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Original Research Article

COVID-19 Vaccination drive: Impact on the acceptance of vaccine among the general population of India

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ABSTRACT

The acceptance of any vaccine relies on the belief and perception towards it. After a wait of almost 10 months, the COVID-19 vaccine is ready with the first phase in progress in India. The aim of this study is to assess the impact on the acceptance intentions of COVID-19 vaccine among the general population of India after the vaccine is inoculated to health care workers in the first phase. An empirical study was conducted by analyzing the data collected by a self-administered questionnaire. The various variables that were addressed were the socio-demographic variables, past behavior of participants towards such seasonal influenza vaccine, awareness about the vaccine and adoption intention post vaccination drive. Logistic regression was used to identify the association between various variables and the predicting variables for the vaccine acceptance. Majority of them were ready for the COVID-19 vaccine. However, there was a decline in the acceptance rate post vaccination drive. Age, Gender and Region were found as the major factors affecting this decision.

Aims: To analyse, 1. The shift in confidence level in COVID-19 vaccine; 2. The role of Social Influence (SI) towards COVID-19 vaccine; 3. The role of past behavior towards seasonal influenza vaccines (Swine Flu, Ebola or similar) in acceptance of COVID-19 vaccine; 4. The association bet ween awareness of the COVID-19 vaccine and rate of adoption.

Materials and Methods: The study was conducted by analyzing the data collected by a self-administered questionnaire that was shared online across India in January 2021 – February 2021. The variables that were addressed through the questionnaire were the socio-demographic variables, past behavior of participants towards such seasonal influenza vaccine, awareness about the vaccine and adoption intention post vaccination drive. Associations between various variables were observed during analysis. Logistic regression was also used to identify the predicting variables for the vaccine acceptance. Statistical analysis used: Odds Ratio, p-value, logistic regression

Results: Out of 456 respondents, 59.21% were ready to uptake the COVID-19 vaccination, whereas 16.67% respondents declined to take the vaccine. There were 24.12% respondents who were not sure about the acceptance of the vaccine. Younger age groups specifically male from Northern India were more likely to accept the vaccine.

Conclusions: The major findings of the study shows that after the start of implementation of COVID-19 vaccination drive, there is a drop in the number of people who are ready to take the vaccine as compared to the number before the arrival of the vaccine. This may lead to the conclusion that the faith of general people of India has declined in the COVID-19 vaccine post vaccination drive.

1. Introduction

COVID-19 or Corona virus was the most highlighted term in the year 2020 and it was believed to be originated from

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Wuhan, Hubei province of China. The fast spreading variant of coronavirus was highly contagious and caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2). On January 30, 2020, an outbreak of a public health emergency was declared by the World Health Organization (WHO) at international level due to the rapid transmission of this virus from human to human causing a pandemic in many countries.[1] Ever since the outbreak of the corona virus, almost 200 countries are affected globally. As on date, more than 100 million people are infected and more than 2 million people are deceased globally. In India, the number is more than 10 million and 150 thousand respectively. The outbreak of the pandemic had resulted in many fatalities and had become a major concern for the administrative units of respective countries. It had also imposed enormous burdens of morbidity and mortality and at the same time severely affecting societies and economies worldwide. The United States of America (USA), Spain, Italy, Germany, France, China, Iran, United Kingdom, Turkey and Switzerland were among the top 10 countries that had the maximum number of infected cases. The maximum number of casualties had been reported from Italy, Spain, United States of America, France and United Kingdom. China topped the list of the maximum number of recovered patients followed by Spain, Germany, Italy, Iran and the United States of America. Although India was put out of the list of infected nations initially due to the imposed lock down, but, as of today, India stands 2nd on the list of total infected cases as per WHO statistics. Controlling the virus outbreak was a tough task and forced the scientific communities to foster their Research and Development (R&D) activities. In order to combat the novel coronavirus, researchers were required to identify the cause, clinical feature and develop a possible vaccine. Numerous researches were conducted and published globally, including in India. During the past several months, WHO along with a team of researchers and doctors were working to accelerate the development of a vaccine against the coronavirus. Generally, development of any vaccine passes through a series of steps which takes several years. But this time due to the urgent need, unprecedented financial support and scientific collaborations had taken place. The emergency licenses were given to the vaccine that had passed the initial trials and were also put on human trials. Earlier in 2020, it was reported that there were around 50 candidate vaccines in the clinical evaluation stage and more than 150 candidate vaccines in the pre-clinical evaluation stage. It was expected the mass distribution of safe and effective vaccines would start from early 2021. Medical researchers have put in a lot of efforts for the development of the COVID-19 vaccine.[2] Finally, when the vaccines have reached the market, it becomes imperative that we study the situation post Covid vaccine drive in the first phase. This would help to understand the change in the beliefs and perception of the general population of India towards the vaccination. At present there are two types of vaccines available in India — Covaxin, developed by Bharat Biotech in collaboration with Indian Council of Medical Research (ICMR) and Covishield, developed by Oxford/ Astrazeneca in collaboration with Serum Institute of India.

India started the world's largest COVID-19 vaccination campaign on 16th January 2021 inoculating health workers.[3] Due to adverse effect reported in few cases (Adverse Events Following Immunisation — AEFI), it was natural for people to become skeptic about the effectiveness of the COVID-19 vaccine that led to hesitancy. People wanted to observe and learn from the experience of healthcare workers who have taken the shots. The current study majorly explores the impact of post COVID-19 vaccine drive in India on the beliefs about the vaccine. The following research questions were analyzed in this study to formulate the perspective of people of India towards COVID-19 vaccine after the first phase of vaccination drive:

1. The shift in confidence level in COVID-19 vaccine.
2. The role of Social Influence (SI) towards COVID-19 vaccine.
3. The role of past behavior towards seasonal influenza vaccines (Swine Flu, Ebola or similar) in acceptance of COVID-19 vaccine.
4. The association between awareness of the COVID-19 vaccine and rate of adoption.

The entire study is divided in 6 sections. The first section discusses the context of the study. The second section discusses the background and the literature review. The third section discusses the methodology and various variables associated with the study. The fourth section presents the analysis and results of the study. The fifth section is about findings and discussions related to various research questions explored in this study. And finally section six concludes the study and present limitations for the research work.

2. Background

The entire world had been under the threat of coronavirus since January 2020, which has resulted in many fatalities. Countries were constantly trying to develop a COVID-19 vaccine rapidly.[4] As a result, there is an enormous growth of scholarly literature on the subject globally. In India also, there is a considerable and constant growth of publications on COVID-19 from mid-April.[5] The area of research has a diverse topic of interest that includes clinical research such as epidemiology, diagnosis treatments, as well as social research such as trend analysis, forecasting of situation etc. One of the research areas also includes the potential acceptance of COVID-19 vaccine during the human trials of the vaccines.

As per the various research papers published, there were few studies that focused on the potential acceptance, belief and barriers of COVID-19 vaccine before the launch of the vaccine in late 2020. The variables that were analyzed included socio-demographic characteristics, economic variables and beliefs and barriers that prevent participants from being vaccinated. The study shows that the majority (86.3%) of the participants were ready to get the vaccination in India.[6] A global survey conducted to identify the potential acceptance of a COVID-19 vaccine also reveals that the majority of the participants were ready to take the vaccine.[6] However, the study also showed that the accelerated pace of development of vaccines heightened the anxiety in public and may affect the acceptance.[7] A study conducted on health care workers (HCWS) has also reported that only 55% individuals serving in patient-facing and other roles had decided to receive the vaccine whenever offered. The concerned about the COVID-19 vaccine reported were unknown risks and insufficient data (90.3%), vaccine's side effects (57.4%) and wait till the vaccine goes for others (44.4%). The availability of a vaccine does not guarantee equal uptake.[8] This was studied in the past for the vaccine against influenza h1n1 (sub-type of influenza a virus). The vaccine was offered before or during the second wave of epidemic and vaccination rate was lower than expected with population coverage ranging from 0.4% to 59% across 22 countries.[9] The contradiction between low uptake of an available vaccination and high risk of infection was named as "pandemic public health paradox".[10] This contributes significantly to vaccine hesitancy: the denial to vaccinate in spite of the availability of vaccine. The levels and reasons of hesitancy depends on many factors and can vary by vaccine, demographics or geographical location, health system, accessibility and availability but can be driven by emotional, cultural, social, and political factors also.[11] Dubé[12] in his research concluded that the newer the vaccine, the higher is the hesitancy level. To ensure the adequate coverage, public opinion and trust in the vaccine are important and its effectiveness depends on the percentage of population being inoculated.

3. Materials and Methods

3.1. Study design and questionnaire

To carry out the cross-sectional study, a survey was conducted to measure the variables. A descriptive research design was adopted where an empirical method was used. It was a purposive sampling technique under probability sampling category. The study design was a validated, self-administered questionnaire that was shared online through social-media during the month of January 2021 and February 2021. The questionnaire was prepared in English and was designed using Google Forms. The survey was estimated to take 5 minutes of time to complete. The participants were informed about the objective of the survey. A pilot study was also conducted on 20 people to validate the correctness of the questionnaire and was modified based on the response and analysis of the pilot study. The final questionnaire consisted of questions that collected the data on socio-demographics variables, exposure to COVID-19 vaccination and their readiness to accept the vaccine post vaccination drive.

3.2. Study variable

The response variable was acceptance of a COVID-19 vaccine during the first phase of COVID-19 vaccination drive in India. To assess the awareness of the vaccine among people of India, the participants were asked few questions along with their choice of getting vaccinated with possible responses as "Yes", "No" or "Not Sure". Some explanatory variables were also collected through the questionnaire. The socio-demographic variables included were age, gender, educational qualification, profession, and region. Age was grouped into 9 categories. Educational qualification was grouped into 5 categories. The variables region and profession were also grouped into 5 and 4 categories respectively. Apart from socio-demographic variables, the responses were also collected related to the coronavirus infection, awareness, past behavior related to similar vaccines, and social influence.

Fig. 1: Analysis of acceptance of COVID-19 vaccine and socio-demographic characteristics

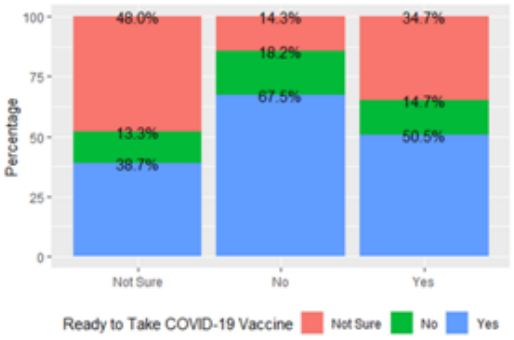


Fig. 2: Social influence

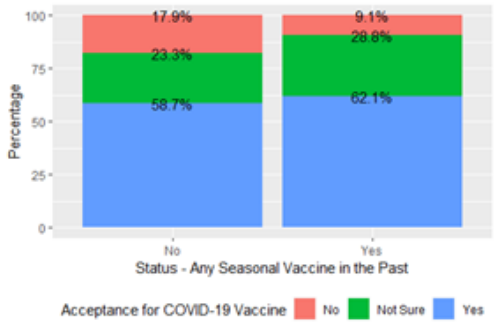
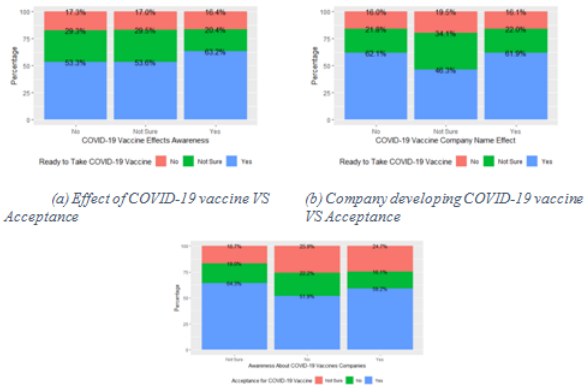


Fig. 3:



(a) Effect of COVID-19 vaccine VS Acceptance

(b) Company developing COVID-19 vaccine VS Acceptance

(c) Awareness about company developing C COVID-19 vaccine VS Acceptance

Fig. 4: Awareness and adoption intention of COVID-19 vaccine

3.3. Statistical analysis

Data cleaning and analysis were performed using R-programming. The demo- graphic data of the participants were presented using descriptive statistics that includes frequencies (n) and percentage (%). The significance of the association between various variables and the COVID-19 vaccine readiness was also assessed. Logistic regression analysis was used to calculate the odds ratio (OR). To identify the predicting variables of vaccine readiness 95% confidence interval was used and p-value less than 0.05 was considered statistically significant.

4. Analysis and results

The questionnaire was prepared which included various questions pertaining to their socio-demographic characteristics, the vaccination they had in the past, their knowledge about the vaccine and their views on COVID-19 vaccine. It was shared nationally (pan India) and a total of 456 respondents responded. To examine the relationship between the acceptance of the vaccine and the predictor variables, step wise multivariate regression analysis was performed. The data analysis is described in various subsections.

4.1. Socio demographic characteristics

Table1 shows the data about the socio-demographic characteristics of the participants and the Figure 1 shows the association/analysis of acceptance of the COVID-19 vaccination with/for various socio-demographic variables. From the total number of 456 responses, 240 were (52.63%) females and 212 were (46.49%) males responded to the questionnaire. The survey was carried out across the 5 different zones of India. The majority of the responses (69.52%) were received from the North part of India. 49.12% of respondents were salaried people. The analysis shows that the majority of the respondents were ready to accept the vaccine irrespective of their age, gender, region, their qualification and profession (Figure 1 (c)). The percentage of respondents who were not ready to take the vaccine was very low (4.6% — 25.35%) when compared to the percentage of respondents who were ready to take the vaccine (41.67% — 79.55%) in the different levels of variable age (Figure 1 (a)). Though, there was a group of respondents in each age group who were still unsure about getting inoculated. This might be due to the fact that the development of the vaccine was done in a record time of around 10 months and many people wanted to observe the outcome of the vaccine. But there was a significant percentage of respondents who were unsure about the acceptance of vaccine in the age group between 50 and 60 years (50-55 years: 50%; 55-60 years: 41.7%). Apart from the age group, the data was also analyzed on the basis of gender of the respondents. From the data shown in

the (Figure 1 (b)) shows that the males were more inclined towards getting vaccinated (65.57%) for COVID-19 than the females (54.17%). As per the graph in (Figure 1 (e)) for the readiness to take the vaccine in various regions of India, the number of respondents ready to take the vaccine was highest (76%) in the western India than any other zones. Since western part of India was particularly badly affected by the COVID19 and till date it holds the highest number of total cases than any other part of the country, this suggests that the area where the possibility of catching COVID-19 infection was high people were more positively inclined towards the acceptance of the vaccine. It is also prevalent to note that there was a high percentage of respondents who were unsure about the acceptance of the vaccine from central and south India (35.3% and 29.8% respectively). The educational background of the respondent was another socio-demographic variable which was analyzed. The break-up of responses for the various levels of educational background is shown in the (Table 1). Majority of the respondents were ready to accept the vaccine for all the levels of qualification.

4.2. Social influence (SI) in formulating the people's attitude to wards vaccine

It has been observed that there is a relationship between social and psychological factors and individual behavior for making the decision regarding the vaccination. Alison et al. concluded in his research that if there was a social pressure from one's social network, there is an increased chance of vaccine uptake.[13] The (Figure 2) shows that the maximum number (62.72%) of the respondents were not influenced by their social network for taking the COVID-19 vaccine. Moreover, the people were still inclined towards taking the COVID-19 vaccine irrespective of the influence (yes, no) of their social network. However, it was observed that there was a remarkable percentage of respondents, who were unsure about conform to their social network on their decision of vaccine uptake and were undecided for the vaccine acceptance (48.0%).

4.3. Past behavior towards similar seasonal influenza vaccine

In the past, studies have shown that in the USA and France, the rate of acceptance of H1N1 vaccine was higher among the participants who had a history of uptake of the seasonal influenza vaccine.[14,15] Few researches showed mixed response to the acceptance of seasonal influenza vaccines such as H1N1 in India.[16,17] The results from the responses as shown in Figure 3 however shows that past uptake of seasonal influenza vaccine was a positive predictor for the readiness/take of COVID-19 vaccine. 62.9% people were ready to take vaccine who had a history of uptake of the seasonal influenza vaccine whereas 59.15% people were ready to take COVID-19 vaccine who had no past history of uptake of any seasonal influenza vaccine. Also, those who were infected with COVID-19 disease were more likely to take the COVID-19 vaccine than non-infected.

4.4. Awareness and adoption intention

The current study also focused on the awareness about the COVID-19 vaccine in context with knowledge about the different companies who were developing these vaccines and the adverse effects of these vaccines if any.(Table 2) Out of total 456 responses, 84.9% of the respondents were aware of the companies who were developing the COVID-19 vaccines. There were 45.6% of the respondents who were not bothered about the brand/name of the company who were developing the vaccine in accepting the COVID-19 vaccine in contrast to 36.8% of respondents who had concern with the company name who were developing the vaccine. There were 59% respondents who were aware of the adverse effects that COVID-19 vaccine might have if any. (Figure 4) Shows that 50% respondents were ready to accept the vaccine regardless of the company developing the vaccine and the awareness of the possible side effects.

5. Findings and Discussion

COVID-19 vaccination can be considered as one of the game-changers in the healthcare industry for the 21st century. This fundamental health protecting aid is facing many obstacles despite its benefits. It has been identified that acceptance of any vaccine among the population is affected by many factors such as geography, time, social class, human behavior and ethnicity.[18,19] Although several studies have been conducted around the world, at present, there are a limited number of studies regarding the COVID-19 vaccine acceptance. Before the arrival of COVID-19 vaccine, the acceptance rate of COVID-19 vaccine was identified at 86.3% in India, which was similar to the results obtained from the studies conducted in the USA and China.[6] According to a study in the USA, 80% were ready to accept the vaccine on availability.[20] Another study states that the acceptance rate was 72.5% in China.[21] The acceptance rate of the vaccine was South Africa (64%), Russia (54%), France (59%), Poland (56%), and Hungary (56%) as reported by IPSOS.[22] The study also showed that the participants who were not sure about the acceptance of the vaccine (perhaps, they wanted to wait for a little more time to ensure the safety and efficacy of the vaccine) had also declined from 34% to 24.12% post vaccine drive in India.[6]

Results in this study indicated that the sample population was divided between COVID-19 vaccine acceptance, refusal and unsure about the vaccination. The finding highlights that more than half of the sample population was ready to accept the vaccination.(Table 3) Shows the characteristics

Table 1: socio-demographics

Characteristics	Levels	Frequency (n)	Percentage (%)
Age	< 18 years	8	1.8
	18 - 30 years	142	31.2
	30 - 35 years	24	5.3
	35 - 40 years	53	11.6
	40 - 45 years	114	25.1
	45 - 50 years	43	9.4
	50 - 55 years	16	3.5
	55 - 60 years	12	2.6
	> 60 years	44	9.7
Gender	Male	212	46.5
	Female	240	52.7
	Prefer Not to Say	4	0.9
Region	East India	24	5.4
	West India	50	11.3
	North India	304	68.6
	South India	48	10.9
	Central India	17	3.8
Qualification	10th	6	1.3
	12th	11	2.4
	Graduate	123	27
	Post Graduate	215	47.3
	Professional	100	22
Profession	Salaried	224	49.1
	Self Employed	81	17.8
	Non-Working (including retirees, students, and housewives)	151	33.18
Did you ever get any seasonal influenza vaccine before (Swine Flu vaccine, Ebola vaccine or any similar vaccine)?	Yes	65	14.3
	No	389	85.3
	Not Sure	2	0.4

Table 2: Awareness

Awareness towards COVID-19 vaccination	Response	n (%)
Are you aware of the companies who are developing the COVID-19 vaccine?	Yes	387 (84.9%)
	No	27 (5.9%)
	Not Sure	42 (9.2%)
Does the name of the company who is developing the COVID-19 vaccines affect your decision of taking the vaccine?	Yes	168 (36.8%)
	No	206 (45.6%)
	Not Sure	82 (18%)
Are you aware of the adverse effects that COVID-19 vaccine might have if any?	Yes	269 (59%)
	No	75 (16.5%)
	Not Sure	112 (24.6%)

of individuals about their adoption intention for COVID-19 vaccination. Out of 456 respondents, 59.34% declared that they were ready to take the vaccination. Participants aged more than 60 years were found to be more likely to accept the vaccination as compared to all other age groups as shown in Table (Table 3 for 95% CI and significance). Similarly, male respondents were found to be 1.81 more likely to accept the vaccination (95% CI: 1.09-3.08) as compared to female respondents. Also, the respondents with a history of taking seasonal vaccines were 2.15 times more likely to accept COVID-19 vaccination (95% CI: 0.96-5.76) than those who had no history of seasonal vaccination in the past. There was also an increase in the likelihood of being vaccinated for those who had got infected with this disease. They were 2.71 times more likely to accept vaccination.(Table 3) also, illustrates that variables educational qualification, profession and past infection of COVID-19 were unable to predict the vaccination behavior (p-value > 0.05). In some cases, while the odds ratio was statistically significant, a larger magnitude in the confidence intervals for some predictors shows that a larger study was needed to generate a more precise estimate of effect.

Moreover, the study revealed several key predictors of the acceptance towards the COVID-19 vaccination. The significant predictors were age, gender and region. However, past history of seasonal influenza vaccine could also be considered as a predictor of the acceptance towards the COVID-19 vaccination (p-value = 0.08) if sample size is increased.(Table 3) Results indicated that self-reported influenza vaccine uptake was a positive predictor for the acceptance of eventual COVID-19 vaccination. Past studies have shown that the rate of H1N1 vaccine acceptance was higher among participants with a history of uptake of the seasonal influenza vaccine in the USA and France.[14,15] However, a study conducted in Pune (India) indicated that only 8.3% of people received the influenza vaccine in 2015. Male gender was another positive predictor for acceptance of COVID-19 vaccination. The reason for this could be the reported high rates of COVID-19 related co-morbidity and mortality among male infected patients.[23] Another positive predictor for the acceptance of COVID-19 vaccination was age. It could be seen from the study that the participants from the age group 18-30 years and elderly people were more inclined towards the acceptance for the vaccine than the other age groups. A possible explanation for the younger participants to be more willing for the vaccination could be that they were more frustrated with the social distancing restrictions and series of lock down associated with the COVID-19 crisis.

After few weeks of the COVID-19 vaccination drive, the efficacy and side effects were observed. It was seen that the majority (59.34%) of the participants still showed their interest for the inoculation of the vaccine when compared to their concerns about the side effects of the vaccine before its arrival in 2020. However, there was a remarkable drop (from 86.3% to 59.34%) in the percentage for the acceptance of the vaccine after the arrival of the vaccine. Also, the percentage of participants who lacked confidence in the effectiveness of vaccination was also increased from 13.7% to 16.6%.[6] The results also revealed that there were 23.97% respondents who were unsure about the acceptance of the vaccine. Perhaps the reasons for uncertainty were: "vaccine's side effects", "conspiracy", "distrust", "wait and observe" to mention few, collected as views about the COVID-19 vaccine from the respondents through the questionnaire.

6. Conclusion

While the mass production of COVID-19 vaccine has already started and mass inoculation drive has begun with the front-line workers, vaccine hesitancy (16.7%) has increased that must be assessed and ultimately addressed. The major findings of the study shows that after the start of implementation of COVID-19 vaccination drive, there is a drop in the number of people who are ready to take the vaccine as compared to the number before the arrival of the vaccine. This may lead to the conclusion that the faith of general people of India has declined in the COVID-19 vaccine post vaccination drive. The low rate of acceptance is alarming to the country and needs awareness campaigns that offer transparent information about the efficacy and safety of the vaccine to revive the trust in national health authorities. Also, there is a significant percentage of population which is still unsure about the vaccine. The reason could be that the time taken for the development and mass production of the vaccine is very less and the participants may be apprehensive about adverse effects of the vaccine. They might want to wait and learn about the experience of those who have taken the shots. They may change their perception with the passage of time and with the increase in the awareness program campaigns and more positive results of the vaccine. The study also shows that an individual approach towards the vaccine uptake/acceptance is independent of one's social network, which is predominant. The people who were not vaccinated in the past season (for any such influenza vaccination) showed high odds as against the people who were vaccinated in the past season. Since it was observed from the data that there was an age group between 50 and 60 years who were undecided for the acceptance of the vaccine and are more prone to get infected to this disease, evidence-based vaccination campaigns can be planned to enhance the trust of this age group people over the vaccine. This may convert the undecided category into acceptance and maximize the vaccine uptake. Also, the unsure percentage was high in the central and south region of India. Targeted interventions are required from state governments and practitioners for effective counseling to increase the trust in the efficacy of vaccine and to increase the vaccination acceptance rate. Younger age groups specifically between 18-30 years, male from Western part of India were more likely to accept the vaccine as compared to other age groups and regions. Age, Gender and Region were found as the major factors affecting this decision. The results from the study can be used for a coordinated strategy to communicate people about the prevalence and seriousness of the disease and encourage the people who have already been vaccinated to deliver the information about vaccine's safety and effectiveness. These people can be considered as a trustworthy, trusted or credible source of information and help to implement the COVID-19 vaccination program successfully in India. The current study has certain disparities across regions and the age factor with respect to response rate which could be the limitations of the study. The highest response rate was recorded from the Northern region of India. Moreover, the major respondents were from the age group 18-30 years.

Table 3: Adoption

Variables	Levels	Planned to take COVID-19 Vaccination			Odds Ratio(OR)	95% CI	P value
		Yes (%)	No (%)	Not Sure (%)			
Total		270(59.34%)	76(16.7%)	109(23.96%)			
Age	< 18 years	4(50%)	2(25%)	2(25%)	0.15	0.06-1.4	0.07
	18 - 30 years	75(52.82%)	36(25.35%)	31(21.83%)	0.14	0.02-0.5	0.009*
	30 - 35 years	14(58.33%)	3(12.5%)	7(29.17%)	0.34	0.04-2.21	0.25
	35 - 40 years	32(60.38%)	9(16.98%)	12(22.64%)	0.24	0.03-0.1	0.07
	40 - 45 years	72(63.16%)	14(12.28%)	28(24.56%)	0.34	0.05-1.32	0.17
	45 - 50 years	28(66.67%)	5(11.90%)	10(23.26%)	0.36	0.05-1.79	0.24
	50 - 55 years	5(31.25%)	3(18.75%)	8(50.00%)	0.211	0.03-1.4	0.1
	55 - 60 years	5(41.67%)	2(16.67%)	5(41.67%)	0.24	0.03-2.23	0.18
	> 60 years	35(79.55%)	2(4.55%)	7(15.91%)	-	-	-
Gender	Male	139(65.57%)	26(12.26%)	47(22.17)	1.81	1.09-3.08	0.02*
	Female	130(54.17%)	49(20.42%)	61(25.42%)	-	-	-
	Prefer Not to Say	1(25%)	1(25%)	2(50%)	0.77	0.1-15.74	0.8
Region	East	24(62.5%)	2(8.33%)	7(29.17%)	6	1.17-12.85	0.04*
	West	38(76.0%)	5(10%)	7(14%)	4.9	1.27-20.09	0.02*
	North	191(60.25%)	49(15.46%)	77(24.29%)	2.97	0.98-8.19	0.04*
	South	20(41.67%)	14(29.17%)	14(29.17%)	1.28	0.37-4.10	0.6
	Central	6(35.29%)	6(35.29%)	5(29.41%)	-	-	-
Educational Qualification	10th	5(83.33%)	1(16.67%)	0(0%)	1.02	0.15-20.27	0.98
	12th	6(54.55%)	2(18.18)	3(27.27%)	0.92	0.21-6.39	0.92
	Graduate	71(57.72%)	23(18.70%)	29(23.58%)	0.88	0.43-1.75	0.72
	Post Graduate	129(59.72%)	33(15.28%)	54(25%)	1.12	0.58-2.11	0.7
	Professional	59(59%)	17(17%)	24(24%)	-	-	-
Profession	Salaried	131(58.48%)	35(\15.63%)	58(25.89%)	1.23	0.7-2.12	0.45
	Self Employed	52(64.2%)	13(15.63%)	16(19.75%)	1.2	0.59-2.53	0.62
	Non-Working (including retirees, students, and housewives)	87(57.62%)	28(18.54%)	36(23.84%)	-	-	-
Did you ever get any seasonal influenza vaccine before (Swine Flu vaccine, Ebola vaccine or any similar vaccine)?	Yes	40(61.54%)	6(9.23%)	19(29.23%)	2.15	0.96-5.76	0.08
	No	229(58.87%)	70(17.99%)	90(23.14%)	-	-	-
Does their preparedness/readiness to take COVID 19 vaccine in anyway impact your decision?	Yes	48(50.53%)	14(14.74%)	33(34.74%)	-	-	-
	No	193(67.48%)	52(18.18%)	41(14.34%)	0.79	0.4-1.46	0.46
	Not Sure	29(38.67%)	10(13.33%)	33(34.74%)	1.12	0.47-2.75	0.8
Have you ever got infected with COVID-19?	Yes	29(70.73%)	3(7.32%)	9(21.95%)	2.71	0.95-11.46	0.1
	No	241(58.07%)	73(17.59%)	101(24.34%)	-	-	-

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9. Conflict of Interest

None.

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