

## Knowledge, Attitude and Practice about COVID Vaccination among the beneficiaries attending the COVID vaccine OPD: a cross sectional study

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### Abstract

The COVID-19 pandemic has upended the lives of children and their families across the world. Global analysis of herd immunity in COVID-19 has shown the urgent need for efficacious COVID-19 vaccines. Currently, the vaccine development efforts have started to come to fruition as some of the leading vaccine candidates have shown positive results in preventing clinical disease. India, which has a robust vaccine development programme, plans for domestic manufacture of COVID-19 vaccine and its distribution in countries that cannot afford to buy expensive vaccines from the western world. A predesigned and pre-tested questionnaire prepared using Google forms was used to assess knowledge, attitude, and practice about COVID vaccination. A total of 417 out of 603 beneficiaries were selected via convenience sampling technique at selected OPD's of Pune city. The results of the study showed that participants have a fair knowledge about the vaccine. About 81% (337) of the participants were aware of the COVID19 vaccines given in India, whereas 79 (18.9%) were not aware of that 153 (36%) were not clear about the two doses of the vaccination. More than 97% (408) believed that practicing hand hygiene, mask use, and social distance reduces the risk of COVID19 transmission. Maximum participants 414 (99.2%) practice hand hygiene, use of mask, and social distance post COVID19 vaccination. The majority of the 408 (97.8%) booked an appointment online. Maximum participants 240 (57.55%) didn't experience difficulty getting online appointments, whereas 177 (42%) faced the challenge. This study provides early insight into the Indian population's knowledge, attitude, and practices regarding COVID-19 vaccines. This finding can help the Government to plan for future efforts to increase vaccine uptake.

**Keywords:** COVID vaccine, knowledge, attitude, practice

### Introduction

The pandemic of Coronavirus disease (COVID-19) continues to affect many countries in the world. Coronavirus strain SARS-CoV-2 causes the disease, which has become a severe public health concern worldwide<sup>(1)</sup>. During the mid of March 2020, WHO has announced the COVID19 crisis as a pandemic global health crisis<sup>(2)</sup>.

In the past one year, we have experienced the prevalence of novel viral infections followed by a sense

of relief, but soon after that, we are facing the peaks and troughs of novel viral infections repeatedly. The scariest part is worst is yet to come; experts are also predicting the third wave. To prevent the disease and protect oneself, protective measures like universal masking, physical distancing, hand hygiene, vaccination are useful; besides, containment measures to limit disease transmissions like quarantine, isolation, and lockdown are required but there is a need of the hour for vaccine coverage.<sup>(3)</sup>

Vaccine development is a slow process, and it has to undergo various phases before mass usage. Many vaccines have been developed, Sputnik, Covishield and Covaxin are used in India.

The COVID-19 vaccination program started on 16th January 2021 in India. The first group of beneficiaries included healthcare and frontline workers. The second group, comprising people over 60 years of age (as of 1st January 2021) and those in the age bracket of (45–59) years with comorbid conditions, started receiving vaccinations from 1st March 2021, while vaccination for those above 45 years of age started from 1st April 2021 (Ministry of Health and Family Welfare, Govt. of India, 2021)<sup>(4)</sup>.

The acceptability of the newly launched vaccine is yet another parameter to be considered since the vaccine coverage among the population is essential for a successful boosting of herd immunity through program<sup>(5)</sup>.

Previous research has also indicated that people are more prone to reject the vaccine for a newly detected disease<sup>(6)</sup>. Vaccines are the most critical public health measure and most effective strategy to protect the population from COVID-19 since SARS-CoV-2 is a highly contagious virus and affects people widely and globally. The competition for COVID-19 vaccine invention and development against the spread and catastrophic effects of the disease is ongoing.

India is still recovering from the aftermath of the second wave, which saw more than four lac daily cases at its peak and thousands of deaths every day. There is a lack of COVID - appropriate behavior after the easing of restrictions across India, crowds building up, the "inevitable" third wave of infections could hit the country in the next six to eight weeks<sup>(7)</sup>.

Vaccine acceptance is a social tool that plays a vital role in the advent, implementation, and continuation of any vaccination program<sup>(8)</sup>. Immunization programs are only successful when there are high rates of acceptance and coverage. Understanding people's perceptions about COVID-19 and acceptance of the COVID-19 vaccine is crucial to improve coverage. Their confidence in the news about COVID19 and its vaccine

through social media platforms needs to be understood<sup>(9)</sup>.

In India, the data emanating from clinical trials of different vaccines support their eligibility for emergency authorization, even though some of the final details are not available yet. The emphasis now is on the quality control, quality production, and cost control of these vaccines to make them affordable to even the poorest nations in the world. The first mass vaccination program started in early December 2020, and the number of vaccination doses administered is updated daily. Globally, 13 different vaccines have been administered<sup>(10)</sup>.

COVID-19 vaccines are effective and are a critical tool to bring the pandemic under control. However, no vaccines are 100% effective at preventing illness. Some fully vaccinated people will get sick, and some will even be hospitalized or die from COVID-19. However, there is evidence that vaccination may make the illness less severe among vaccinated and if they get sick. The risk of infection, hospitalization and death is much lower in vaccinated than in unvaccinated people<sup>(11)</sup>. By 7th September 2021, the USA has fully vaccinated about 177 million people. Like other vaccines, breakthrough cases will occur, even though the vaccines are working as expected. Asymptomatic infections among vaccinated people will also happen<sup>(11)</sup>. Current data suggest that COVID-19 vaccines authorized for use in the United States offer protection against most SARS-CoV-2 mutants circulating in the United States. However, variants will cause some vaccine breakthrough cases<sup>(11)</sup>.

Vaccinations are the best method to control rapidly spreading infectious diseases. Many groups and individuals recently started to spread rumors and conspiracy theories against vaccination, intensifying the pressure on healthcare authorities and workers. COVID-19 vaccine development and supply is an ongoing process; currently, in Europe and North America, several candidate vaccines from well-known companies have been released for healthcare workers and high-risk populations such as the elderly and patients with chronic diseases<sup>(12)</sup>.

This study will help government officials or policymakers to understand the issues existing in terms of knowledge and attitudes of people towards the COVID-19 vaccine that Government must address for mass vaccination and prevention of the disease.

### Objectives

The Objective of the study were:

1. To assess the present state of knowledge that people have about the vaccine for COVID-19
2. To assess the attitude regarding COVID-19 vaccination among beneficiaries
3. To assess the practices regarding COVID-19 vaccination among beneficiaries
4. To find an association between knowledge attitude and practices with socio-demographic variables

### Material and Method

In the study, a cross-sectional research design was used. The study was conducted among the beneficiaries reporting to get vaccinated for Covishield or Covaxin above 18 years of age attending Vaccine OPD of a private medical college hospital, Katraj, Pune. A convenience sampling technique was used. The sample size considered the rule of assumptions a prevalence of 50%, relative error of 90% power, and 95% confidence interval; the sample size came out to 384 but we have collected response of 417 participants which is adequate sample size. Google form was used to collect the data. The form consists of the questions related to socio-demographic structure, knowledge about the COVID vaccine and COVID appropriate behavior, attitude towards vaccination, and practice of COVID appropriate behavior of the beneficiaries. A predesigned and pre-tested questionnaire was prepared using Google form.

The questions were in the English language in Google forms which were translated into Hindi and Marathi and were validated by 11 experts and back-translated into English. Data collection was done in the month of July 2021. The beneficiaries were informed to wait in the waiting area after getting vaccinated for a period of half an hour under the observation. There was arrangement of sitting area for the interviewer and beneficiaries. Considering COVID-19, use of mask by both the

interviewer as well as the beneficiaries and a sanitizer bottle was kept in that area. After getting vaccinated, beneficiaries are expected to wait in the waiting area for half an hour under observation for probable side effect. The beneficiaries were first asked whether they understood the English language and could fill the form, and written consent of the participants were taken. To those beneficiaries who could do that, a brief introduction about the study was given to them one by one, and then a Google form link was shared on their phone numbers. They were asked to talk to the interviewer if any problem was faced during form filling related to questions in the form or any other queries. They would leave after filling the Google forms when half an hour of the waiting period was completed. For those beneficiaries who did not understand the English language or faced problems filling the form on their own in their mobile phones, the interviewer filled their form. Questions were asked in either Hindi or Marathi or English language as per the participants' understanding.

To begin with, a short introduction regarding the study was conveyed to them. Questions were asked from Google form, and answers were filled on the spot by the interviewer. In case of any doubt, they were allowed to ask their queries freely. Only one beneficiary was allowed to be interviewed at a time.

Ethical clearance was taken from the institutional ethical committee to conduct the study.

The baseline characteristics of the participants were presented as frequency and percentages. According to the data distribution, the association between qualitative variables was assessed using the Chi-squares test or Fisher's exact test. P-value - 0.05 was considered statistically significant for all analyses. SPSS version 25 was used.

The author obtained Institutional Ethics Committee approval.

### Result

Data collection was completed in 1 month, Total of 603 participants was approached to participate in the study, but only 417 participants actively participated in the study. The demographic characteristics of the samples

depicted that maximum participants were less than 45 years 317(75%), and some participants were 45-59 years 64 (15%), and there were more than 60 years 37(9%). Maximum 220 (53%) participants were male, and the rest 197 (47%) were females. Maximum participants, 277 (66.42%), were employed, and the rest 140 (33.5%) were unemployed.

The majority, 338 (81%) of the participants, were aware of the COVID19 vaccines in India, whereas 79 (18.9%) were unaware of that. Maximum participants, 264 (63.30%), possess knowledge regarding taking a different vaccine for two separate doses of COVID19, whereas nearly 153 (36%) were unclear about the concept. Maximum 336 (81%) were aware of the side effects of the COVID vaccine. Maximum participant 330 (79.1%) thinks that they will get covid infection post COVID vaccination, whereas 87 (20.8%) didn't agree. 185 (44.36%) believe that only vaccine will be successful in preventing the COVID - 19 transmission.

Maximum participants 408 (97.84%) believed that practicing hand hygiene, use of mask, and social distance reduces the risk of COVID - 19 transmission, whereas a few 9 (2.15%) still have negative attitudes.

All the most 415(99.52%) positively recommend COVID vaccination to relatives/neighbors.

Maximum participants 414 (99.2%) practice hand hygiene, use of mask, and social distance post-COVID19 vaccination. The majority of them, 408 (97.8%), booked appointments online by the CoWIN and Arogyasetu. Maximum participants 240 (57.55%) didn't experience difficulty in getting online appointments, whereas 177 (42%) faced the challenge.

The above table (Refer Table 1) shows Fishers test p-value corresponding to age & education is less than 0.05 level of significance, so the above demographic variables have a significant & positive association with knowledge of COVID vaccination. As per p-value corresponding to age is <0.05 have an association with an attitude of COVID vaccination. For p-value corresponding to age is <0.05 that p-value 0.019 have found a significant association with the practice of covid vaccination. The p-value corresponding to gender & occupation is more than 0.05, so demographic variables have not found a significant association with knowledge, attitude, and practice level for COVID – 19 vaccination at OPD.

**Table 1: Fisher's exact test for association of knowledge, attitude & practice with selected demographic variable, n=417**

Variable	N	%	Knowledge			Attitude			Practice		
			Mean	SD	P	Mean	SD	P	Mean	SD	P
1. Age											
More than 60	37	9	4.8	1.19	0.019	1.69	1.23	0.002	1.74	1.67	0.013
45-59	64	15	5.7	1.22		1.98	1.45		1.98	1.34	
18-44	317	76	6.1	1.65		1.55	2.44		1.62	2.84	
2. Gender											
Male	220	52.8	5.2	2.34	0.74	1.66	1.68	0.64	2.46	2.86	0.81
Female	197	47.2	6.3	1.65		1.23	1.36		2.32	2.43	
3. Education											
Primary	124	29.7	3.9	3.22	0.0012	1.65	1.98	0.39	1.22	1.84	0.73
Secondary	103	24.7	4.12	2.1		1.22	2.56		1.42	1.42	
Higher secondary	99	23.7	4	2.9		1.66	2.69		1.58	1.96	
Intermediat	37	8.9	5.66	1.66		1.02	2.33		1.88	2.22	
Graduate	49	11.8	6.31	1.4		1.98	1.52		2.02	2.34	
Post Graduate	5	1.2	6.2	1.1		1.89	1.24		2.08	1.78	
4. Occupation											
Employed	277	66.4	6.66	1.11	0.12	1.78	1.66	0.35	2.16	1.58	0.64
Unemployed	140	33.6	5.01	2.45		1.21	1.88		1.46	1.33	

## Discussion

In this study, findings showed that a maximum of 220 (53%) participants were male, and the rest 197 (47%) were females. Maximum participants, 277 (66.42%), were employed, and the rest 140 (33.5%) were unemployed. A similar study by Sabria Al-Mashroudi et al.<sup>(13)</sup> was conducted on Knowledge, Attitudes, and Practices toward the COVID-19 Vaccine in Oman: A Pre-Campaign Cross-Sectional Study. Males accounted for 76% of the respondents. Most of the participants were pre-secondary school certificate holders (54.6%). Almost three-fourth (71.4%) of the participants worked, and 40.6% worked in the private sector. In this study, 338 (81%) of the participants were aware of the COVID-19 vaccines in India, whereas 79 (18.9%) were unaware of that. Maximum participants, 264 (63.30%), possess knowledge regarding taking a different vaccine for two separate doses of COVID-19, whereas still near to 153 (36%) were unclear about the concept. In a similar study, most of the participants (88%) had heard of COVID-19. The majority of participants (52%) thought vaccines could protect them from contracting COVID-19, and 42% believed that patients could not acquire COVID-19 after taking the vaccine. Two doses of vaccine would be given, which was known to 45% of participants. In this study, Maximum participants, 408 (97.84%), believed that practicing hand hygiene, mask, and social distance reduces the risk of COVID-19 transmission, whereas a few 9 (2.15%) still have a negative attitude. All the most 415 (99.52%) positively recommend COVID vaccination to relatives/neighbors. Haimanot Abebe et al. (2021) conducted a similar study on Understanding COVID-19 Vaccine Knowledge, Attitude, Acceptance, and Determinates of COVID-19 Vaccine Acceptance among Adult Population in Ethiopia. Findings showed that the level of positive attitude, good knowledge, and intention to accept the COVID-19 vaccine were 44.7%, 74%, and 62.6%, respectively<sup>(14)</sup>.

In a similar study overall, 78.4% had a positive attitude, 83.9% had sufficient knowledge, and 37.0% had good practices toward COVID-19. Factors associated with KAP were: Knowledge: being a clinical HCW (aRR: 1.12; 95% CI: 1.02–1.23) and previous participation in

health research (aRR: 1.10; 95% CI: 1.04–1.17); Attitude: age > 35 years (aRR: 0.88; 95% CI: 0.79–0.98); Practice: being a clinical HCW (aRR: 1.91; 95% CI: 1.41–2.59). HCWs in Uganda have a positive attitude and good knowledge but poor practices towards COVID-19<sup>(15)</sup>.

The results depicted that respondents have poor knowledge of the COVID-19 vaccine and two doses. Similar results are seen in a study by Archana Kumari et al.<sup>(16)</sup>, where the study showed most of the participants had limited knowledge regarding the eligibility of vaccines in vulnerable population groups. Maximum participants think that they will get COVID infection post COVID vaccination. Cavanaugh et al.<sup>(17)</sup> mentioned in their study that among persons with previous SARS-CoV-2 infection, complete vaccination provides additional protection against re-infection, but chances to get the disease are still there. Our finding showed that maximum participants believed that practicing hand hygiene, mask use, and social distance reduces the risk of COVID-19 transmission.

Utami et al. mentioned that most respondents increased their hand hygiene practices during the COVID-19 pandemic. CDC has also recommended that people should continue wearing masks, wash hands frequently, and practice physical distancing after getting the COVID-19 vaccine until herd immunity is achieved<sup>(18)</sup>.

The population of Malaysia was found to have good knowledge, attitude, and perception regarding COVID-19 prevention. This is possibly the main reason for the higher acceptance of the COVID-19 vaccine among the respondents. Despite having less knowledge on the vaccine, our acceptance rate is almost similar to Saudi Arabia (64.7%), and the United Kingdom (64%) better than Turkey (49.7%) but lower than Indonesia (93.3%) and China (91.3%). Lower age group, high level of education, female, and not having chronic diseases were significantly associated with acceptance to the COVID-19 vaccine. In Saudi Arabia, approval of the COVID-19 vaccine was relatively high among the elderly, married, education level of a postgraduate degree or higher, those employed in the government sector, and Non-Saudi. Although the acceptance rate is similar to Saudi Arabia, one distinct difference is that

while in Malaysia, the younger age groups showed greater acceptance, it is the elderly groups in Saudi<sup>(19)</sup>.

In another similar study by Abdulaziz Hussain Albahri et al., showed that the majority of participants (156/176, 88.6%) reported an acceptable practice, with only 20/176 participants scoring below the 80% total cut off point. Individual questions were answered correctly by 92.0% (162/176) to 99.4% (175/176) of participants, except for the first practice question, where only 71.6% (126/176) of participants reported participating in an infection control training program during the outbreak<sup>(20)</sup>.

### Limitation

Use of the convenience sampling was the limitation of this study. Since most respondents were conveniently selected as per the availability, the distribution of the respondents might not reflect the actual population. This group of respondents is those who have reached the vaccination center for vaccination, and hence their knowledge, attitudes, and practices will not reflect the true scenario in the community. We suggest a more extensive study that includes respondents from diverse backgrounds, locations, ethnicity, and socio-economic status. To increase the respondent's rate, multiple public platform sharing is needed. Various other data collection methods such as telephone interviews should also be employed.

### Conclusion

This study provides early insight into the Indian population's knowledge, attitude, and practices regarding COVID-19 vaccines. In this study, maximum participants were aware of the COVID19 vaccines given in India, whereas few were not aware of that. Maximum participants, 264 (63.30%), possess knowledge regarding taking a different vaccine for two separate doses of COVID19, whereas still near to 153 (36%) were unclear about the concept.

Regarding the technical issues related to the COVID-19 vaccine, 45% of participants knew that the vaccines would be given in two doses. Knowledge about vaccines was relatively average. The attitude rate was significantly positive. Respondents practice hand hygiene and mask practices but facing issues regarding

online booking of the vaccine. These findings can help the government plan future efforts to increase vaccine uptake that may eventually lead to herd immunity against SARS-CoV-2. The efforts should focus on those with insufficient knowledge and barriers faced by them.

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