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**Original Research Article**

# Reaching the one billion mark: accomplishing the success story of COVID vaccination through public interrogation

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## ABSTRACT

**Background:** The COVID vaccination drive in India has recently crossed the one billion mark which is certainly a tremendous feat. Although women were initially hesitant, public propaganda and behaviour change communications encouraged them to come forward. The aim of the study was to assess the vaccination status of female population of the country through interrogation in obstetrics and gynaecology out patient departments (OBG OPD).
**Methods:** Through this cross-sectional study, all women visiting OBG OPD were asked about type and number of vaccine doses received, dates of administration of first and second doses and whether they had any significant side effects following immunization.
**Results:** A total of 1456 women were recruited in the study. Mean age of participants was 33.24±4.65 years. 36.26% participants were pregnant. 89.97% women had received at least one dose of vaccine and 48.76% participants were fully vaccinated. Majority received Covishield vaccine. Majority of the participants received first shot during the months of July, August and September. No women suffered from any adverse effect following immunization. Most women got motivated for vaccination from television (76.91%) and alert messages in mobile phones (61.59%). The results of our study reflects the success story of vaccination campaign as almost 90% of the participants had received at least one dose of vaccine.
**Conclusions:** The proactive participation and untiring efforts of the frontline workers has been instrumental in achieving this remarkable landmark. India's successful vaccination campaign is a lesson to the world at large.

**Keywords:** SARS-CoV-2, Vaccination, Coronavirus disease

## INTRODUCTION

As India reaches the cumulative COVID-19 vaccination mark of 100 crore, almost 75% of the population above 18 years has received at least the first shot of the vaccine.[1]

After China, it is India who could achieve this landmark. While countries from the west still continue to have a flat vaccination curve, India has demonstrated an exponential one.[1] This cross-sectional analysis has tried to assess the vaccination status among people visiting the routine outpatient departments (OPD) of a tertiary care centre, thereby reflecting the success story of the COVID-19 vaccination campaign in the public domain.

## METHODS

It was a cross sectional study conducted at AIIMS, New Delhi, a tertiary care institute in India from October 2021 to December 2021.

Informed consent was obtained from all participants. COVID-19 vaccination status was enquired from women

visiting gynaecology and obstetrics OPD over a period of one month. Eligible participants above the age of 18 years were asked to fill a survey questionnaire enquiring about the details of their vaccination.

The proposed set of questions assessed the type of vaccine and number of doses received, dates of administration of the first and second doses and whether they suffered any significant side effects following immunization.

Antenatal women were also given option to participate in the study to assess the success of vaccination campaign during pregnancy as well. Despite recommendations by various international bodies on safety of COVID-19 vaccination during pregnancy and lactation, existing myth among the public is preventing antenatal population from getting immunized against the SARS-CoV-2.

All data were tabulated in an MS-excel worksheet and statistical analysis was performed by SPSS version 22.0. Rates and proportions were calculated for all categorical variables.

## RESULTS

A total of 1578 women were potentially eligible for enrolment during the study time frame. While 122 women declined to participate in the study, 1456 participants were recruited. Mean age of the participants was 33.24±4.65 years. 36.26% participants were pregnant at the time of vaccination.

On enquiry, majority of the participants had received at least one dose of COVID-19 vaccine (1039; 89.97%), thereby reflecting the success story of the enthusiastic vaccination campaign launched by the government. A reasonably good proportion of women were found to be fully vaccinated with double doses (710; 48.76%).

Among the participants who were immunized, majority reported to have received Covishield (733; 70.55%). 305 women received Covaxin (29.35%). One patient, who had recently immigrated from Saudi Arabia, received 2 doses of Pfizer vaccine.

The large-scale initiative taken by the Indian government was evident from the fact that more than three-fourth of the participants were motivated for vaccination by the advertisements in television and media (799; 76.91%). 61.59% women were motivated through SMS alerts in mobile phones, 54.37% by various NGO and Red cross societies and 29.06% by local panchayats at villages. Social health activists like Auxiliary nurse midwives (ANM) and Accredited social health activists (ASHA) were the pioneers in spreading awareness among the women from door to door. 11.93% women reported to be motivated by ASHA and ANM workers.

While 34.45% women were advised to get vaccinated by their husbands and children at home, 24.06% participants went for vaccination after getting suggestion from their friends and neighbours (Table 1). No women reported to suffer from any serious adverse effect following COVID-19 vaccination.

Table 1 and Figure 1 clearly depicts the exponential slope of the vaccination drive over the time frame.

While 3 women (0.29%) received 1st shot of vaccine in January 2021, the number increased to 8 (0.76%) in February and 56 (5.38%) in March. Thereafter, the graph kept rising (10.39%, 13.85%, 17.23% and 20.02% of the participants were vaccinated in May, June, July and August respectively).

The results of our study reiterates the national vaccination census which witnessed a pace after the first three months of starting vaccine (i.e.; from April, 2021).

**Table 1: Summary of results of the study.**

| Parameters | Parameters | N (%) |
|---|---|---|
| **Patient profile** | Mean age (years) | 33.24±4.65 |
| | Antenatal | 528 (36.26) |
| | Non-pregnant | 928 (63.74) |
| **Number of doses** | Not vaccinated | 417 (10.03) |
| | At least 1 dose | 1039 (89.97) |
| | Both doses | 710 (48.76) |
| **Type of vaccine** | Covishield | 733 (70.55) |
| | Covaxin | 305 (29.35) |
| | Pfizer | 1 (0.1) |
| **Sources which inspired to get vaccinated (multiple options were allowed)** | Television and media | 799 (76.91) |
| | SMS alerts in mobile phones | 640 (61.59) |
| | NGOs and Red cross | 565 (54.37) |
| | Local Panchayats | 302 (29.06) |
| | ASHA and ANM workers | 124 (11.93) |
| | Family members (children, husband) | 358 (34.45) |
| | Friends and neighbours | 250 (24.06) |
| **Timing of first dose** | January 2021 | 3 (0.29) |
| | February 2021 | 8 (0.76) |
| | March 2021 | 56 (5.38) |
| | April,2021 | 38 (3.66) |
| | May 2021 | 108 (10.39) |
| | June 2021 | 144 (13.85) |
| | July 2021 | 179 (17.23) |
| | August 2021 | 208 (20.02) |
| | September 2021 | 183 (17.65) |
| | October 2021 | 112 (10.77) |

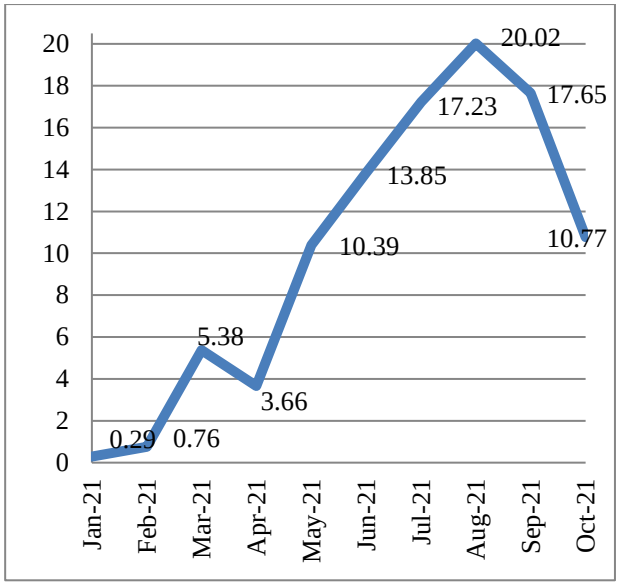


**Figure 1: Proportion of COVID-19 vaccination plotted against the time frame.**

## DISCUSSION

After being hit by the devastating second corona wave in 2021, the citizens of India realized the importance of the vaccination drive.[2] Greatly inspired by the results of the global vaccine trials, the government took an initiative to start this nationwide campaign.[3] But, huge scale importation of vaccines would not have served the need of the hour. So, she planned a robust vaccine development programme whereby domestic manufacture and distribution of vaccines was initiated on a mass scale. A slow start was witnessed when it took almost 85 days to administer the first 10 crore shots.[1,4] After that, the campaign picked up its pace with next 10 crores being completed in almost half the time (46 days). While it required 202 days for India to administer the first 50 crore vaccines, the second half was possible in just 76 days.[1,4] Today, with more than 28 crore of her population fully vaccinated against this deadly pandemic of the century, India proudly stands with a protective shield of immunized population equal to that of Russia, United Kingdom, France, Germany and Japan put together.[4]

The Serum Institute of India (SII), Pune, was the pioneer in the manufacture and stockpiling of the Oxford-AstraZeneca Adenovirus vector-based vaccine AZD1222 under the name of 'Covishield'.[5,6] With a total of 1600 participants in the cohort, the Covishield vaccine showed an efficacy and safety of more than 70%, which was comparable to the previous conducted trials outside India.[5,7] Meanwhile, Bharat Biotech International Limited, in collaboration with the National Institute of Virology at Indian Council of Medical Research (ICMR) had developed the inactivated-virus vaccine in Vero cells, the Covaxin, with aluminium hydroxide gel and chemoabsorbed imidazoquinoline for long-lasting immunity.[5] Fortunately, the emergency use authorization of the vaccine was instrumental in intensifying and strengthening the battle against this pandemic.

The launching of this massive immunization programme on 16 January 2021 was the first adult vaccination drive in India.[1,4] What makes it even more outstanding is its uninterrupted supply even in the midst of the deadly second wave. Although there was reluctance initially, the devastation witnessed during the second wave led to its exponential rise. The huge manpower involving the frontline health workers, midwives and auxiliary nurses, trained vaccinators, support staff and security personnel played a crucial role in expanding the vaccination drive.[5]

The herculean task of herd immunization had initially suffered a setback without the active participation of women. Vaccine hesitancy and misperceptions among the rural folk had likely influenced their mindset.[5] Antenatal women harboured the fear of teratogenicity while women in the reproductive age group believed that it might result in infertility and menstrual irregularity.[1,5] Majority of the rural population found it difficult to register online in the COWIN portal.[5]

People hesitated to travel long distances to health care centres for immunization. Addressing this restricted social autonomy, the national vaccination campaign aimed to normalize this skewed vaccination ratio. Public propaganda and behaviour change communications in the communities encouraged in convincing women to facilitate their registration. A dedicated social media strategy could finally turn the stone. Our results clearly reflect how television and mobile phones had strongly influenced the population. More than 76% women participating in the study were influenced by government advertisements in media. Almost 62% females got boosted after SMS alerts in their mobile phones. According to the government's COWIN portal, 897 females have been vaccinated against 1000 males.[5] The same is reflected in our results as well. A large proportion (89.97%) of the women visiting the OPD had received at least one dose of the COVID-19 vaccine.

Amidst all celebrations and glory, one must not forget the bigger goal of immunizing the entire adult population by the closing of the year. The COVID-19 pandemic has triggered a collaborative effort through rapid surge in mass manufacture of vaccines. It is worth noting that the proactive participation and untiring efforts of the frontline workers complemented by the unstinted support of the public has been instrumental in achieving this remarkable landmark.

Commemorating this huge achievement, we salute all the frontline workers, vaccine manufacturers and the scientific community who have bravely fought the battle against this new virus. 'The achievement belongs to India and its citizens'- rightly said by the Prime Minister who paid tribute by lighting 100 Indian ancient monuments on this auspicious glory. India's experience in vaccination and its

post-marketing surveillance offers a strategy not only for countries with similar economic strength but also for the world at large.

The limitation of the study was it didn't include rural population.

## CONCLUSION

This study provides an in-depth information of vaccination strategies that were executed in a highly populated country like India throughout the course of the pandemic. This information can be considered as a basis for subsequent pandemic emergency-response, and to successfully customise the strategies to assist the population as a whole.

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