



## AWARENESS AND ACCEPTANCE OF COVID-19 VACCINES AMONG THE CENTRAL INDIAN POPULATION

### Medical Science

<b>Shraddha Barhanpurkar*</b>	Intern, VSPM Dental College and Research Centre, Nagpur (MS), India. *Corresponding Author
<b>Surbhi Bayaskar</b>	Intern, VSPM Dental College and Research Centre, Nagpur (MS), India.
<b>Ashish Bodhade</b>	Reader, Department of Oral Pathology and Microbiology, VSPM DCRC, Nagpur.
<b>Alka Dive</b>	Head of Department, Department of Oral Pathology and Microbiology, VSPM DCRC, Nagpur.

### ABSTRACT

**Background:** Vaccines are effective interventions that can reduce the disease burden globally. However, a high level of public acceptance and coverage of the vaccines is needed for effectively reducing the burden of the COVID pandemic. Thus, in order to determine the awareness and acceptance regarding the COVID-19 vaccines in India, a survey of 464 participants from the Central Indian population was carried out.

**Aim:** Assessment of the awareness and acceptance of COVID-19 vaccines among the Central Indian population.

**Materials and Methods:** A questionnaire based cross-sectional study was done among the Central Indian population.

**Results:** About 97.3% respondents were aware of the fact that the Government has planned to offer COVID-19 vaccines to the people. 71.8% participants were willing to get vaccinated. 93.8% participants were willing to obtain more information regarding the COVID-19 vaccines.

**Conclusion:** Vaccination for all and within the stipulated time is the only solution to control this pandemic. Despite the availability of vaccine and awareness regarding it, vaccine hesitancy is a pressing problem for public health authorities. All stake holders should act unanimously to overcome these odds and vaccinate all to stop this pandemic and bring life back to normalcy.

### KEYWORDS

COVID-19; vaccine awareness; vaccine acceptance.

#### INTRODUCTION:

Coronavirus disease (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)<sup>[1]</sup>. In March 2020, the World Health Organization (WHO) declared COVID-19 outbreak a pandemic<sup>[1]</sup>. It is spread by direct contact or droplet transmission, attributable to respiratory particles<sup>[2]</sup>.

COVID-19 has severely ravaged health systems, and economic and social progress globally<sup>[1]</sup>. It has caused much mortality, particularly among the higher-risk population, including people who are obese, smokers, and patients having cancer, chronic kidney disease, heart conditions, immune-compromised state, sickle cell disease, and type 2 diabetes mellitus<sup>[3]</sup>.

The devastating impact worldwide prompted the need for mitigation policies to contain the pandemic<sup>[4]</sup>. Vaccines are a key strategy to stop the escalation of the pandemic<sup>[5]</sup>. The benefits of vaccination would include interrupted disease transmission; fewer cases, hospitalizations, deaths, and chronic sequelae; and the beginning of reinstated social and commercial exchanges<sup>[6]</sup>. Thus the development and production of the COVID-19 vaccine accelerated to a speed that has been unheard of<sup>[7]</sup>. The expedition of development and approval phases for COVID-19 vaccination trials has culminated in the emergency-use authorization of several safe and effective vaccines in a remarkable record time<sup>[8]</sup>.

However, vaccine hesitancy and refusal are significant concerns globally<sup>[5]</sup>. Vaccine hesitancy is defined as any delay in accepting or refusing vaccination despite the availability of vaccine services<sup>[9]</sup>. According to WHO, it was one of the public health threats in 2019 and was among the major barriers to achieve the necessary immunization coverage in most of the countries<sup>[9]</sup>.

The complex nature of motives behind vaccine hesitancy can be analysed using the epidemiologic triad of environmental, agent and host factors<sup>[10]</sup>. Environmental factors include public health policies, social factors and the messages spread by the media<sup>[10]</sup>. The agent (vaccine and disease) factors involve the perception of vaccine safety and effectiveness, besides the perceived susceptibility to the disease<sup>[10]</sup>. Host factors are dependent on knowledge, previous experience, educational and income levels<sup>[10]</sup>.

The aforementioned factors can be applied to COVID-19 vaccine hesitancy as well. Understanding these common barriers can help in improving vaccine coverage rate among the general population<sup>[11]</sup>.

This study is aimed at determining the level of awareness and the rate of acceptance regarding COVID-19 vaccines and analyzing the various beliefs and barriers that affect the vaccine acceptance among the Central Indian population.

#### AIM:

Assessment of the awareness and acceptance regarding COVID-19 vaccines amongst the general population of Central India.

#### MATERIALS AND METHODOLOGY:

The analysis protocol was approved by the Institutional Ethical Committee of the college. The study was conducted on the general population of Central India.

#### Study design:

A cross-sectional, questionnaire-based study was taken up to assess the awareness and acceptance of COVID-19 vaccines among the Central Indian population, over a period of 4 months from February 2021 to May 2021.

#### Study population:

A total of 464 participants above the age of 16 years willingly participated in this study.

#### Study procedure:

A questionnaire was prepared and validated. The study comprised of demographic details such as the participant's age, gender, education and occupation and the questionnaire comprised a total of 10 questions. The inclusion criterion for the study was the general population of Central India who were willing to participate in the study and above the age of 16 years. People below 16 years of age and those not willing to participate in the study were excluded. The questionnaire was uploaded to online survey administration software, GoogleForms and was distributed among the sample population.

#### STATISTICAL ANALYSIS:

The collected data from the questionnaires was analyzed and the information was also recorded in the excel-sheet.

#### RESULTS:

The study was carried out among the general population of Central India.

There were total 464 participants of which, 42.9% participants were Males and 57.1% were Females.

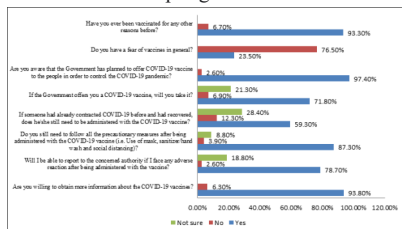
Of the total participants, 43.5% participants were Undergraduates, 41.4% were Graduates and 15.1% were Postgraduates.

93.3% participants have been vaccinated previously for other reasons, whereas, only 6.7% responded that they have not been vaccinated for any other reasons before.

76.5% of the participants did not agree to have a fear of vaccines in general, while 23.5% agreed to have a fear of vaccines in general.

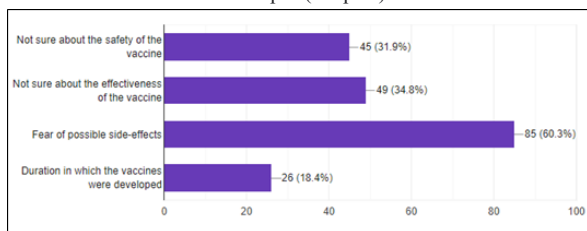
97.4% respondents were aware of the fact the Government has planned to offer COVID-19 vaccines to the people. But about 2.6% people were unaware of this fact.

71.8% participants responded that they were willing to get vaccinated, about 21.3% were not sure whether they will get vaccinated and 6.9% were still reluctant about accepting the COVID-19 vaccines.



**Graph 1: Bar-diagram showing percentage of responses to the questions**

60.3% participants responded that they had a fear of possible side-effects of the vaccine. 34.8% participants had doubts about the efficacy of the vaccines and 31.9% were unsure about the safety of the vaccine. About 18.4% respondents were concerned due to the short duration in which the vaccines were developed (Graph 2).



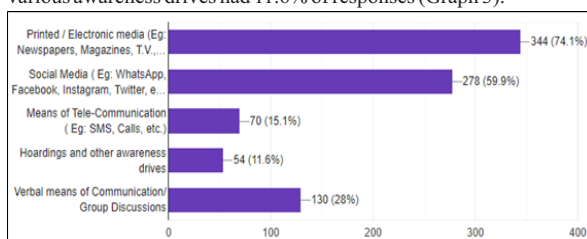
**Graph 2: Reasons for non-acceptance of COVID-19 vaccine**

59.3% respondents agree that people previously infected with COVID-19 also need to be administered with COVID-19 vaccines. 28.4% were not sure of this, whereas, 12.3% feel that there is no need for the previously infected persons to get vaccinated.

87.3% respondents agree that they need to take all the precautionary measures even after being vaccinated. 8.8% participants were not sure of this, whereas 3.9% feel no need to follow the precautionary measures after vaccination.

78.7% participants were aware that they will be able to report to the concerned authority in case of any adverse event following immunization (AEFI). 18.8% respondents were not sure of this whereas about 2.6% feel that they won't be able to report.

The source of information for 74.1% participants was Printed/Electronic media, followed by Social media for 59.9%. Verbal means of communication/Group discussion had 28% responses, whereas means of Tele-communication had 15.1% responses. Hoardings/ various awareness drives had 11.6% of responses (Graph 3).



**Graph 3: Source of information about COVID-19 vaccines**

93.8% respondents were willing to obtain more information regarding the COVID-19 vaccines, whereas about 6.3% were unwilling to get more information.

**DISCUSSION:**

The COVID-19 pandemic has imposed a heavy disease burden around the world<sup>[12]</sup>. As immunization is one of the most successful and cost-effective health interventions to prevent infectious diseases, vaccines against COVID-19 are considered to be of great importance to prevent and control COVID-19<sup>[12]</sup>. However, the knowledge, attitudes and practices of the local population towards the COVID-19 vaccine is critical to understand the epidemiological dynamics of disease control, and the effectiveness, compliance and success of the vaccination program<sup>[13]</sup>.

This study aimed to assess the awareness and acceptance of COVID-19 vaccines among the general population. In this study, it is observed that most of the population is aware of the COVID-19 vaccine development. It might be due to the digitalization and the vast information available from the various social media. 71.8% people in this study are ready to take the COVID-19 vaccine whenever it is made available to them.

However, vaccine hesitancy can be seen in 28.2% participants. Previous studies have also shown that vaccine hesitancy is a common phenomenon globally, with variability in the cited reasons behind refusal of vaccine acceptance<sup>[10]</sup>. Most common reason for hesitancy that came forth in this study was the fear of the possible side-effects, followed by hesitancy about the efficacy and safety of the vaccines, and the duration in which the vaccines were developed.

Present study shows some of the reasons for vaccine hesitancy which need to be addressed by all stake holders like the government, researchers, vaccine developers and the distributors. It must be ensured that adequate knowledge and awareness is spread among the people about the COVID-19 vaccines through various awareness drives in order to reduce the vaccine hesitancy. Similarly, the spread of misinformation must be discouraged and efforts must be taken to develop a positive attitude about the vaccines in the people to increase the rate of vaccine acceptance.

As this study depicts the status of vaccine awareness, acceptance and hesitancy only among the participants, it might not be the representation of the entire Indian population. Since this study was carried out soon after the first phase of vaccination in India, many of the parameters might change with the progression of the vaccination drive.

**CONCLUSION:**

Vaccination for all and within the stipulated time is the only solution to control this pandemic. Country like India with 1.13 billion population, it is a daunting task to get vaccinated all at once. Despite the availability of vaccine and awareness regarding it, vaccine hesitancy is a pressing problem for public health authorities. All stake holders should act unanimously to overcome these odds and vaccinate all to stop this pandemic and bring life back to normalcy.

**REFERENCES:**

- [1] COVID-19 Vaccines Operational Guidelines (Updated as on 28 December 2020). Ministry of Health & Family Welfare, Government of India.
- [2] Nohl A, Brune B, Ohmann T, Weichert V, Zeiger S, Duda M. Acceptance of COVID-19 Vaccination among Front-Line Health Care Workers: A Nationwide Survey of Emergency Medical Services Personnel from Germany. *Vaccines* 2021;9:424.
- [3] Walid A. Al-Qerem and Anan S. Jarab. COVID-19 Vaccination Acceptance and its Associated Factors Among a Middle Eastern Population. *Front. Public Health*, 10 February 2021.
- [4] El-Elimat T, AbuAlSamen MM, Almomani BA, Al-Sawalha NA, Alali FQ (2021). Acceptance and attitudes towards COVID-19 vaccines: A cross-sectional study from Jordan. *PLoS ONE* 16(4): e0250555.
- [5] Mannan Kazi Abdul, Farhana Khandaker Mursheda. Knowledge, Attitude and Acceptance of a COVID-19 Vaccine: A Global Cross-Sectional Study. *International Research Journal of Business and Social Science*, 2020;6(4):ISSN 2411-3646
- [6] Monica Schoch-Spana et al. The public's role in COVID-19 vaccination: Human-centered recommendations to enhance pandemic vaccine awareness, access, and acceptance in the United States. *Vaccine* 2020; S0264-410X(20)31368-2.
- [7] Machida M et al. Acceptance of a COVID-19 Vaccine in Japan during the COVID-19 Pandemic. *Vaccines*. 2021;9(3):210.
- [8] Sallam M et al. Low COVID-19 Vaccine Acceptance Is Correlated with Conspiracy Beliefs among University Students in Jordan. *International Journal of Environmental Research and Public Health*. 2021; 18(5):2407.
- [9] Ditekemena JD et al. COVID-19 Vaccine Acceptance in the Democratic Republic of Congo: A Cross-Sectional Survey. *Vaccines*. 2021;9(2):153.
- [10] Sallam M. COVID-19 Vaccine Hesitancy Worldwide: A Concise Systematic Review of Vaccine Acceptance Rates. *Vaccines* 2021;9:160.
- [11] Sharun K, Rahman CKF, Haritha CV, Jose B, Tiwari R, Dhama K. COVID-19 Vaccine

- Acceptance: Beliefs and Barriers associated with Vaccination among the General Population in India. *Journal of Experimental Biology and Agricultural Sciences*. 2020; 8:S210– S218
- [12] Wang J, Jing R, Lai X, Zhang H, Lyu Y, Knoll MD, Fang H. Acceptance of COVID-19 Vaccination during the COVID-19 Pandemic in China. *Vaccines (Basel)*. 2020 Aug 27;8(3):482.
- [13] Bhartiya S et al. *Int J Community Med Public Health*. 2021 Mar;8(3):1170-1176