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CORONA Vaccination: Coverage, ADR Profile, and Attitude Of The Beneficiaries After Vaccination

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Abstract

Introduction: INDIA has started the vaccination drive for COVID-19 in January 2021 at many stages. The first stage is for health care workers and frontline staff, the Second stage is for people over 45, and the third stage is for those over 12 years of age. Our study aims to simultaneously evaluate the coverage, safety profile of the COVID vaccine, and attitude of the community even after completion of the vaccination schedule.

Method: This cross sectional study was carried out from March 1, 2022, to March 31, 2022 through online survey. All volunteers who has completed at least one dose of vaccine were included and were approached through Self prepared, pre-validated information datasheet and questionnaire. The vaccine coverage, safety profile, adverse drug reaction, and attitude of the community after the vaccination is evaluated.

Result: Out of 262, 211(80.5%) had taken the first dose and out of 211, 135(64%) had taken the second dose of vaccine, and out of 135, 19(14.1%) had taken the booster dose of vaccine. After 1st dose most common symptom is the muscle pain 205/211(97.1%) followed by chills 133/211(63%) and vomiting 113/211(53.55%). These common symptoms were experienced within 2-3 days after vaccination and are moderate in nature. After 2nd dose of vaccine 128/135(94.8%) beneficiaries were suffered from muscle pain seems to be most common symptom followed by chills. These symptoms were experienced after 2-3 days after vaccination and are mild 57/135(42.2%) in nature. After the booster dose all suffered from the muscle pain followed by loose stools.

Conclusion: The coverage of booster vaccination (14.1 %) is much less compare to first dose and second dose. Adverse effects seen with subsequent dose were almost same or decreased in frequency and severity.

Most common adverse effects that follow the vaccination were found to be mild or moderate. Attitude of the beneficiaries towards vaccination and protocol to be followed is need to be improved it.

Keywords: COVID-19 vaccine, adverse effect, vaccination coverage, attitude, safety profile

Introduction

World-wide, immunization programs have had a tremendous impact on the prevalence of many life-threatening diseases.[1,2] In COVID pandemic, successful implementation of vaccination drive proved the impact of vaccines on society. It also proved the quoting of Ehreth, that vaccination is a more cost-effective health investment available to healthcare providers and society than most commonly paid for treatments.[1] The main goal of COVID vaccination is to contribute to equitable protection and promotion of human well-being among people globally.[3]

In 2020, the world was amidst of COVID-19 pandemic. 149435 deaths were reported in 2020.[4] During a pandemic, WHO and partners worked together, health care workers tackled critical interventions, distributed vital medical aid to those in

need, and simultaneously scientists were racing to develop and deploy safe and effective vaccines. In 2021, called an era of COVID-19 vaccination, India has approved the 3 vaccines COVAXIN, COVISHIELD, and SPUTNIK V. The COVAXIN is initiated by the ICMR-Bharat biotech, India. It is a whole-virion inactivated vaccine, which uses spike protein as a target. The vaccine COVISHIELD is prepared by the serum institute of India in collaboration with the university of oxford and Astra Zeneca pharmaceuticals, UK. It is based on a non-replicating adenovirus vector (modified chimpanzee adenovirus, ChAdOx1) expressing spike protein.[5-7] The SPUTNIK V is an adenoviral-based two-part vaccine against the COVID -19. Initially it is produced in Russia in 2020 and it allows a weakened virus to deliver a small part of a pathogen and stimulate an immune response. Every individual in the world was in dilemma about vaccination as COVID vaccine was a new vaccine, with minimal trials related to safety and efficacy as well as uncertainty about long term benefits and adverse effects of the vaccine. In 2022, it's time to review the safety, and efficacy of the COVID vaccine and its acceptance by society. IAVG) in October 2020 formulated the goals as outlined in the Strategy to achieve global COVID-19 Vaccination by Mid-2022.[8]

The vaccination drive is being conducted in different stages, focusing on health care workers and frontline staff in the first stage as it is the population at supreme risk. In the second stage of vaccination, more focus was given to the elderly at the age of more than 45 and in the third stage, the target group for vaccination is the age group of more than 12 years. Many studies were conducted as well as going on about the COVID vaccine but our study is aimed at evaluating simultaneously the coverage, safety profile of the COVID vaccine, and attitude of the community even after completion of the vaccination schedule.

Methodology:

This descriptive survey was conducted from 1 March 2022 to 31 March 2022 after start of booster dose in COVID vaccination schedule. The Data used for the study was collected online by using Google Forms after taking the online consent. All volunteers who completed at least one dose of the COVID vaccine were included in this study. The study was carried out in March 2022 and those beneficiaries who have completed the questionnaire were incorporated into this study. A self-prepared, semi-qualitative, pre-validated for face validation, pilot tested, questionnaire and information datasheet were used for collecting information.

The questionnaire has five different sections. The first section sought information about demographic profile of beneficiaries like name, age, sex, education, socioeconomic status based on annual income, residence, and work status in health system. The second section was about COVID -19 status like suffered from COVID- 19, any co- morbidity, severity of COVID infection, need hospitalization, drugs taken for treatment and adverse events after drug administration. Third section was about vaccination status including questions like which vaccine, when taken, paid for that vaccine dose, completion of booster dose. Forth section inquired about adverse events after which dose, the type of symptoms raised after vaccination like muscle pain, local site pain, fever, headache, loose stools, cough, cold, weakness, vomiting, chills, and hair fall, skin lesions and severity of that symptoms, how did the symptoms treated, same symptoms after every dose and about booster dose of vaccination. In last fifth section, questions focusing on beneficiaries' attitude towards vaccination like why not taken second or booster dose, even after completion of all doses of vaccination , do you follow the rule and responsibilities of use of mask, sanitization and social distancing.

The data was exported from Google forms to Microsoft Excel. Descriptive statistics were used for data presentation because there was no prior hypothesis. The data was assessed and analyzed in terms of frequency in percentage, pie chart, and bar chart. Ethical approval for the study was granted by the Institutional Ethics Committee, D. Y. Patil Medical College, Kolhapur, INDIA.

Results:

Beneficiaries' Characteristics:

The 262 people were responded to google form voluntarily and out of which 190(72.5%) males and 68(26%) females and 4(1.5%) others. In our study 112(42.7%) high school students, 79(30.2%) college

Volume 5, Issue 3; May-June 2022; Page No 1354-1360

students and 43(16.4%) graduate responded and among them 223(85.1%) are health care workers and 39(14.9%) are other than health care staff. There was no discrimination found as per financial strata. Residential variation seen as 43.9% beneficiaries are from rural, 22.9% are from suburban and 33.2% are from an urban area. Among 262 beneficiaries, 219(83.6%) had no history of COVID 19 infection whereas 43 (16.4%) are diagnosed with COVID 19 before vaccination. During vaccination, 188/262 (71.8 %) beneficiaries does not have any pre-existing disease history. 28/262(10%) are suffering from thyroid disease. 24/262(9.2%) are suffering from diabetes, 13/262(5%) with hypertension and 5/262(1.9%) with asthma and 4/262(1.5%) with other allergic reactions. (Table 1)

Beneficiaries' Vaccination Status:

Out of 262, 211(80.5%) had taken the first dose and out of 211, 135(64%) had taken the second dose of Covid-19 vaccine and out of 135, 19(14.1%) had taken the booster dose of the vaccine. Out of the 262 people, upper and middle socioeconomic class showed equal liking or choice of taking the vaccine For COVAXIN 114/211(54%) and COVISHIELD 97/211(46%). Most of the vaccination drive covered in 2021 for first and second dose whereas booster dose vaccination had done mostly in 2022. The first dose had been taken by 211 people out of which 189/211(89.6%) had got the free dose of vaccine and126/135(93.3%) had taken the free second dose of vaccination. this also shows the government's equitable protection and the success of the vaccination drive. (Table 2)

ADR Profile After Vaccination:

After 1st dose, the most common symptom was the muscle pain 205/211(97.1%) followed by chills 133/211(63%) and vomiting 113/211(53.55%). All the symptoms are experienced within 2-3 days after vaccination and were moderate 102/211(48.1%). Total 53% of people required a doctor consultation and 18% required to hospitalization while 29% were cured by home remedies.

After 2nd dose of vaccine 128/135(94.8%) suffered from muscle pain and was the most common symptom followed by chills 83/135(61.4%) and loose stools 78/135(57.7%). All these symptoms were experienced 2-3 days after vaccination and are mild 57/135(42.2%) in nature followed by moderate and severe in 40.7% and 17% respectively. In 48% of people, symptom arises the very next day after the vaccination and in 21% experienced after 2-3 days of vaccination whereas 20% experienced it after 3-6 days and 11% within 6-10 days. 50% of people required a doctor's consultation and 20% needed hospital admission and 30% were cured by home remedies.

After the booster dose 19/19 (100%) had suffered from the muscle pain followed by skin problems 14/19 (73.6%), then fever 13/19(68%), loose stools and local pain 12/19(63%). These symptoms experienced within 2-3 days and in 8/19(42%) experienced moderate followed by mild (37%) and severe (21%) symptoms. 63.2% of people received doctor's consultation and 5.3% needed hospitalization while 31.6% cured with home remedies.(Fig.-I)

Beneficiaries' Attitude After Vaccination

Out of 262,211(80.5%) had taken the first dose and 51(19.5%) had not taken even the first dose because of fear, not sure about safety and observing others that the even after vaccination got infected with COVID. After completion of first dose, 36.1% people had not taken the second dose of the vaccine because they think the vaccine is not safe, not giving 100 % protection, causing severe adverse effects. 39.5% of people themselves suffered from the symptoms after the first dose that's why they had not taken the second dose. According to this study, the 47.4% of people are deprived of booster doses because of vaccine unavailability. In total 90% beneficiaries got a free vaccine. 91.2 % of these admitted that they are using a mask and following COVID preventive instructions properly ever after vaccination with a positive attitude. (Fig -II)

Discussion:

We conducted descriptive study in COVID vaccination beneficiaries who has taken at least one dose of COVID vaccination. Equality seen for vaccination with male 72.5 % and female 68(26%) females. No significant difference seen in vaccination status as per educational, economic, social strata, this signifies that coverage of COVID vaccination is contributing equitable protection and promotion of human well-being among people in INDIA. WHO

Volume 5, Issue 3; May-June 2022; Page No 1354-1360

targets to achieve 40% total population coverage by the end of 2021, and 70% total population coverage by mid-2022 and INDIA is on the path of vaccination goal achievement.[9] Hannah et. al. published data states that till may 2022, 65.5% of the world population has received at least one dose of a COVID-19 vaccine and in INDIA, 72.2 % of population received at least one vaccine dose, 62.3 % received all doses prescribed by the initial vaccination protocol and less than 5% booster dose vaccination received.[10] In Ramasamy study, overall, 57% of recipients reported at least one or more adverse events after the first dose but after second dose in comparison, the adverse events were reported at much lower frequencies.[11] Menni et.al. reported that 33.7% of recipients reported adverse events after the first dose of vaccine. This study shows that the after vaccination people have suffered from the local symptoms like muscle pain local site pain and metabolic symptoms like fever, headache cough cold, chills, allergic reaction, weakness, and long term symptoms like hair fall problems and skin problems, and gastrointestinal symptoms like vomiting and loose stools. After 1st dose, the most common symptom is muscle pain followed by chills and vomiting which are experienced within 2-3 days after vaccination and are moderate**.** After 2nd dose of the vaccine such offered from muscle pain is the most common symptom followed by chills and loose stools which are experienced after 2-3 days after vaccination and are mild. After the booster dose had suffered from muscle pain followed by skin problems and loose stools and local pain which are experienced within 2-3 days and are moderate.[12] Like our study Inbaraj et.al in another study depicted that the respondents reported local pain is more common (76.1%) then headache (30.3%), fever (22%), vomiting (3.7%) and loose stool (2.3%).[13] similar to this study, we also find that people also get hair fall problems and skin problems and people have suffered from this for a long time.

According one more study data, the most common ADR reported was fever (25%), followed by myalgia (19%). No death or any serious anaphylactic reaction was observed. None of the healthcare workers experienced any adverse event during the observation period of 30 minutes.[14] One observational study by Deep et.al. reported 1020 non-serious and two serious adverse events which were reported within 48 hours of first dose. Two hundred and twenty non-serious AEFI were reported within 48 hours of second dose. No AEFI was reported after 15 days for both the doses. During this study they also reported that there is no any association of adverse event between sex, profession or age. In this study various factors that affecting acceptancy, hesitancy of vaccination like myths, uncertainty about vaccine safety, efficacy, adverse effects, availability and cost effectivity were explored.[15] Mathieu et.al. stated that change in the attitude of the population towards vaccination from unwilling to uncertain to willingness reflected explored other contributing factors like safety& efficacy of vaccine, short term and long term side effects, availability, cost effectiveness.[16,17]

Even after completing all doses of vaccination including booster, everyone should follow public behaviors and attitudes ranging from mask-wearing to self-isolation, social distancing, symptoms and testing. In our study also we 91.2 % of these benefiaries admitted that they are using a mask and following COVID preventive instructions properly ever after full dose vaccination including booster with a positive attitude. Attitude of the beneficiaries towards vaccination and protocol to be followed is need to be improved.

Conclusion:

In our study we observed that, more than 63% of people have taken both the first and second dose of COVID-19 vaccination. The coverage of booster vaccination (14.1 %) is much less compare to first dose and second dose. Most adverse effects that follow the vaccination are moderate and are resolved within a few days and do not required hospitalization. Among the volunteers, there is NO single case of cross vaccination. Adverse effects seen with subsequent dose were fairly same or decreased in frequency and severity. Attitude of the beneficiaries towards vaccination and protocol to be followed is needed to be improved.

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Volume 5, Issue 3; May-June 2022; Page No 1354-1360

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Volume 5, Issue 3; May-June 2022; Page No 1354-1360

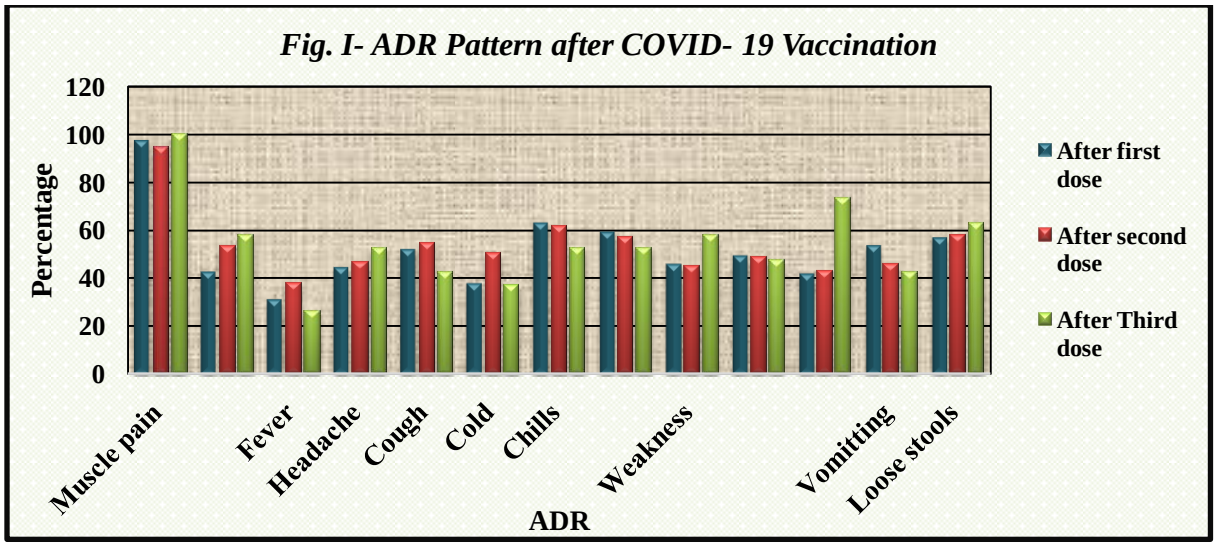
Table 1- Sociodemographic presentation of Coverage of COVID- 19 Vaccination

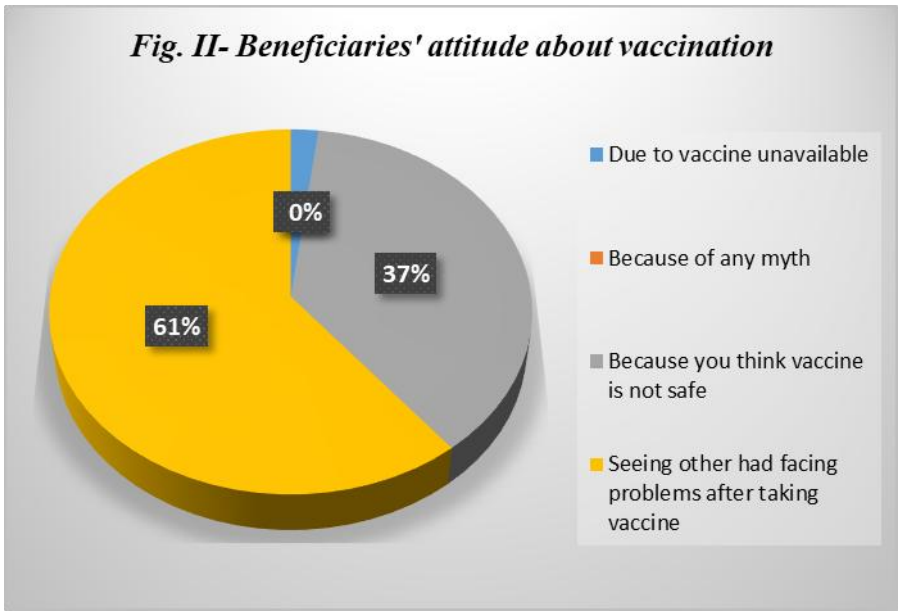
Category	Variable	Frequency (n=262)	Percentage %
Positive for COVID-19 before vaccination	Yes No	43 219	16.4 83.6
Gender	Male Female others	190 68 4	72.5 26 1.5
Education	Less than high school High school College Graduate Postgraduate	23 112 79 43 5	8.8 42.7 30.2 16.4 1.9
Socioeconomic status	Lower class Upper class	134 128	51.2 48.9
Geographical distribution	Rural Suburban Urban	87 60 115	33.2 22.9 43.9
Type of occupation	Healthcare workers others	223 39	85.1 14.9
Comorbid illness	Thyroid Diabetes Hypertension Asthma Allergic reaction	28 24 13 5 4	10.7 9.2 5 1.9 1.5

Table 2: Beneficiaries' Vaccination drive

Category	*Variable*	*Frequency*	*Percentage %*
Vaccine dose	First dose Second dose Booster dose	211(n-262) 135 (n-211) 19 (n-135)	80.5% 64% 14.1%
Vaccine choice	COVISHIELD COVAXINE	97 (n-211) 114 (n-211)	46% 54%
Vaccination cost	Free first dose Free second dose	189 (n-211) 126 (n-135)	89.6% 93.3%

Volume 5, Issue 3; May-June 2022; Page No 1354-1360





Volume 5, Issue 3; May-June 2022; Page No 1354-1360