



Assessment of Attitude and Perception of COVID 19 Vaccine Hesitancy in Rural and Urban Areas of Maharashtra, India

**Radhika Gadge^{a#}, Shreya Gupta^{a#}, Amit Reche^{a*#≡}
and Priyanka Paul Madhu^{a#≡}**

^a Department of Public Health Dentistry, Sharad Pawar Dental College and Hospital, Datta Meghe Institute of Medical Sciences (Deemed to Be University), Sawangi (Meghe), Wardha 442001, Maharashtra, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i63A35216

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/80063>

Study Protocol

**Received 22 November 2021
Accepted 27 December 2021
Published 29 December 2021**

ABSTRACT

Background: COVID 19 pandemic has afflicted the whole world. Older age group and people with comorbidities are on major risk to COVID 19. Around 200 vaccines are being developed around the world in hope to return the life to normal. On January 3, 2021, India's drug regulator approved two COVID 19 vaccines in India- Covaxin and Covisheild. COVID 19 vaccines are a great boon for the public health but they have posed new challenges amongst the healthcare workers as well as general population. Hesitancy towards these vaccines is one such significant botheration to public health.

Objectives: To evaluate the attitude and perception of COVID 19 vaccine hesitancy amongst the different age groups i.e., 18-45 years, >45 years (without co-morbidities and >45 years (with co-morbidities).

Methodology: A special questionnaire would be designed for evaluation of the hesitancy for COVID 19 vaccine amongst the 400 participants from various rural and urban areas in Maharashtra according to different age groups i.e., 18-45 years, >45 years (without co-morbidities and >45 years (with co-morbidities).

Dr.;

≡Assistant Professor;

*Corresponding author: E-mail: dramitreche@gmail.com;

Expected Results: As the world is fighting with the deadly pandemic, COVID 19 vaccines have come to the relief of the people. The emanation and distribution of these vaccines have put forth many challenges in front of the government and the health care workers. COVID 19 vaccine hesitancy is one such challenge amongst the Indian population. Thus, this study is formulated to assess the attitude and perception of people towards COVID 19 vaccine hesitancy and to determine the cause of it.

Conclusion: This study will evaluate the attitude and perception for COVID 19 vaccine among the participants. Senior citizens perceive that they will have some side effects due to vaccine whereas 18+ citizens perceive that their immunity can resist COVID-19.

Keywords: Vaccine hesitancy; patient attitude; patient perception; COVID 19; Indian population.

1. INTRODUCTION

COVID 19 is a fatal pandemic endangering the entire population with the toxic virus. It mainly affects the respiratory system resulting in deficiency to draw breath. Along with this, patients also reported symptoms like pyrexia with chills, dry excretions, tiredness and headache. The virus spreads mainly through person-to-person contact. Older age group and people with comorbidities are on major risk to COVID 19. The disease sprang from Wuhan, China in December 2019 with a large number of cases appearing globally. As a result of the prodigious spread of the virus, the entire country went in a state of complete lockdown on 24th March 2020 [1]. Thereafter several measures were implemented by the ministries and other authorities to contain the spread of virus: maintaining social distancing among the people, use of N95 or surgical or fabric masks, recurrent handwashing, etc. As there is no availability of specific drugs for the disease, People prefer home remedies. Around 200 vaccines are being developed around the world in hope to return the life to normal. Russia is the first country to launch the COVID 19 vaccine. In December 2020, medicines and healthcare products regulatory agency (MHRA) of United Kingdom approved the use of COVID 19 vaccine and this became the first country to launch the PfizerBioNTech vaccine. On January 3, 2021 the drug regulator of India approved two COVID 19 vaccines in India- Covaxin and Covisheild. Bharat Bio Tech in concordance with Indian Council of Medical Research and National Institute of Virology formulated Covaxin (also called as India's own vaccine). It puts to use the deactivated SARS-COV2 virus obtained from an asymptomatic patient. The vaccine was approved by the Drug Controller General of India (DCGI) for Human Clinical Trials, as well as a flexible, consistent Phase I followed by a Phase II (Randomised, Double Blinded and Polycentric Study). The main

objective was to assess the security, Reactogenicity, endurability, and Immunogenicity of the Vaccine [2]. Covishield is a derivative from the Oxford University's AstraZeneca vaccine concocted by the Serum Institute of India (SII). This vaccine contains the weakened form of adenovirus. According to recent studies, Covishield is better recognised with an efficacy of 70.4% [2]. Both vaccines act by briefing the immune system with the SARS-COV2 spike protein.

As the COVID-19 vaccines emerge successful from clinical trials, the focus must shift from the advanced and sophisticated technologies to the behaviour and communications that will build trust among clinicians and the general public. COVID 19 vaccines are a great boon for the public health. Not only the vaccines provide first hand security to the vaccinated individuals but also it helps in concomitant safety of the general public through the generation of herd immunity. While significant resources have been invested in the evolution of shielded and efficacious vaccines, it is important to note that vaccination prevents harm and saves lives. Recently, India has started the vaccination drive on 16th March 2021 encompassing with it a lot many challenges and opportunities.

COVID 19 Vaccine hesitancy is one such challenge to public health recognised by WHO [3]. It is characterised as a spectrum of vaccine beliefs and behaviours that ranges from complete vaccine refusal to complete vaccine acceptance. Within this spectrum, vaccine-averse people make up a diverse group. They may reject some vaccines but accept others; they may hold up or welcome vaccines depending upon the advocated programmes but are unassertive whether their decision is "right." [4]. Vaccine hesitancy is described by the World Health Organization as a "detention in accepting or refusing vaccinations in spite of

accessibility and feasibility of vaccination facilities." Health knowledge gathered from a number of outlets, comprising of digital media such as the Internet and social media networks, can fuel COVID 19 vaccine hesitancy [5]. Since vaccines for COVID 19 are distinctive, unique and recently developed; misinformation or lack of knowledge, mistrust and fear for the vaccines can also trigger vaccine hesitancy. Thus, this study aims to assess the "COVID 19 vaccine hesitancy" amongst the general population in various rural and urban areas of Maharashtra.

1.1 Background/rationale

COVID 19 pandemic has afflicted the whole world. Older age group and people with comorbidities are on major risk to COVID 19. Around 200 vaccines are being developed around the world in hope to return the life to normal. On January 3, 2021, India's drug regulator approved two COVID 19 vaccines in India- Covaxin and Covisheild. COVID 19 vaccines are a great boon for the public health but they have posed new challenges amongst the healthcare workers as well as general population. Hesitancy towards these vaccines is one such significant botheration to public health.

1.2 Objectives

To assess the attitude and perception of COVID 19 vaccine hesitancy amongst the different age groups i.e., 18-45 years, >45 years (without co-morbidities and >45 years (with co-morbidities).

2. MATERIALS AND METHODOLOGY

Sample selection-

Sample size is determined using the following formula

$$\sqrt{n} = \frac{z\alpha}{2E} \times \sigma$$

Where,

σ = previous expected values=24

E =desired Margin of error = 5

$z_{\alpha/2}$, confidence interval of 90%, $z = 1.65$

n = sample size estimated 400

A special questionnaire would be designed for evaluation of the hesitancy for COVID 19 vaccine amongst the 400 participants from various rural and urban areas in Maharashtra.

Inclusion criteria: Individuals in the age group of:

- 1) 18-45 years
- 2) >45 years (without co-morbidities)
- 3) >45 years (with co-morbidities)

Exclusion criteria:

- 1) Healthcare workers
- 2) Individuals less than 18 years of age.

2.1 Measurement

A questionnaire is designed to evaluate the hesitancy for COVID 19 vaccine amongst the participants. The questionnaire is divided in 3 parts: the first part consists of the demographic information of participants, and their educational status. The second part include assessing the attitude and the third assessing the perception using a 5-point Likert scale. Participants will be asked to complete a questionnaire in a particular period and demographic information was included at the start of the survey.

Bias: All the potential sources of bias has been removed.

Quantitative variables: All the demographic details and the questions in relation to the questionnaire will be recorded with the help of electronic forms and record in the excel sheet.

Statistical methods: Statistical software of SPSS version 22 has been used for the analysis.

Descriptive statistics and frequency distribution will be done for recording the demographic details and responses of the questionnaire. Person's correlation and chi- square analysis is done to evaluate the association between age, gender and socioeconomic scale with the perception of the patients towards the selection of dentist.

Table 1. Attitude based questions

Sr.no.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1)	Do you think you Have taken COVID 19 vaccine on your own will?					
2)	Do you feel lack of confidence regarding COVID 19 vaccine safety?					
3)	Do you feel lack of confidence in efficacy of COVID 19 vaccines?					
4)	Do you feel there is any anti vaccination movement against COVID 19 vaccine?					
5)	Do you have any kind of fear of needles and pain?					
6)	Do you think that the side effects occurring after the dose of COVID 19 vaccine are adverse?					
7)	Do you think you are self-satisfied after taking take the COVID 19 vaccine?					

Table 2. Perception based questions

1)	Do you think there is lack of knowledge regarding COVID 19 vaccine?
2)	Do you think there is circulation of any negative information about the COVID 19 vaccines on the internet and social media?
3)	Do you think there is inadequate transmission of information on vaccination by public health authorities?
4)	Do you think there are issues related to COVID 19 vaccination policies and programs?
5)	Do you feel there is lack of convenience to the COVID 19 vaccine?
6)	Do you think there are religious beliefs against COVID 19 vaccine?
7)	Do you think that the medical establishment is not trustworthy regarding COVID 19 vaccine?
8)	Do you feel that the foreign vaccines are more effective than indigenous vaccines?
9)	Do you think that the herd immunity will protect you even if you don't take the vaccine?

3. RESULTS

As the world is fighting with the deadly pandemic, COVID 19 vaccines have come to the relief of the people. The emanation and distribution of these vaccines have put forth many challenges in front of the government and the health care workers. COVID 19 vaccine hesitancy is one such challenge amongst the Indian population. Thus, this survey is formulated to analyse the attitude and perception of people towards COVID 19 vaccine hesitancy and to deduce the cause of it.

4. DISCUSSION

COVID 19 is an infirmity originating from the novel coronavirus. Older age group and people with comorbidities are on major risk to COVID 19. Around 200 vaccines are being developed around the world in hope to return the life to normal. On January 3, 2021, India's drug regulator approved two COVID 19 vaccines in India- Covaxin and Covishield. Covaxin is formulated by Bharat Bio Tech in cooperation with Indian Council of Medical Research and National Institute of Virology; also called as India's own vaccine. Covishield is a derivative from the Oxford University's AstraZeneca vaccine manufactured by the Serum Institute of India (SII).

According to Wilson SL and Wiysonge C, there is an important association between confederations on the online platform and uncertainties in the eyes of public on vaccine safety. To boot this, there is considerable correlation between foreign misguidance campaigns and dwindling of vaccination rates. According to Sarah Lanea, Noni E., Mac Donalda, hesitancy was commonly reported by >90% of countries. The reasons varied by country income level, by WHO region and over time and within a country. Eve Dubé et al and Dominique Gagnon et al concluded that the researchers as well as health care workers have the approach that vaccination rates are waning owing to the hesitancy regarding the vaccines which is a significant matter to buckle down to in Canada. Dispersal of cyanical facts online and deficiency of awareness were the crucial elements for vaccine hesitancy as brought to light by the participants. A number of related studies on COVID-19 and it's impact have been reported [5-8]. Few of the related studies on awareness were reviewed [9-11].

5. CONCLUSION

This study will evaluate the attitude and perception for COVID 19 vaccine among the participants. Senior citizens perceive that they will have some side effects due to vaccine whereas 18+ citizens perceive that their immunity can resist COVID-19.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, participants' written consent will be collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval will be collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Azizah F Siddiqui ¹, Manuel Wiederkehr, Liudmila Rozanova 1,2, Antoine Flahault 1. Situation of India in the COVID-19 Pandemic: India's initial pandemic experience, *Int. J. Environ. Res. Public Health*. 2020;17:8994.
2. COVID-19: India is at centre of global vaccine manufacturing, but opacity threatens public trust *BMJ*. 2021;372:n196.
3. Wilson SL, Wiysonge C. Social media and vaccine hesitancy. *BMJ Global Health*. 2020;5: e004206. DOI: 10.1136/ bmjgh-2020-004206

4. Lantos J, Jackson M, Opel DJ, Marcuse E, Myers AL, Connelly B. Controversies in vaccine mandates. *Curr Probl Pediatr Adolesc Health Care*. 2010;40(3):38–58.
5. Khubchandani, Sheetal Rameshlal, Trupti Madhav Dahane. Emerging therapeutic options for COVID-19. *Journal of Evolution of Medical and Dental Sciences-JEMDS*. 2020;9(41):3082–85.
Available:<https://doi.org/10.14260/jemds/2020/677>
6. Kute Vivek, Sandeep Guleria, Jai Prakash, Sunil Shroff, Narayan Prasad, Sanjay K Agarwal, Santosh Varughese, et al. NOTTO transplant specific guidelines with reference to COVID-19.” *Indian Journal of Nephrology*. 2020;30(4):215–20.
Available:https://doi.org/10.4103/ijn.IJN_299_20
7. Naqvi Waqar M, Arti Sahu. Paradigmatic shift in the education system in a time of COVID 19. *Journal of Evolution of Medical and Dental Sciences-JEMDS*. 2020;9(27):1974–76.
Available:<https://doi.org/10.14260/jemds/2020/430>
8. Nibudey Akanksha Ram, Vidya Sudhindra Baliga, Prasad V. Dhadse. To keep COVID-19 out of hospitals in India - Are we prepared? *Journal of Evolution of Medical and Dental Sciences-JEMDS*. 2020;9(37):2751–54.
Available:<https://doi.org/10.14260/jemds/2020/597>
9. Pasari Amit S, Amol Bhawane, Manish R Balwani, Priyanka Tolani, Vishal Ramteke, Nishant Deshpande. Knowledge about COVID-19 and practices among hemodialysis technicians in the COVID-19 pandemic era. *International Journal of Nephrology*; 2020.
Available:<https://doi.org/10.1155/2020/6710503>
10. Arriola Carmen S, Piyarat Suntarattiwong, Fatimah S Dawood, Giselle Soto, Prabir Das, Danielle R Hunt, Chalinthorn Sinthuwattanawibool, et al. What do pregnant women think about influenza disease and vaccination practices in selected countries. *Human Vaccines and Immunotherapeutics*, n.d.
Available:<https://doi.org/10.1080/21645515.2020.1851536>
11. Varshan EI, S, P, Sridevi G, Prathap L. Knowledge, and awareness of COVID vaccines among senior citizens in Chennai. *Journal of Pharmaceutical Research International*. 2021;33(60A):154-162.

© 2021 Gadge et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/80063>