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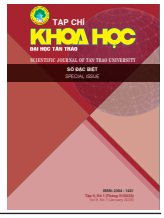

THE STATUS ADVERSE REACTIONS AFTER PFIZER VACCINATION OF EMPLOYEES IN TAN TRAO UNIVERSITY IN 2021

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Abstract:

The COVID-19 pandemic has caused of the deaths of millions of lives in the worldwide, and the number of deaths people continues to rise. Pfizer vaccine is being used widely for both adults and children in Vietnam. Therefore, we conducted a study: "The status adverse reactions after Pfizer vaccination of employees in Tan Trao University in 2021". After that, providing more evidence on the safety of COVID-19 vaccination for vaccine manufacturers as well as citizen, proposing recommendations in COVID-19 prevention in Tan Trao University. The retrospective study, conducted from November 2021 to January 2022 through interviews 123 employees who injected Pfizer vaccine, selected the entire sample using a available questionnaire. Results: 79.7% dose 1, 78.9% dose 2 had adverse reactions after Pfizer vaccination. Gender had a statistically significant relationship with reactions after Pfizer vaccination in both dose 1 and dose 2.

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THỰC TRẠNG PHẢN ỨNG SAU TIÊM VACCINE PFIZER CỦA CÁN BỘ, GIẢNG VIÊN VÀ NGƯỜI LAO ĐỘNG TRƯỜNG ĐẠI HỌC TÂN TRÀO NĂM 2021

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Thông tin bài viết

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Từ khóa:

Vaccine Pfizer, phản ứng sau tiêm.

Tóm tắt

Đại dịch COVID-19 đã cướp đi hàng triệu sinh mạng trên toàn thế giới, số người mắc bệnh và số người chết vẫn tiếp tục gia tăng. Vaccine Pfizer đang được sử dụng rộng rãi cho cả người trưởng thành và trẻ nhỏ tại Việt Nam. Do đó, chúng tôi tiến hành nghiên cứu: "Thực trạng phản ứng sau tiêm vaccine Pfizer của cán bộ, giảng viên và người lao động Trường Đại học Tân Trào năm 2021". Từ đó, cung cấp thêm bằng chứng về tính an toàn của việc tiêm vaccine COVID-19 cho các nhà sản xuất vaccine cũng như toàn bộ người dân, đề xuất các khuyến nghị trong công tác phòng COVID-19 của nhà Trường. Nghiên cứu hồi cứu, được thực hiện từ tháng 11 năm 2021 đến tháng 1 năm 2022 thông qua phỏng vấn 123 cán bộ, giảng viên và người lao động đã tiêm vaccine Pfizer, chọn mẫu toàn bộ bằng bộ câu hỏi có sẵn. Kết quả: 79,7% có các phản ứng sau tiêm vaccine Pfizer mũi 1. 78,9% có các phản ứng sau tiêm vaccine Pfizer mũi 2. Giới tính có mối liên quan có ý nghĩa thống kê với phản ứng sau tiêm vaccine Pfizer ở cả mũi 1 và mũi 2.

1. Introduction

COVID-19 is an infectious disease caused by the SARS-CoV-2 virus and its variants are taking place on a global scale with increasing morbidity and mortality rates.

Symptoms of COVID-19 range from mild to severe. The main preventive measures are vaccination, early detection and isolation. In September 2021, 6 vaccines against COVID-19 have been licensed for use in Vietnam: Pfizer Vaccine, AstraZeneca Vaccine, Gam-COVID-Vac Vaccine (also known as SPUTNIK V), Sinopharm's Vero Cell Vaccine, COVID- 19 Vaccine Janssen, Vaccine Moderna [1].

Pfizer vaccine is the Comirnaty vaccine of Pfizer/ BioNTech [2], common post-vaccination reactions such as arthralgia, myalgia, headache, fatigue, pain at injection site, fever (higher frequency for the 2nd dose), swelling at injection site, chills. Redness at the injection site and nausea are common symptoms. Uncommon: lymphadenopathy, extremity pain, insomnia, injection site pruritus, malaise. Acute peripheral facial paralysis is rare, anaphylactoid reactions, thrombocytopenia, and myocarditis are very rare [3].

The COVID-19 vaccine is intended to prevent the spread of acute respiratory infections caused by SARS-CoV-2. There have been studies showing that vaccination in addition to preventing COVID-19

disease also helps to reduce severe symptoms, reduce the rate of complications as well as reduce the mortality rate if infected with COVID-19. Vaccines help the body produce antibodies against SARS-CoV-2, and if many people are injected, it will create herd immunity actively. This limits the spread of disease very effectively.

In Tan Trao University, most of the employees have been vaccinated against COVID-19. In Tuyen Quang, there has been no research on status reaction after Pfizer. Therefore, we conducted a study: " The status adverse reactions after Pfizer vaccination of employees in Tan Trao University in 2021". After that, providing more evidence on the safety of COVID-19 vaccination for vaccine manufacturers as well as the general population, proposing recommendations in COVID-19 prevention in Tan Trao University.

2. The current situation

2.1. Objective

1. Describe the status adverse reactions after Pfizer vaccination of employees in Tan Trao University in 2021.

2. Determining some factors related to the status adverse reactions after Pfizer vaccination of employees in Tan Trao University in 2021.

2.2. Research subjects

All employees in Tan Trao University have been vaccinated Pfizer vaccine.

2.3. Time and Place

Time: from November 2021 to January 2022.

Place: Tan Trao University.

2.4. Research design

Retrospective study.

2.5. Sample size

- Select all employees who have been vaccinated Pfizer vaccine in Tan Trao University in 2021. In fact, 123 people participated in the study.

2.6. The method of data collection

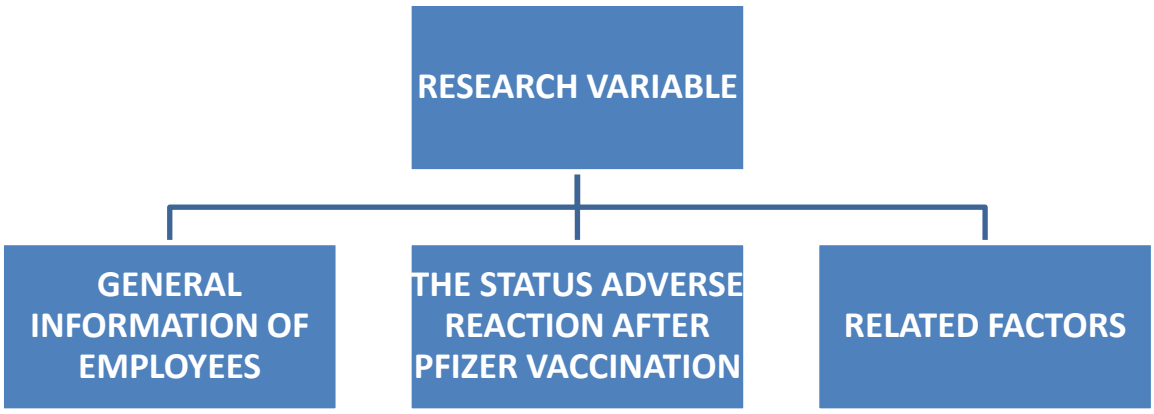
Collected from Administration Department: a list of employees who have been vaccinated Pfizer vaccination.

- Build a questionnaire.

- Investigation: Send available questionnaires to the email of employees who have injected Pfizer vaccine. There are phone number of the researcher in the questionnaire, who do not understand the question can be contacted. In case the employees do not use email or Zalo, we will interview them directly.

− Collect questionnaires.

2.7. Research variable



2.8. Method of data analysis

Data entry using Epidata 3.1; Data analysis using SPSS 22.0

2.9. Research ethics issues

- The study was carried out under the permission of Tan Trao University.

- The study was approved by the Ethics Committee of Ha Noi University of Public Health.

2.10. Error and remedy

Error of remember in the past: Use a questionaire that list specific, easy-to-understand post-injection reactions so that the employees can remember and answer them easily.

3. Result and Discussion

3.1. General information

We interviewed 123 employees who have been enjected Pfizer vaccine in Tan Trao University.

Table 1. General information

		N	%
Age group	20 -29	20	16,3
	30 - 39	70	56,8
	40 - 49	27	22
	≥ 50	6	4,9
Gender	Male	25	20,3
	Female	98	79,7
BMI [4]	< 18,5	8	6,5
	18,5 – 22,99	72	58,5
	≥ 23	43	35
Chronic disease	Chronic disease	24	19,5
	None chronic disease	99	80,5
Total		**123**	**100**

Among 123 employees who have been injected Pfizer vaccine, the age group from 30-39 accounts for the highest percentage (56,8%), the age group ≥ 50 accounts for a very low percentage (4,9%). 2/3 of the employees are female (79,7%), this is consistent with the general status of employees in Tan Trao University, the majority rate are female. 58,5% have normal body mass index (BMI), 1/3 have BMI ≥ 23 (35%). The majority of employees did not have chronic diseases, accounting for 80,5%.

3.2. The status of adverse reactions after Pfizer vaccination

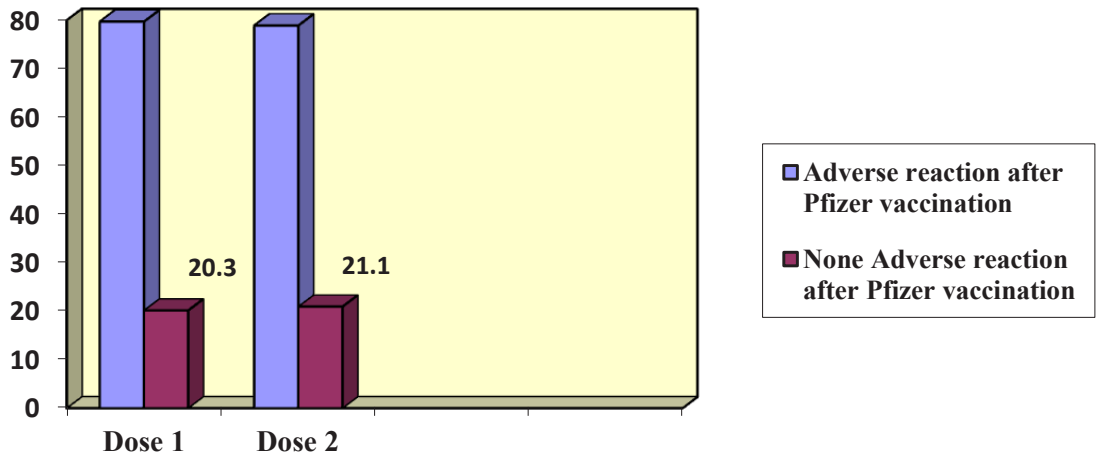


Figure 1. The rate of adverse reactions after Pfizer vaccination

79,7% dose 1, 78,9% dose 2 had adverse reactions after Pfizer vaccination, the rate of dose 2 was slightly lower than dose 1.

Table 2. The status of adverse reactions after Pfizer vaccination

Symptoms	Dose 1		Dose 2	
	N	%	N	%
Redness at injection site	10	8,1	11	8,9
Headache	28	22,8	38	30,9
Muscle and joint pain	55	44,7	55	44,7
Body temperature ≥ 38 degrees	13	10,6	28	22,8
Itching at the injection site	12	9,8	10	8,1
Insomnia	7	5,7	10	8,1
Nausea	9	7,3	8	6,5
Vomiting	1	0,8	1	0,8
Allergy	1	0,8	1	0,8
Diarrhea	2	1,6	2	1,6
cough	1	0,8	3	2,4
Faint	1	0,8	0	0
Hair loss	8	6,5	8	6,5
Tired	37	30,1	43	35
Chills	12	9,8	13	10,6
Stomachache	0	0	2	1,6
Swollen lymph nodes	4	3,3	8	6,5
Swelling at injection site	48	39	2	1,6
Sleepy	0	0	0	0
Numbness of tongue and lips	1	0,8	0	0
No symptoms	25	20,3	26	21,1

The results showed that: 44,7% accounts for symptoms of muscle and joint pain, injection site swelling (39%), fatigue (30,1%), headache (22.8%), body temperature ≥ 38°C (10,6%), injection site itching (9,8%), chills (9,8%), injection site redness (8,1%), nausea (7,3%), hair loss (6,5%), while other symptoms account for a negligible proportion such as: Swollen lymph nodes, diarrhea, vomiting, allergy, cough, faint, numbness of tongue and lips. According to a study by Mohamed Adam (2021), regarding the onset of symptoms after the first and second doses of COVID-19 vaccine, 32,1% reported no symptoms after the first dose [5]. This rate is higher than our study 20,3% had no symptoms after 1st injection.

In dose 2, the rate of muscle and joint pain accounted for the highest rate at 44,7%, followed by fatigue (35%), headache (30,9%), body temperature ≥ 38°C (22,8%), chills (10,6%), Redness at injection site (8,9%), Itching at the injection site (8,1%), insomnia (8,1%), nausea (6,5%), hair loss (6.5%), swollen lymph nodes (6.5%). Other uncommon symptoms include: cough, diarrhea, Stomachache, swelling at the injection site, vomiting, allergy. However, 21,1% had no symptoms. The results have a lower rate than the study of Rikin Patel (2022), the most common reactions are mild and moderate pain at the injection site, fatigue (59%), headache (52%), fever (16%) [6].

The rate of symptoms after Pfizer vaccination was lower than in the study of Alejandro Pascual Iglesias (2021). Pain at the injection site (66,1%), fatigue (50,5%), headache (39%), myalgia (28,7%), chills (22,7%), fever (10.9) %), nausea (0,7%. Allergic reactions are very rare; cardiac adverse events with any vaccine occur in < 0.1% of patients [7]. In Abanoub Riad's study (2021), pain at the injection site (89,8%), Next were fatigue (62,2%), headache (45,6%), myalgia (37,1%) and chills (33.9%) [8].

3.3. Related factors

Table 3: Logistic regression analysis between factors related to the adverse reactions after Pfizer vaccination 1st and 2nd doses

Related factors	Dose 1	Dose 2
	p	p
Age	0,984	0,573
Gender	0,02	0,01
BMI	0,135	0,082
Chronic disease	0,121	0,551
Allergy	0,35	0,325

The results of logistic regression analysis showed that: Age, BMI, Chronic disease, allergy were not related to the adverse reactions after Pfizer vaccination 1st and 2nd doses because p > 0,05. Gender has a statistically significant relationship with the adverse reactions after Pfizer vaccination 1st and 2nd doses because p < 0,05 in both doses.

Our results are different from the study of Abanoub Riad (2021), the rate of post-injection reactions in the group ≤ 43 years old (94,8%) is not significantly higher than the group > 43 years old (91,5%). All post-injection reactions were reported more commonly in the group ≤ 43 years of age than in the group > 43 years [8]. In the study of Rikin Patel (2022), young patients had injection site pain (83% after 1st dose, 78% after 2nd dose) more often than older patients (71% after 1st dose, 66% after 2nd dose). Systemic reactions are much more common in dose 2 and in younger people more common than in older people [6].

Table 4. Relationship between Gender and Reactions after injection of Pfizer vaccine 1st dose

		Reactions after injection of Pfizer vaccine 1st dose				OR	95% CI_{OR}	P
	Yes		No					
	N	%	N	%				
Gender	Female	84	85,7	14	14,3	4,714	1,784-12,454	0,02
	Male	14	56	11	44			

Gender has a statistically significant relationship with the Reactions after injection of Pfizer vaccine 1st dose because p = 0,02 < 0,05. Female have reactions after injection of Pfizer vaccine 1st dose more 4,714 times than Male.

Table 5. Relationship between Gender and Reactions after injection of Pfizer vaccine 2nd dose

		Reactions after injection of Pfizer vaccine 2nd dose				OR	95% CI_{OR}	P
	Yes		No					
	N	%	N	%				
Gender	Female	84	85,7	14	14,3	5,538	2,105-14,571	0,001
	Male	13	52	12	48			

Gender has a statistically significant relationship with the Reactions after injection of Pfizer vaccine 2nd dose because p < 0,05. Female have reactions after injection of Pfizer vaccine 1st dose more 5,538 times than Male. The results are different from the study of Seongman Bae (2021), there is no difference in the rate of post-injection reactions by Gender [9].

Results of Yun Woo Lee (2021) for Moderna vaccine also showed that gender is related to post-injection response. The rate of reactions after injection 2nd dose was higher in Female, but there was no difference in symptoms after injection between Female and Male at dose 1 [10].

Conclusion:

- 79,7% of the 1st dose and 78.9% of the 2nd dose of the employees had adverse reactions after Pfizer vaccination including muscle and joint pain, fatigue, headache, body temperature $\geq 38^0$C, chills, injection site redness, itching and swelling at the injection site. Other symptoms account for a low rate such as: swollen glands, diarrhea, vomiting, allergy, cough, faint, numbness of tongue and lips. From the above results, it can be suggested for people to be vaccinated, know how to receive and have a way to respond to reactions after COVID-19 vaccination in each dose.

- Gender has a statistically significant relationship with the reactions after Pfizer vaccination in both doses. Female have higher post-injection symptoms than Male in both the 1st and 2nd dose.

Our topic has investigated the status of reactions after Pfizer vaccination 1st and 2nd doses. Because of limited time and human resources, we have not been able to survey the 3rd and 4th doses. Because there are different types of vaccines in the 3rd and 4th doses, compared to dose 1 and 2. Therefore, this is also a limitation of the study, but our obtained results contribute to the premise and evidence for further studies.

Recommendation:

1. Coordinating with the Health Department in propaganda:

- Extensive propaganda to the people about the reactions after Pfizer vaccination are mostly mild, severe symptoms are insignificant so that people can feel secure when injecting.

- Educate on the benefits of Pfizer vaccination compared to post-injection reactions.

2. For vaccine manufacturers:

- Although Pfizer vaccine is safe, there are still many post-injection reactions, so manufacturers need to do more research to produce a vaccine that has fewer post-injection reactions.

3. Scientific researchers:

- Continued to study the adverse reactions after Pfizer vaccination in the next doses.

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