A Survey on COVID-19 Vaccination Surveillance among pharmacy professionals in a Medical university at Western Maharashtra

Section: Research Paper

A Survey on COVID-19 Vaccination Surveillance among pharmacy professionals in a Medical university at Western Maharashtra.

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ABSTRACT

Background

The present study sought to determine the side effects of different covid vaccines available in India. Many people from a medical institution doesn't know how to report these side effects and some of them are even not aware about the side effects.

Objectives

1. To identify different types of adverse events associated with specific vaccine lots or brands
2. To study the incidence rate of ADR associated with different vaccines.

Methodology

An Institutional Survey was conducted between November 23 to 27 ,2021 using a pre-Validated questionnaire. The participants who were aged 18 and above were included in the study. Mainly 3 vaccines Covaxin, Covishield and Sputnik used in India were assessed. The google form link to the questionnaire was sent to participants via WhatsApp group. The significance of the results was statistically analyzed.

Results

Total 224 students responded to the survey, out of which 67.7% were female and 37.3% were males. Pairwise comparison of prevalence between group using t-test for proportion shows that there exists significant difference (P-value < 0.001) between all the groups and the students who have taken Covaxin have significantly lower prevalence and those taken Sputnik have higher prevalence of ADR after first dose. The local Side effects predominant in the respondent group was fever (58.4%) followed by Muscle pain (45.1%)

Conclusion

Covaxin has lower prevalence of ADR after receiving first and Second Dose and Sputnik has high prevalence of ADR after first dose. Students who were vaccinated with Covishield took preventive medicines for treating side effects than other groups. So this study highlights the importance of vaccine Surveillance system even at institutional level

Keywords:Covid-19,Adverse Drug Reaction,Covaxin,Covishield,Sputnik,Prevalence,Predominant

Introduction

On 30 January 2020, World Health Organization (WHO) declared that the outbreak due to a novel coronavirus, SARS-CoV-2, also known as COVID-19, was a public health emergency of international concern (PHEIC). By 12 March 2020, due to its rapid global spread, the outbreak was declared a pandemic. The pandemic has already caused the loss of more than 1.5 million lives and disrupted the lives of billions more. One essential strategy to control this pandemic is the rapid development of safe and effective vaccines. Unprecedented efforts are being made to develop large numbers of vaccines simultaneously, in a short time. Global equitable access to vaccines, particularly for protecting health care workers and those most-at-risk is one of the key strategies to mitigate the public

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Vaccination is one of the great public health achievements of human history. Under recommended conditions, all vaccines used in national immunization programmes are safe and effective if used correctly. In practice, however, no vaccine is completely risk-free and adverse events can occasionally result after an immunization.

Adverse events can range from minor adverse effects to more severe reactions. They can be a cause of public concerns about vaccine safety. To understand a specific event and to be able to respond appropriately, there are several questions that you need to answer:

• What caused the event?
• Was it related to the vaccine or the way it was administered, or was it unrelated?
• Is the event serious?

According to the World Health Organization's guidelines on immunization safety monitoring, the major goal of immunization safety monitoring is early detection and appropriate quick response to adverse events in order to lessen the negative impact on the health of individuals and on the immunization program.

SARS-CoV- 2, the deadly virus that causes Coronavirus disease 19 (COVID-19) has rampantly spread over the globe. The pandemic has diseased millions of people with more than 3 million deaths over a period of the year to date. Vaccines to prevent SARS-CoV-2 infection are considered the most promising approach for curbing the pandemic and are being vigorously

pursued. Researchers worked enormously to develop effective and safer vaccines against COVID-19 infection. Two Indian-made vaccines were granted Emergency Use Authorization. These were ChAdOx1 CoV-19 VACCINE - Covishield (developed by Oxford-AstraZeneca and

manufactured by Serum Institute of India- SII) and Covaxin (manufactured by Bharat Biotech Limited).

SARS-COV-2 is transmitted from person-to-person through inhalation of aerosols from an infected individual .Old age and patients with pre-existing illnesses (like hypertension, cardiac disease, lung disease, cancer, or diabetes) have been identified as potential risk factors for severe disease and mortality . More information about its distribution, transmission, pathophysiology, treatment, and prevention are being studied. World Health Organization (WHO) recommends prevention of human-to-human transmission by protecting close contacts and health care workers from being infected and stopping infections from animal sources . Primary preventive measures include regular hand washing, social distancing, and respiratory hygiene (covering mouth and nose while coughing or sneezing) India launched COVID-19 vaccination drive on 16 January 2021 with Covishield and Covaxin vaccines in phases

Methodology

COVID-19 is an emerging public health problem threatening the life over 2.4 million people globally .An Institutional Survey was conducted between November 23 to 27 2021 at Krishna Institute of Pharmacy, Karad using a pre-Validated questionnaire. The participants who were aged 18 and above were included in the study. Mainly 3 vaccines Covaxin, Covishield and Sputnik used in India were assessed. The google form link to the questionnaire was sent to participants via WhatsApp group. The total number of participants responded to the form is 224 .The significance of the results was statistically analyzed. Demographic details like sex was included . There were total of 10 questions .The fully completed questionaries were extracted from google forms and exported to Microsoft excel 2019 Then statistical analysis was carried out.
https://forms.gle/DxkBxkM7JTPuYdoU6 Link of google form

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3. Results

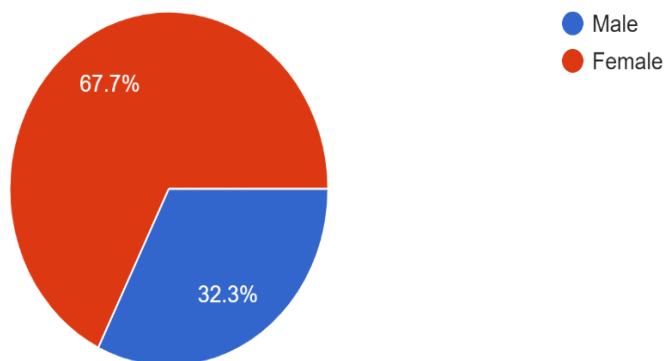### 1.Gender

 224 responses

Fig no.1: Gender distribution in study group
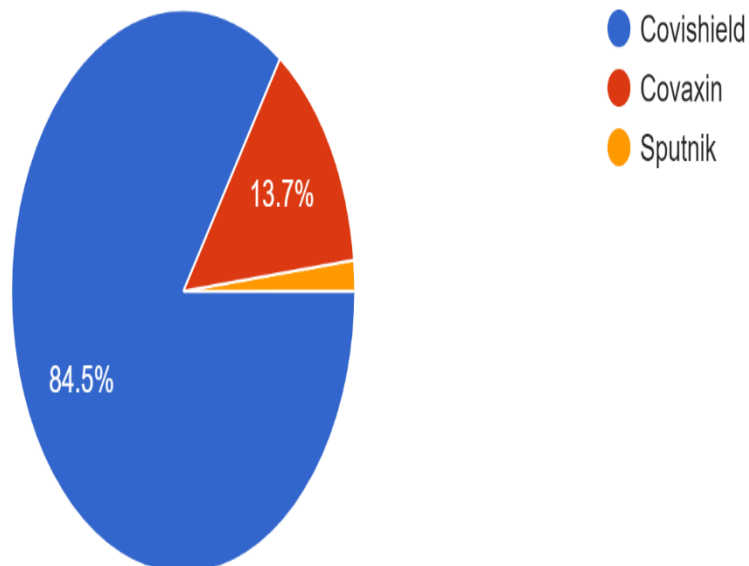
2.Which vaccine have you taken?

224 responses

Fig no.2: Different vaccines taken by the study group

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3.How many doses have you taken?

224 responses

● First dose
● Both doses

62.8%

37.2%
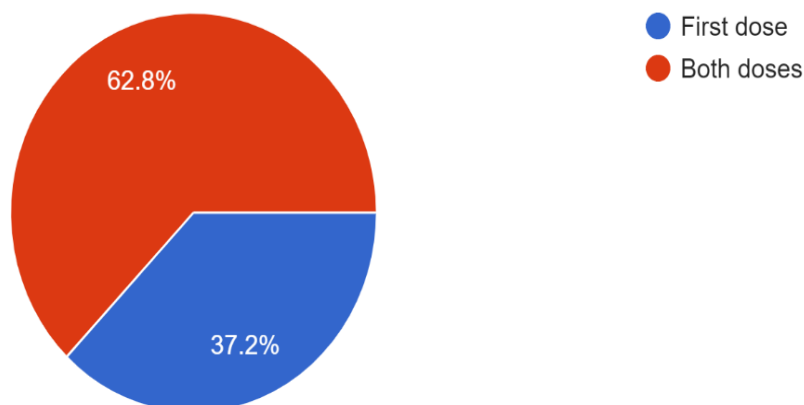
Fig no.3: Number of Vaccine doses taken by student group

4.What were the adverse effects after first dose?

Feeling unwell	102 (45.1%)
Headache	99 (43.8%)
Fever	132 (58.4%)
Muscle pain	102 (45.1%)
Coughing	7 (3.1%)
Decreased appetite	8 (3.5%)
Itching	3 (1.3%)
Swelling	6 (2.7%)
Breathlessness	4 (1.8%)
Redness	3 (1.3%)
Anaphylactic Reaction	1 (0.4%)
Chills	15 (6.6%)
Altered Sensorium	2 (0.9%)
Weakness in limbs	25 (11.1%)
Altered coloured urine	3 (1.3%)
Others	8 (3.5%)
No Side effects	55 (24.3%)
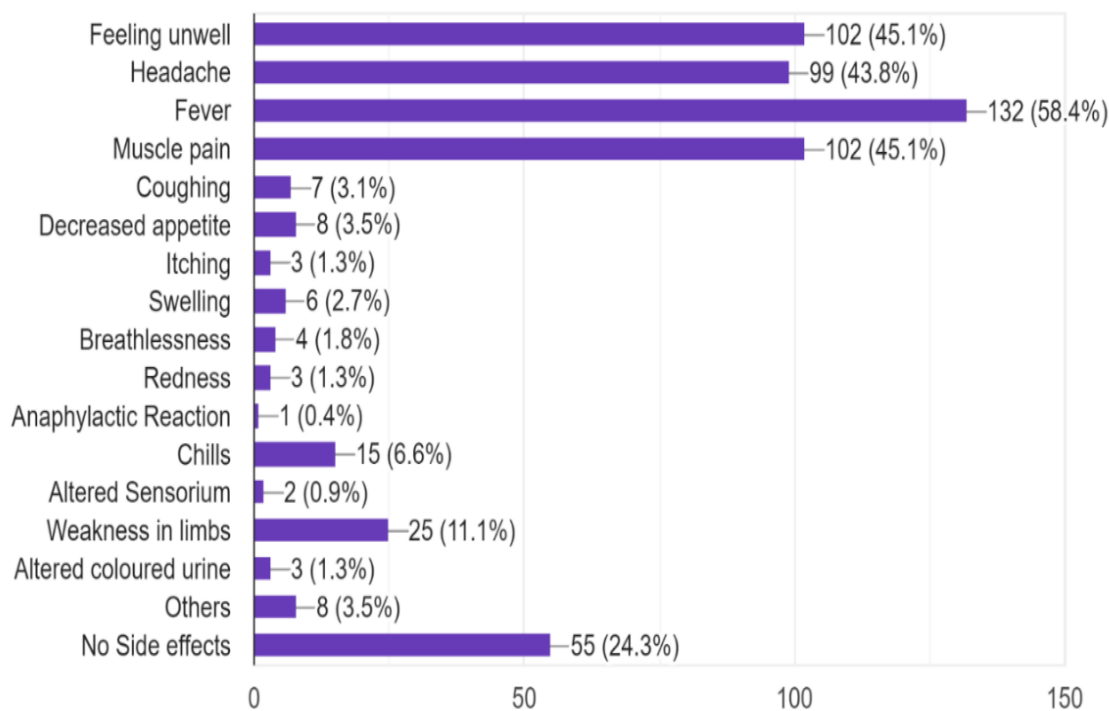
Fig no.4:Percentage response of ADR after first dose of vaccine

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5. What were the adverse effects after second dose?
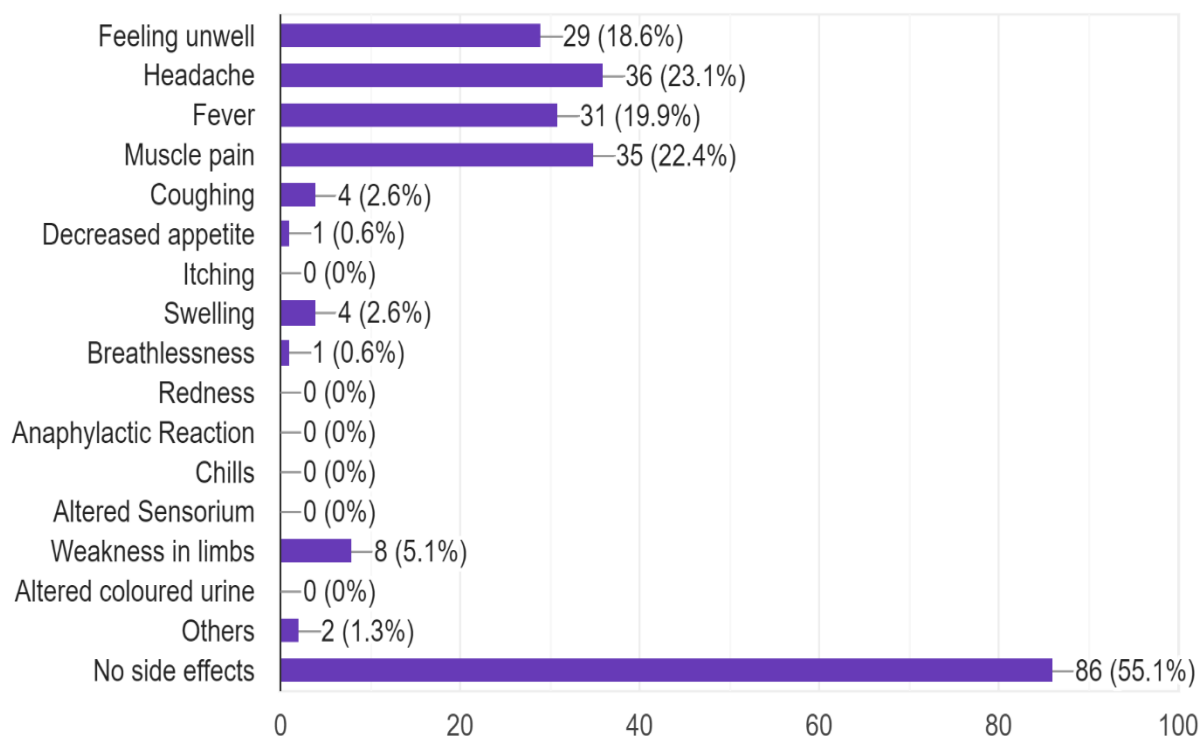**224 responses**

Fig no.5:Percentage response of ADR after second dose of vaccine

Total 224 students responded to the survey, out of which 67.7% were female and 37.3% were males. Pairwise comparison of prevalence between group using t-test for proportion shows that there exists significant difference (P-value < 0.001) between all the groups and the students who have taken Covaxin have significantly lower prevalence and those taken Sputnik have higher prevalence of ADR after first dose. The local Side effects predominant after the first dose in the respondent group was fever (58.4%) followed by Muscle pain (45.1%) . After the second dose most of the people(55.1%) doesn't had any side effect

Table 1. Vaccine taken

Vaccine	Frequency	Percent
Covaxin	30	13.7
Covishield	190	84.5
Sputnik	4	1.8
Total	224	100.0

Table 2. No. of doses taken among different vaccine group

No. of Doses	Covaxin		Covishield		Sputnik		Overall	
	No	%	No	%	No	%	No	%
First dose	6	20.0	77	40.5	0	0	83	37.2

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Second dose	24	80.0	113	59.5	4	100	141	62.8
Total	30	100	190	100	4	100	224	100.0

Table 3. Prevalence of ADR after first doses among different vaccine group

Vaccine	No	Prevalence
Covaxin (n=30)	14	46.7[c]
Covishield (n=190)	154	81.1[b]
Sputnik (n=4)	4	100[a]
Total (n=224)	224	76.8
χ^2 -value = 18.417**; P-value < 0.001		

** Significant at 0.01 level

Prevalence having different letter as superscript differ significantly

Chi square test for multiple proportion was done for comparing the prevalence among different vaccine group. Significant chi square value indicates that there exists significant difference in the prevalence among different vaccine group. Pairwise comparison of prevalence between group using t-test for proportion shows that there exists significant difference between all the groups and the students who have taken Covaxin have significantly lower prevalence and those taken Sputnik have higher prevalence of ADR after first dose

Table 4. Prevalence of ADR after second doses among different vaccine group

Vaccine	No	Prevalence
Covaxin (n=24)	11	45.8
Covishield (n=113)	57	50.4
Sputnik (n=4)	4	100
Total (n=141)	72	51.1
χ^2 -value = 4.114[ns]; P-value =0.249		

ns Non-significant

Chi square test for multiple proportion was done for comparing the prevalence among different vaccine group after second does also. chi square value was non-significant indicating that indicates that there exists no significant difference in the prevalence of ADR among different vaccine groups. Even though the students who have taken sputnik vaccine shows 100 percent prevalence it was not significantly different from other two groups. It may be because of the lower sample size in that group

Table 5. Presence of risk factors at the time of vaccination

Risk factors	Covaxin (n=30)		Covishield (n=190)		Sputnik (n=4)		Overall (n=224)	
	No	%	No	%	No	%	No	%
Medicine taken for side effect	10	33.3	98	51.6	0	0	108	48.2
Have acute/ chronic disease before taking vaccine	0	0	7	3.7	0	0	7	3.1
Have symptoms of fever and cold while taking vaccine shot	2	6.7	36	18.9	0	0	38	17.0
Undergone surgery before vaccination	1	3.3	3	1.6	0	0	4	1.8
Have medication at the time of vaccine	1	3.3	15	7.9	0	0	16	7.1
Be a covid 19 survivor	10	33.3	47	24.7	1	25	58	25.9

Discussion

The study was conducted by Shaji et al in tertiary hospital in Kerala where most of the participants were health care workers . The main side effect observed after the first dose was fever which was similar to our study finding . The adverse effect observed after the second dose in study conducted by Shaji et al was pain at injection site followed by fatigability which was contradictory to our study where most of the participants doesn't had any side effects, and few responded to headache as the side effect (3)

Conclusion

Covaxin has lower prevalence of ADR after receiving first and Second Dose and Sputnik has high prevalence of ADR after first dose. Students who were vaccinated with Covishield took preventive medicines for treating side effects than other groups. So this study highlights the importance of vaccine Surveillance system even at institutional level

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