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Research Article

A Multinational, Across the Countries of COVID-19 Vaccination Drive Among Healthcare Professionals Through Human Health Research Web Based Portal Survey Study Among Participant's Data Analysis of Post-inoculation Symptoms After First and Second Dose of COVID-19 Vaccine

Pallavi Kaulwar*

Ajeenkya DY Patil University, Pune, India

***Corresponding Author:** Pallavi Kaulwar, Ajeenkya DY Patil University, Pune, India.

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Abstract

COVID-19 vaccinations have recently been made available in a number of countries. Despite the fact that the vaccine's protective effectiveness is regularly emphasized, little is known about the post-vaccination experience in the real world outside of clinical trial conditions.

Knowledge of what to expect following vaccination will aid in public education, dispelling misconceptions, and reducing vaccine apprehension.

Keywords: Human Health Research; Adverse Event; Online Survey; Post Inoculation of Symptoms; Data Analysis

Introduction

The pandemic has drawn focus to the need for greater racial and ethnic diversity in clinical trials. This is not a new issue diverse communities have long been under represented in Clinical Research but COVID-19 has put a necessary spotlight to work.

In December 2019, there was a cluster of pneumonia cases in the city of wuhan in china. Some of the early cases has reported visiting or working in a seafood and live animal market in wuhan. The investigator found that the disease was caused by the newly discovered coronavirus. The disease was subsequently named COVID-19. COVID-19 spread with China and rest of the world Health Organization declared the outbreak of public health emergency of International concern.

Figure 1: Representation of COVID-19.

Figure 2: Case Fatality Rate.

From the above figure, How coronavirus infected in mutated enough and it could infect Humans and cause severe acute respiratory syndrome.

Figure 3: How many people 1 can person Infect.

Vaccines

The worldwide effort to develop a COVID-19 vaccine that is both safe and successful is bearing fruit. More than a dozen vaccines have now been approved around the world, with several more in the works.

Vaccines generally take years to develop and test before hitting the clinic, but in 2020, scientists set out on a race to develop safe and efficient coronavirus vaccines in record time. Researchers are currently testing 80 vaccines on humans in clinical trials, with 23 having reached the end of the process. A total of 77 preclinical vaccines are currently being evaluated in animals.

A COVID-19 pandemic is sweeping the globe. WHO and collaborators are racing to create and deploy safe and effective vaccines as they work together on the response — monitoring the pandemic, consulting on urgent measures, and supplying essential medical resources to those in need.

Every year, vaccines save millions of lives. Vaccines work by teaching and preparing the body's natural defense, the immune system, to identify and combat the viruses and bacteria they are designed to combat. If the body is later exposed to such disease-causing germs after vaccination, the body is able to kill them right away, avoiding illness.

As of 18 February 2021, at least seven different vaccines across three platforms have been rolled out in countries. Vulnerable populations in all countries are the highest priority for vaccination.

- Accelerating the production of COVID-19 vaccines that are both safe and effective;
- Assisting with the growth of manufacturing capabilities; and
- Working with governments and manufacturers to ensure that vaccines are delivered reasonably and uniformly to all nations – the only global effort to do so.

Vaccines are an important new weapon in the fight against COVID-19, and the fact that so many vaccines are proving to be effective and are being developed is extremely promising. Scientists from all over the world are working and innovating as rapidly as they can to bring us experiments, medications, and vaccines that can save lives and put an end to the pandemic.

Safe and effective vaccinations will change the game, but for the time being, we must continue to wear masks, keep a safe distance, and avoid crowds. Being vaccinated does not imply that we can disregard caution and put ourselves and others at risk, particularly because the extent to which vaccinations can protect not only against disease but also against infection is still unknown.

Research problem

Any comparative analysis of adverse events registered within clinical trials and in routine practice. Such studies are extremely important but still absent.

- This research highlights that the collection, reporting and analysis of Adverse events data in Clinical trials is inconsistent and RCTs as a source of safety data are underused. Areas to improve include reducing information loss when analyzing at patient level and inappropriate practice of under powered multiple hypothesis testing. Implementation of standard reporting practices could enable a more accurate synthesis of safety data and development of guidance for statistical methodology to assess causality of Adverse events could facilitate better statistical practice.
- "Patient-First" R and D: Why the patient experience should be at the Center of clinical trial design".(Figure 4-7)

Figure 4: List of Vaccines that has been rolled out.

Figure 5: List of COVID-19 Vaccines approved across the world.

Figure 6: Average age of people lost in COVID-19 , According to study published in the journal scientific reports states that more than 20.5 million have been lost globally due to Covid-19. On an average, each person who died of the corona virus lost 16 years of life.

Figure 7: Death rate across European countries.

Recent study from Finland, Germany, Spain, UK and the US looked at looked at data for more than 1.3 million people who died of Covid-19 across 81 countries through January 6 only about 274,000 people in that cohort reached their full life expectancy before dying of the disease.

Figure 8: Flowchart represents life span of women and men in the pandemic.

Scientist still aren't sure why some research suggests that women develop a stronger T- cell response to the corona virus, which helps their immune systems identify and destroy the pathogen. But

in certain countries, men also smoke cigarettes more than women do, and have higher rates of pre-existing health conditions, which could make them vulnerable to more severe outcomes.

But the ratio of life lost among men versus women wasn't the same for every country, men in low income countries like Cuba, Dominicans republic and pern lost far more years than women, whereas high income countries like Finland and Canada saw relatively similar numbers between the genders.

More lives were lost among younger groups in low and middle income countries.

After Covid-19 vaccination, you may have some symptoms. These are normal signs that your body is building protection. The adverse events from Covid-19 vaccination such as chills/tiredness, arm soreness may affect your ability to do daily activities, and they should go away in few days.

Even second dose of vaccine can be followed by symptoms such as fever, fatigue, headache, and soreness at the site of injection site on their arm. It is said that it is actually a good sign. These common symptoms are typically signs that the vaccine has triggered a response by your immune system.

Value of the research

- It may help researchers to analyzed data and work for future vaccine development.
- Hypothetically it may conclude the difference between human body biological process and the role of the symptoms.

Aim

- To determine the initial reaction to the COVID-19 vaccine's initial dosage.
- To investigate the range of post-vaccination symptom profiles for different vaccinations.

Objective

- For most people it's very mild, and some don't get anything why these side effectsvary from person to person?
- If the researchers say that after vaccination you may have side effects that because your body is building protection, said actually a good thing and it is a sign that vaccine has triggered a response by your immune system. But what about the people who do not have any symptoms after they are vaccinated?
- Collecting data of 1st dose from the healthcare professionals after vaccination.
- Collecting data of 2nd dose from the healthcare professionals after vaccination.

Figure 9: Pie diagram represents route of administration studied in the COVID-19 candidate vaccines under clinical development.

Figure 10: Distribution of the COVID-19 candidate vaccine developers based on the country of origin.

Figure 11: Parallelism of clinical phases (most advanced COVID-19 candidate vaccines).

Methodology

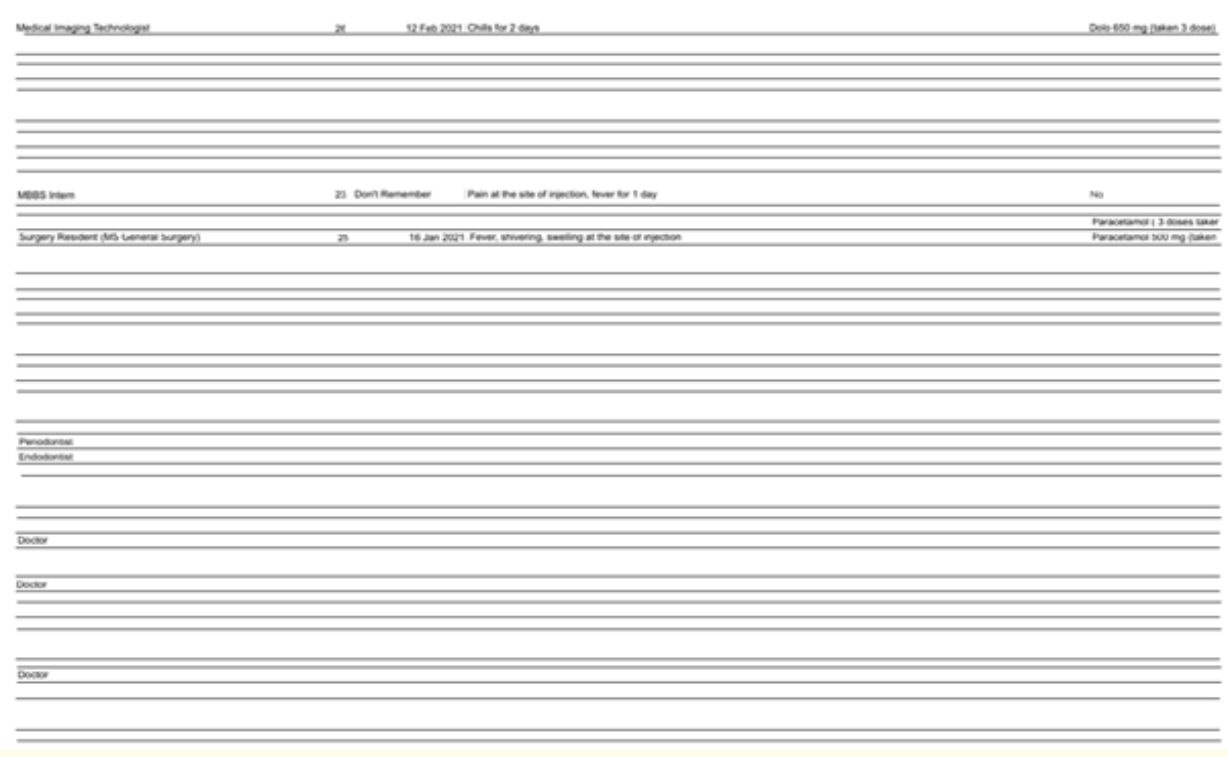
A cross-sectional online survey was conducted, with questions about the immediate post-vaccination experience in India and abroad. Healthcare professionals received the first dosage as part of the priority list during the initial round of vaccination in India, which began on January 16 and began outside India on January 1st week. The poll was issued to persons who received the COVID-19 vaccine till April 28th 2021.

Questions were presented in binary, with descriptive elements added to the symptom profile section. Other results or descriptions that qualified the experience may be included. The study's data was gathered entirely using an online survey.

Figure 11: Poll:which vaccine was taken by the subject?.

Figure a

1st Dose Updated on XLS file

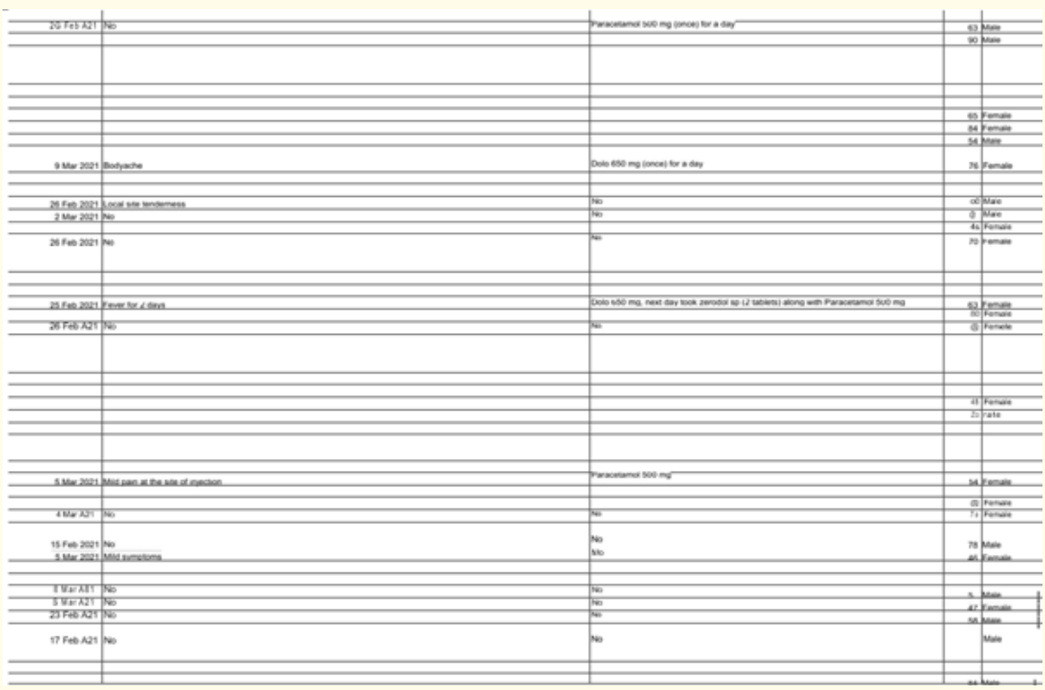


Medical Imaging Technologist	26	12 Feb 2021	Chills for 2 days	Dolo 650 mg (taken 3 dose)
MBBS Intern	23	Don't Remember	Pain at the site of injection, fever for 1 day	No
Surgery Resident (MS -General surgery)	25	16 Jan 2021	Fever, shivering, swelling at the site of injection	Paracetamol (3 doses taker Paracetamol 500 mg (taken
Periodontist				
Endodontist				
Doctor				
Doctor				
Doctor				

Figure b

2nd Dose Updated on XLS file

Figure b



20 Feb 21	No	Paracetamol 500 mg (once) for a day	63	Male
			90	Male
			65	Female
			84	Female
			54	Male
9 Mar 2021	Bodyache	Dolo 650 mg (once) for a day	76	Female
26 Feb 2021	Local site tenderness	No	60	Male
2 Mar 2021	No	No	0	Male
			4a	Female
26 Feb 2021	No	No	70	Female
25 Feb 2021	Fever for 2 days	Dolo b50 mg, next day took zerodol sp (2 tablets) along with Paracetamol 5b0 mg	63	Female
			60	Female
26 Feb 2021	No	No	0	Female
			41	Female
			23	Male
5 Mar 2021	Mild pain at the site of injection	Paracetamol 500 mg	54	Female
			0	Female
4 Mar 2021	No	No	71	Female
15 Feb 2021	No	No	78	Male
5 Mar 2021	Mild symptoms	No	46	Female
8 Mar 2021	No	No	5	Male
5 Mar 2021	No	No	42	Female
23 Feb 2021	No	No	58	Male
17 Feb 2021	No	No		Male
			44	Male

Figure c

Results

Age and sex breakdown

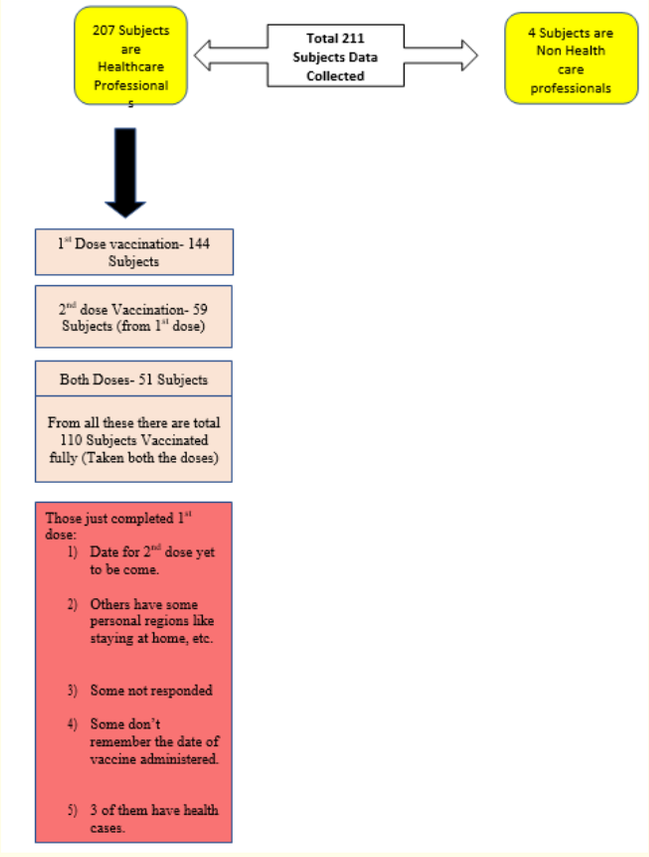


Figure d

Figure e

Demographic information

Figure f

- Most side effects of the vaccine are fever, headache, body pain, weakness, drowsiness and shivering.
- Side effects occurred 1 to 2 days after vaccination, and younger subjects (20 to 30 years old) were more likely to encounter them than older subjects.
- Just 18% of the 211 subjects had no effects after the first dose of injection, and 46% of the subjects chose not to take drugs after the first dose.
- According to analysis, 70% of people between ages (20yrs to 45 yr) have not experienced any Symptoms after 2nd dose of vaccination and taken anymedication.
- Reports of fatigue was the most common side effects as well as headache andchills tended to be more likely after the 2n dose vaccination than the 1st dosevaccination.
- In this survey, 96.2 % were Indians and 3.79% were Foreigners.
- Most of the subjects preferred medications after vaccination was anti inflammatory medications.
- In this survey, 47.8% of the participants were between the ages of 20 and 25.

Discussion and Conclusions

- Exploratory research revealed that companies working on the COVID-19 vaccine face significant challenges from a science, economic, and logistical standpoint.
- Mistrust, misconceptions, and a lack of knowledge of the immune system's relationship with the vaccine in development, as well as the pathogen itself, are among the challenges.
- This paper "Heightened awareness " that public policies during the pandemic should protect young people, too.
- Countries should pay more attention to lowering the death toll among men, who are dying of COVID-19 at higher rates than women.
- High income countries often have, more robust treatment resources, but it also possible that female deaths are less likely to be registered or attributed directly to COVID-19 in low income countries.
- In some places, women lack access to transportation to get to a hospital or can't leave their families to receive medical care.
- We can also conclude that greater level of residential crowding in low-income cities/higher incidence of pre-existing conditions among non-elderly populations in developing countries.
- There are 14 licensed gene therapies and recombinant vector vaccines on the market today in the EU, Japan, the US, and the UK. Currently, there are about 3,000 gene therapy or recombinant vector vaccine pipeline products in active development (between the Discovery and Pre-Registration stages). The production of these viruses is a time-consuming and resource-intensive process. Manufacturing these viruses is a time-consuming and labor-intensive process that requires a lot of equipment and manpower. Gene therapies account for the majority of the market, with recombinant vector vaccines accounting for less than 500. Clinical trials for these therapies have also been reported to exacerbate the ability crunch. The biopharmaceutical industry is working to alleviate the shortage by expanding its operations.
- For many diseases, determining the effectiveness of a vaccine is difficult, but it is especially difficult in the case of SARS-CoV-2, where the pathogen's fundamental understanding is still emerging. Several vaccines are being studied in early-phase trials around the world, and several vaccine candidates are already in phase 3 efficacy studies. 4 There is a good chance that no single vaccine will win; instead, a variety of vaccines will win.
- Furthermore, there would most likely be inadequate availability of a single vaccine, at least at first. Collaboration and standardized methods for evaluating various efficacy endpoints, on the other hand, would be necessary to enable clear comparison and ensure that the most successful candidates are deployed. To ensure the success of the deployment, well-supported pharmacovigilance studies should be developed.
- There were some drawbacks to this analysis. It's important to remember that all public surveys of the kind described here are snapshots taken at a specific point in time. This survey was performed in a highly complex and evolving environment, with regular changes in disease threat perception and the production of the COVID- 19 vaccine.

The effect of the virus on children

Coronavirus (COVID-19) can infect children, however it appears to be less common in children than in adults, and it is usually less serious.

Is it possible for babies to contract COVID-19?

It appears that coronavirus-infected women can spread the virus to their unborn children in extremely rare circumstances. Shortly after birth, infants can become contaminated. Most neonates who test positive for the coronavirus have minor or no symptoms and recover, according to the United States Centers for Disease Control and Prevention (CDC), although serious cases have occurred. To avoid contracting the coronavirus, pregnant women should take special care [1-22].

So hence, The effect of the virus on children:

The virus affects the immune system of children as well as the respiratory system in children, but it is not the same as it affects adults. These effects vary according to the child's body structure, immunity, diet, safety, and freedom from heart disease, diabetes, and serious diseases. It is not possible at the present time to give the vaccine to children without 15 years.

Future Scope

- As a result of these factors emerging from the global public health emergency, it is expected that the Research and Development processes for new medicines, including new vaccines, will be redirected, particularly during pandemics. Training also helps to refine and accelerate production routes in the quest for cures for diseases that are being researched.

- The existing levels of willingness to consider a COVID-19 vaccine in most of the 19 countries surveyed in our sample are inadequate to fulfil the criteria for population immunity. To increase public trust, the elements that describe andcreate trust must be understood, and initiatives must be tailored accordingly. Transparent, evidence-based policy is becoming increasingly apparent.

- The current pandemic presents an important opportunity for the public health community to increase vaccine literacy and trust in order to promote the adoption of a new COVID-19 vaccine as well as to strengthen overall immunization programmes for all vaccine-preventable diseases.

- Hence according to this survey we can reach out people and their experiences related to vaccine intake might add on the upcoming future research.

- We should also focus on why some people face problems like postvaccination symptoms after the vaccination this may help future research in reducing the problems.

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