

Perception and attitude towards COVID-19 vaccination: A preliminary online survey from India

Jugal Kishore¹, Venkatesh U¹, Glory Ghai¹, Heena¹, Prem Kumar²

¹Department of Community Medicine, ²Additional Medical Superintendent, Vardhman Mahavir Medical College (VMMC) and Safdarjung Hospital, New Delhi, India

ABSTRACT

Context: Coronavirus disease 2019 (COVID-19) has rapidly become a global pandemic taking more than 1.7 million lives. While many developed countries are starting their vaccination drive, India is not far behind but still not much is known about the willingness to get a vaccination in India. **Aims:** To find out the perception and attitude toward vaccination against COVID-19 among the adult population of India in order to know the proportion of people who are willing to get vaccinated against COVID-19. **Method:** A cross-sectional study was conducted between October 26, 2020 and November 10, 2020. Data were collected online using a self-administered and semi-structured questionnaire among adults aged 18 years or more in India via web-based links. The minimum sample size was calculated by considering the proportion of willingness to take the vaccination as 50%, 95% confidence interval, and 5% alpha error—the calculated sample size was 384. However, 467 participants completed the survey during the study period. Data were analyzed using SPSS version 21. **Results:** A total of 467 participants responded, out of which 329 (70.44%) showed a willingness to get vaccinated and 138 (29.55%) were hesitant to get vaccinated against COVID-19. Only 49.4% believed that people can be protected by the vaccine; 63.1% of the people were willing to get their children vaccinated; and 59.31% felt the vaccine should be free for all. **Conclusions:** The pan India survey conducted online revealed that approximately 3 in 10 adults were not willing to get vaccinated against COVID-19. This can guide policymakers to make multipronged efforts to increase the willingness to get a vaccination against COVID-19.

Keywords: COVID-19 vaccination, COVID-19, India, SARS-CoV-2 vaccine, vaccine hesitancy

Introduction

The COVID-19 pandemic caused nearly unprecedented harm to many nations' lives, health, and economies. The 2019 pandemic of "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" has caused an enormous burden of illness worldwide, and no specific antiviral drugs are currently available for COVID-19. A systematic study of 53,000 hospitalized patients found that with a mortality rate of ~3.1%, 20.2% of the

COVID-19 cases experienced serious illness.^[1] Since vaccination is one of the most proficient and financially savvy preventive interventions to forestall irresistible sicknesses COVID-19 immunizations are viewed as vital for the counteraction and control of COVID-19. We have foreseen that the perspectives of a person toward antibodies all in all will be a significant factor in their ability to acknowledge a COVID-19. In general, vaccine reluctance is probably going to assume a significant function in COVID-19 immunization aversion, particularly, as in more than 90% percent of countries vaccine hesitancy has increased and has now been described by the WHO as one of the world's greatest health threats.^[2]

Although the exact timing of the launch of the COVID-19 vaccination for the general population is still not clear, several

Address for correspondence: Dr. Venkatesh U, Department of Community Medicine, Room No. 429, 4th Floor, College Building, Vardhman Mahavir Medical College (VMMC) and Safdarjung Hospital, New Delhi, India. E-mail: venkatesh2007mbbs@gmail.com

Received: 23-12-2020

Revised: 23-02-2021

Accepted: 26-05-2021

Published: 27-08-2021

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_2530_20

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How to cite this article: Kishore J, Venkatesh U, Ghai G, Heena, Kumar P. Perception and attitude towards COVID-19 vaccination: A preliminary online survey from India. J Family Med Prim Care 2021;10:3116-21.

candidates are being sought and at least one promising vaccine is expected to be available in the near future. Therefore, one of the most promising responses to this problem is to prepare a plan for vaccination implementation. Vaccine-hesitant people on social media have a worrying impression, as the studies from the early 2000s to the present reveals that a huge percentage of content about vaccines on popular social media sites give anti-vaccination messages.^[3-11]

Understanding the perception and attitude toward vaccination can play a pivotal role in dealing with pandemics, and vaccination can be an important protective behavior from COVID-19.^[12-15] With vaccine rollout in many countries, it becomes important to examine people's acceptability of a COVID-19 vaccine. However, knowledge about people's willingness to get the COVID-19 vaccine is very limited in India. Such evidence will be valuable in predicting the trends about future vaccine uptake and consequently developing strategies to improve acceptability (and uptake following vaccine availability). With the mass vaccination started in many developed countries, India will not be far behind when this process begins. So, a few important questions need to be answered like "if people are willing to get vaccination," "if the vaccine should be given free of cost." Our study was planned with this backdrop to answer these important questions which can help policymakers direct efforts toward the need for social mobilization to improve perception and acceptability toward COVID-19 vaccination.

This study's objective was to find out the perception and attitude toward COVID-19 vaccination among the adult population of India and thereby to know the proportion of people who are planning to get a vaccine against COVID-19. These data are important for better planning of the future COVID-19 vaccine program.

Subjects and Methods

Study design, population, and sampling

This cross-sectional research was conducted from October 26 2020 to November 10, 2020, among the general population of India. In view of the measures of social distancing (physical distancing) and restricted movement and lockdowns, data were collected online using an online survey via a self-reported questionnaire. Requirements for eligibility included being 18 years of age or older than 18 and actually living in India. The study was approved by the Ethics Committee of the Institutional Ethics Committee. Consent was taken prior to data collection and analysis was done maintaining patients' confidentiality, within ethical boundaries of the Declaration of Helsinki. A study of the perception of vaccination for COVID-19 is very scarce in India considering the proportion of people who are willing to take vaccination as 50%. A sample size of 384 was calculated considering a 95% confidence interval and a 5% alpha error. However, the survey link was circulated and completely filled by 467 participants.

Study tool

A self-administered and semi-structured questionnaire containing questions regarding the sociodemographic profile, perception, and attitude was used. The sociodemographic variables included age, gender, occupation, and monthly income. A total of 13 questions using Google forms, an online semi-structured questionnaire was created in English as well as in Hindi with a consent form appended to it. The questionnaire's link was circulated via WhatsApp and other social media. The respondents were told to roll out the survey to as many individuals as possible. Therefore, apart from the first point of contact and so on, the link was forwarded to individuals. The participants were automatically directed to the study details and informed consent upon receiving and clicking the link. Only completed surveys were used for analysis.

Statistical analysis

Statistical analysis was done using SPSS version 21. To illustrate the sociodemographic characteristics of the potential COVID-19 vaccine, descriptive statistics were carried out on acceptance of vaccine characteristics, actions, and expectations. The association between demographic features and categorical variables was compared using the Chi-square test/Fisher's exact test.

Results

Research participants' sociodemographic and clinical characteristics

In this study, the data collected from 467 respondents were analyzed. The mean age of the participants was 39.0 ± 12.9 , and there were more males compared to females (59.3%). Of the total participants in the study, about 215 (46.03%) were professionals, 81 (17.34%) were semi-professionals, 70 (14.98%) were skilled, 87 (18.62%) were students or homemakers and 14 (2.99%) were retired people. A total of 197 (42.18%) healthcare workers participated in the study while people not working in the healthcare sector were 270 (57.82%). The average monthly income of the survey participants was INR 3,633,99.20. Among the participants, 246 (52.67%) earned less than Rs 50,000 a month, 153 (32.76%) earned more than Rs 50,000 per month and 68 (14.56%) participants preferred not to disclose their income. About 36.18% (169) participants reported being tested for COVID-19 and 5.99% were positive on Reverse transcription polymerase chain reaction (RT-PCR) for COVID-19 as described in Table 1.

Response toward vaccine

About 70.44% (329) of the 467 participants reported that they were willing to get vaccinated; 138 (29.55%) participants were not willing to get vaccinated. Among the healthcare workers (197), 72.58% (143) were willing while 27.41% were not willing which is similar to the response from people not working in the healthcare sector where 68.8% were willing and 31.1% were unwilling for vaccination; 207 (44.3%) candidates gave their preference for oral vaccination and 260 (55.6%) for injectable; 231 (49.4%) participants believed people can be protected by the

COVID-19 vaccine, while 52 (11.1%) responded “no” and the rest 184 (39.4%) responded, “don’t know;” 161 (34.47%) believed that the vaccine should be free only for the poor, 277 (59.31%) felt it should be free for all, and only 29 (6.20%) felt it should not be free. Only 63.1% showed willingness toward getting their child vaccinated against COVID-19.

According to 40 (8.56%) participants, the elderly with the comorbid condition should be given preference in vaccination. At the same time, 171 (36.61%) believed that all frontline workers should get vaccinated first. Four participants answered that children below 10 years should be given preference, while 235 (50.32%) opted for all of the above responses. The relationship between age, gender, profession, and monthly income with the willingness to get the vaccine against COVID-19 was not statistically significant as shown in Figure 1, Table 2.

Discussion

The present study reported that approximately 70% of the participants were willing to get vaccinated for COVID-19 in India. This is useful for guiding the future prediction of vaccine uptake. It is very important to study the acceptability of vaccination as vaccine development is in the later phase of clinical trials, and many countries have already started vaccination programs. The findings were consistent with similar studies conducted in the USA^[14] and Turkey,^[16] where approximately 70 and 69% showed the intention to get a vaccination, while 74% showed an intent for vaccination against COVID-19 in France,^[17] 86% were willing to get vaccinated in the UK, and 92% in Italy.^[18]

Even though 70% of participants were willing to get vaccinated, the result seems encouraging since India has a national average for full immunization in the first year of life, only 62%, as per National Family Health Survey (NFHS-4) data.

The key findings of the study were that 70% of the participants showed a willingness to get a vaccination, but only 49% believed that vaccination against COVID-19 could protect them. The healthcare workers also had a similar hesitancy toward vaccination as the other sector workers. The participants willing to get their child vaccinated against COVID-19 was 63%; 59.3% people felt that the vaccination should be free for all; 34.47% felt that only the poor should get the vaccination for free and the rest 6.20% felt it should not be free. This is in contrast to Chile, where only 9.4% were not willing to pay for the vaccination.^[19]

The strength of our study was that it was pan India and the timing of the study is coinciding with the release of phase 3 trial results of many vaccines and vaccination has been started in many countries. The study was unique in the sense that it also tried to explore the willingness toward children getting vaccinated which was 63%. Healthcare workers also had a similar hesitancy toward vaccination as the other sector workers. It studied the response toward getting the vaccine free of cost, which remained untouched in other studies.

Thus, it can help guide policymakers of the probable vaccine hesitancy and so plan the future public health intervention. If the need for vaccination in children arises in the future then this study can be useful in developing an intervention. Our study

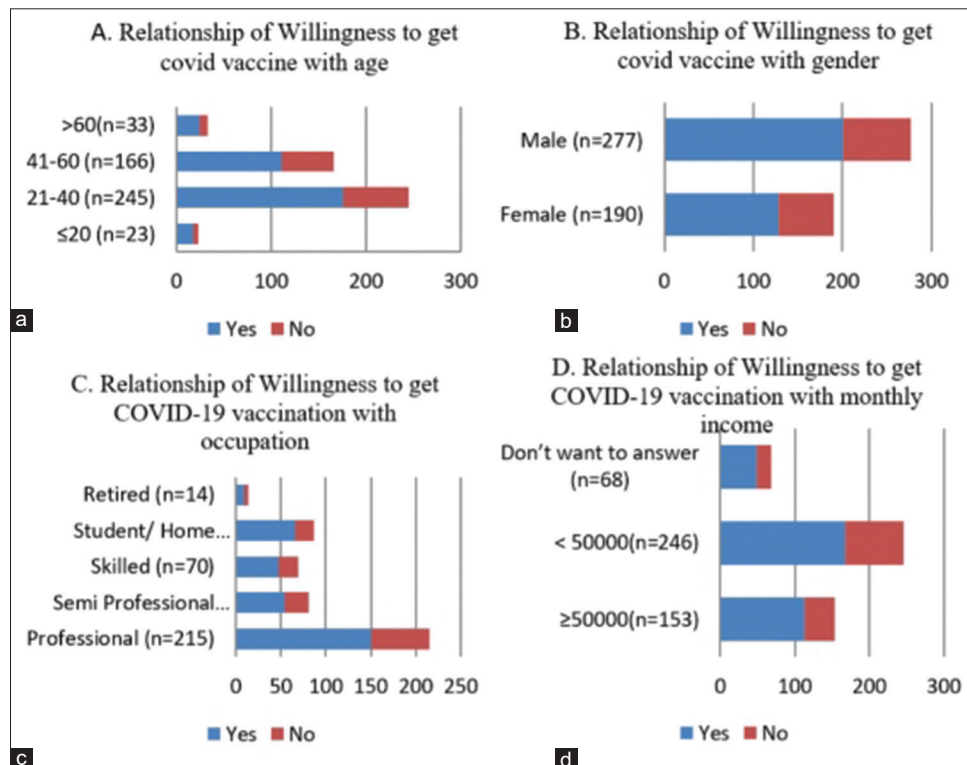


Figure 1: Relationship of willingness of vaccination with (a) Age (b) Gender (c) Occupation (d) Monthly income

Table 1: Descriptive statistics of demographic profile, clinical characteristics, and vaccine preferences (n=467)

Demographic Profile	n (%)	Confidence Interval of Proportion
Age		
<20	23 (4.93)	3.31-7.29
21-40	245 (52.46)	47.93-56.95
41-60	166 (35.55)	31.34-39.99
>60	33 (7.06)	5.08-9.76
Gender		
Female	190 (40.68)	36.33-45.31
Male	277 (59.31)	54.80-63.67
Occupation		
Professional	215 (46.03)	41.57-50.57
Semi-Professional	81 (17.34)	14.18-21.04
Skilled	70 (14.98)	12.04-18.51
Student/Homemaker	87 (18.62)	15.36-22.41
Retired	14 (2.99)	1.8-4.97
Occupation		
Healthcare worker	197 (42.18)	37.79-46.71
Others	270 (57.82)	53.29-62.21
Income		
>50,000	153 (32.76)	28.66-37.14
<50,000	246 (52.67)	48.15-57.17
Don't want to answer	68 (14.56)	11.65-18.05
Clinical Characteristics		
RT-PCR for COVID-19		
Never tested	298 (63.81)	59.36-68.04
Negative	141 (30.19)	26.2-34.5
Positive	28 (5.99)	4.18-8.53
Vaccine Preferences		
Willing to get COVID-19 Vaccine		
Yes	328 (70.44)	65.94-74.21
No	138 (29.55)	25.5-33.95
Preference for Vaccination		
Oral	207 (44.3)	39.89-48.86
Injectable	260 (55.6)	51.14-60.11
Believed COVID-19 Vaccine Can Protect Them		
Yes	231 (49.4)	44.95-53.98
No	52 (11.1)	8.59-14.31
Don't know	184 (39.4%)	35.07-43.90
Should COVID-19 Vaccine be Free		
Free for all	277 (59.31)	54.80-63.67
Only for poor	161 (34.47)	30.31-38.90
No	29 (6.20)	4.36-8.78
Willingness for Their Child to Get Vaccinated		
Yes	295 (63.1)	58.70-67.42
No	32 (6.8)	4.89-9.51
May be	140 (29.97)	26.00-34.28
Who Should Get Vaccinated First		
Elderly with comorbid condition	40 (8.56)	6.36-11.46
All frontline corona warriors	171 (36.61)	32.38-41.08
Children below 10 years of age	4 (0.85)	0.34-0.21
Others	17 (3.64)	2.28-5.75
All of the above	235 (50.32)	45.80-54.83

has a few limitations. The study was conducted online so only those with access to the Internet took part in the study and the participants were recruited by convenience sampling. So, results should be interpreted considering this limitation.

Policymakers must quicken dialogue and advance the community networks' development, leveraging and strengthening existing local channels that guide decision-making, such as community and faith leaders,

Table 2: Statistical association between the willingness of vaccination with demographic variables and clinical characteristics

Characteristics	Are you willing to get the COVID-19 Vaccine?		Statistical significance
	Yes	No	
Age (in years)			
≤20 (n=23)	18 (5.47%)	5 (3.62%)	Ref
21-40 (n=245)	176 (53.49%)	69 (50%)	0.62
41-60 (n=166)	111 (33.73%)	55 (39.85%)	0.34
>60 (n=33)	24 (7.29%)	9 (6.52%)	0.75
Gender			
Female (n=190)	128 (38.90%)	62 (44.9%)	Ref
Male (n=277)	201 (61.09%)	76 (55.07%)	0.25
Occupation			
Professional (n=215)	151 (45.89%)	64 (46.37%)	Ref
Semi-Professional (n=81)	55 (16.71%)	26 (23.18%)	0.77
Skilled (n=70)	48 (14.58%)	22 (15.94%)	0.88
Student/Homemaker (n=87)	66 (20.06%)	21 (15.22%)	0.39
Retired (n=14)	9 (2.73%)	5 (3.62%)	0.76
Occupation			
Healthcare worker (n=197)	143 (43.46%)	54 (39.13%)	Ref
Others (270)	186 (56.53%)	84 (60.86%)	0.41
Monthly Income			
≥50,000 (n=153)	113 (34.3)	40 (28.99%)	Ref
<50,000 (n=246)	168 (51.1)	78 (56.52%)	0.26
Don't want to answer (n=68)	48 (14.6)	20 (14.49%)	0.62
RT-PCR for COVID-19			
Positive	19 (5.77)	9 (6.67)	Ref
Negative	109 (33.13)	32 (23.70)	0.33
Never tested	201 (61.09)	97 (71.85)	1.00

teachers, sports celebrities, and popular social media influencers, groups, and networks.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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