbow. Em S. M. Nugraha, Corona Virus (COVID-19) (pp. 1-5). Jakarta: Tim Mata Aksara publishing.

Reiter, P. L., Pannell, M. L., & Katz, M. L. (2020). Acceptability of a COVID-19 Vaccine among adults in the United States: How many people would get vaccinated?

Relatóriu, S. S. (2021-2022). Kobertura Vasinasaun COVID-19. Dili: Dados Estatística.

Retno, N. S., Retno, N. S., Erta, Dewi, H. C., & Nurhasan. (2021). EFEK SAMPING DAN REAKTOGENITAS VAKSIN COVID-19: SURVEI PENERIMA VAKSIN. Jurnal Ilmiah Indonesia p-ISSN: 2541-0849 e-ISSN: 2548-1398, Vol. 6, Special Issue No. 2.

Rinata, E., & Andaiany, G. A. (2018). Karakteristik Ibu (Usia Paritas Pendidikan) dan Dukungang Keluarga dengan Kecemasan Ibu HAmil Trimester III. Jurnal Ilmiah Ilmu-ilmu Kesehatn, Vol.16, No.1, Halaman 14.

Simamora, S. C. (2021). Pengaruh data Vaksinasi, Indeks dow Jones dan nilai tukar terhadap indeks harga saham gabungan (IHSG) di Bursa efek Indonesia periode Triwulan satu. Jurnal Ilmiah M-Progress, Vol.11, No.2.

Sugiyono. (2022). Metode Penelitian Kuantitatif. Bandung: ALFABETA.

Sugiyono. (Cetakan Ke-3 2021). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: ALFABETA.

Waluyo, R. A. (Juñu de 2021). Vaksin AstraZeneca. Obtido de abdiwaluyo.com: https://www.abdiwaluyo.com/wp-content/uploads/2021/06/FA_Astra-Zeneca.pdf

WHO. (11 de Juni de 2021). COVID-19 Vaccine (Vero Cell), Inactivated, CoronaVac®.Obtidodecdn.who.int:https://cdn.who.int/media/docs/defaultsource/searo/indonesia/COVID-19/penjelasanvaksinvaksinCOVID-19coronavacsinovac.pdf?sfvrsn=e63a2445_5/

WHO Timor-Leste. (08 de Fevereiru de 2022). Moras Virus Corona 2019(COVID-19) Timor-Leste. Obtido de cdn.who.int: https://cdn.who.int/media/docs/default-source/searo/timor-leste/tls-c19-sitrep-138-tet-08022022.pdf?sfvrsn=a01c656e_1.