International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2020): 7.803

Knowledge, Acceptance, and Attitude Regarding COVID-19 Vaccination among Indian Population - A Cross-Sectional Study

Jaimika Babubhai Patel[1], Clarice Adeline Lyngdoh[2], Fahima Masroor Muhammed Khan[3]

[1]Lecturer, Nightingale Institute of Nursing

[2]Sr. Nursing Tutor, Metro College of Nursing

[3]Sr. Nursing Tutor, Metro College of Nursing

Abstract: ***Background: Coronavirus disease 2019 (COVID-19) pandemic has affected more than 200 countries causing loss of life and livelihood. The accelerated development of the COVID-19 vaccine is vital, and early data suggests that it is both, safe and efficacious. However, the acceptance of the COVID-19 vaccine depends on various socio-demographic characteristics. This study aimed to understand the knowledge, acceptance, and attitude towards the COVID-19 vaccine in India. Methods: This cross-sectional study was conducted amongst the residents of various States and Union Territories of India from 3rd to 23rd March 2021. Data on demographic variables, COVID-19 vaccination-related knowledge, acceptance, and attitude were collected using a self-administered online survey. Results: A total of 2660 responses were recorded. The majority 75.66% of the participants were strongly agreed that it is important to get a vaccine to protect people from COVID-19. 71.1% answered yes and showed a positive response towards the vaccination. The majority of the respondents 57.9% were ready to receive Covishield and 42.1 % Covaxin. Conclusion: The following study has helped to understand the percentage of people who are hesitant to take the vaccine and also the concerns regarding the vaccine. Developing strategies to decrease public hesitation and increase trust is vital for implementing vaccination programs.***

Keywords: COVID-19 vaccine, Vaccine acceptance, Knowledge and attitude towards COVID-19 vaccine

1. Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic caused severe disruptions and unprecedented challenges for healthcare systems worldwide. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), causative of severe viral pneumonia that started in Wuhan, China in December 2019, has infected **173,331,478** people and resulted in**3,735,571**deathsas of June 09, 2021.[1]

COVID-19 primarily affects the respiratory system with a range of symptoms from mild rhinorrhoea to severe respiratory distress syndrome[2,3]. This virus is generally more fatal for the elderly and those with a history of comorbidities, such as hypertension, obesity, diabetes, and kidney disease[4,5].

For decades, vaccinations have been considered the best method to control rapidly spreading infectious diseases. That said, many groups and individuals recently started to spread rumours and conspiracy theories aimed against vaccination, intensifying the pressure on healthcare authorities and workers[6].

A safe and effective vaccine for Coronavirus disease 2019 (COVID-19), has been on the wish list of healthcare agencies across the globe.[7] The process of vaccine development is slow and time-consuming and has to go through multiple checks for potency, efficacy, and safety, particularly in high-risk individuals viz., elderly, pregnant women, and people with co-morbidities, and immunodeficiencies.[8]

Vaccination against COVID-19 is voluntary in most countries, and it is therefore important to understand the current views of local populations before the vaccination program is rolled out.

India officially launched its COVID-19 vaccination drive on 16 January 2021, with two approved vaccines – Covishield and Covaxin. As of 3 June 2021, as per reports from the Ministry of Health and Family Welfare (MoHFW), India has administered just over 221 million vaccine doses. Of India's 1.38 billion populations, only 45.1 million have been fully vaccinated at the time of writing –about 3.26 percent of the total population.[9]

The knowledge and perspective regarding the COVID-19 vaccine have not been studied and it is anticipated that there will be great variation in vaccine-related perspectives and attitudes across countries and within countries as well, depending on demographic factors, education levels, and overall knowledge regarding COVID-19 and the vaccines available.

Thus, this study is being conducted with the objectives to assess the present state of knowledge people have about the vaccine for COVID-19, to know the preferences of respondents about this vaccine, and to learn the attitude and acceptance of people about features of this COVID-19 vaccine residing in India.

2. Methods

This was a cross-sectional, observational study carried out in India. A snowball sampling technique was used. An online

Licensed Under Creative Commons Attribution CC BY

semi-structured questionnaire was developed by using Google forms, with a consent form appended to it. The data collection was initiated from 3rd to 23rd March 2021. Data was collected from across various states and union territories of India.

Participants with access to the internet could participate in the study. The Inclusion criteria for the study were voluntary participation and limited to subjects above the age of 18 years and those who were fluent in English. The exclusion criteria were participants' not giving consent to participate in the study.

The socio-demographic variables included domicile, age, gender, occupation, education.

The online self-reported questionnaire developed by the investigators contained the following three sections related to knowledge, attitude, and acceptance regarding COVID-19 vaccination.

There were 20 true or false questions in the knowledge section. The attitude section contained 5 questions that were assessed by a 3-point Likert scale ranging from strongly agree, neutral, and strongly disagree. The acceptance of the COVID-19 vaccination was assessed by two questions. Descriptive statistics have been used in the study to analyse the findings. Mean and standard deviation and proportions have been used to estimate the results of the study.

Statistical Analysis

The completed questionnaire was checked for completeness and consistency. Collected data were entered in the MS Excel spreadsheet, coded appropriately.Descriptive statistics have been used in the study to analyse the findings. Mean and standard deviation and proportions have been used to estimate the results of the study. Categorical data were presented as a percentage (%).

3. Results

A total of 2660 participants responded. Amongst all the participants, Among participants, 71.4 % were females and 28.6 % were males. The mean (SD) age of the participants was 28.18 ± 9.7 years. The highest qualification of more than 54 % of the population was graduation. Majority of the participants, i.e., 54.9% were a student. The participants belong to 22 states or union territories of the country with a maximum representation of 39.5% from Uttar Pradesh.
N= 2660

Table 1: Percentage of True, or False Responses to Knowledge regarding COVID-19 Vaccination

Statement	True	False
1. The vaccines are not safe because they were developed quickly.	28.9	71.1
2. The vaccines can lead to long-term effects.	52.3	47.7
3. You can still be infected with COVID-19 after getting vaccinated.	66.5	33.5
4. A person who had already been infected with COVID-19 does not need to be vaccinated.	13.5	86.5
5. People with immunosuppression should not get vaccinated.	36.5	63.5
6. The COVID-19 vaccines will alter the Genetics of the body.	18.4	81.6
7. After getting vaccinated, you could be infertile.	8.3	91.7
8. One COVID-19 vaccine will cure the other strains of COVID-19 as well.	34.6	65.4
9. There is an effective medicine available for treating COVID-19	43.6	56.4
10. Ordinary flu vaccine will protect human beings from COVID-19	17.3	82.7
11. Antibiotics are an effective treatment for COVID-19.	45.1	54.9
12. There are other strains of COVID-19 that can affect human beings.	84.6	15.4
13. Once vaccinated, there is no need to wear a mask and practice social distancing	6.8	93.2
14. COVID-19 vaccinations should be administered in pregnancy and breastfeeding.	33.5	66.5
15. Protected antibodies will be developed after getting 2nd dose of vaccination	76.3	23.7
16. People suffering from comorbid conditions such as Cancer/ Diabetes/Hypertension, etc. can take the COVID-19 vaccines as they are considered as "High-Risk Category".	73.3	26.7
17. The 2nd dose of vaccination should be taken after 28 days of receiving the 1st dose	86.8	13.2
18. After receiving the dose of the vaccine, you will have side effects such as pain, mild fever, and discomfort.	88	12
19. COVID-19 vaccines such as Covishield and Covaxin are being kept at a temperature of 2-8 degrees Celsius	84.2	15.8
20. People with severe allergic reactions should not receive the COVID-19 vaccines	68.8	31.2

As per Table 1, the Majority of respondents 71.1% believed that it is not true that the vaccines are not safe because they were developed quickly. Moreover, 52.3% of respondents think that vaccines can lead to long-term effects. The majority of the respondents, i.e., 66.5% consider that you can still be infected with COVID-19 after getting vaccinated. About 86.5% have a perception that a person who had already been infected with COVID-19 does not need to be vaccinated. More than 63.5% have an opinion that People with immuno-suppression should not get vaccinated. Approximately 81.6% of the participants were having trust on COVID-19 vaccines will not alter the genetics of the body. The majority of the participants 91.7% consider that after getting vaccinated, there will not be any problem with fertility. Approximately 65.4% of the participants had an opinion that one COVID-19 vaccine will cure the other strains of COVID-19 as well. Among the participants, 56.4 % believed that there is an effective medicine available for treating COVID-19. A total of 82.7 % of participants repeatedly discussed that the Ordinary flu vaccine will protect human beings from COVID-19. Almost 54.9% of the people accepted that antibiotics are an effective treatment for COVID-19. In this study, 84.6 % of participants admitted that other strains of COVID-19 can affect human beings. The majority of the respondent 93.2% believed once vaccinated, there is a need to wear a mask

Licensed Under Creative Commons Attribution CC BY

and practice social distancing to protect ourselves. Almost 66.5% of respondents believe that COVID-19 vaccinations should not be administered in pregnancy and breastfeeding. More than 76% of people consider that protected antibodies will be developed after getting 2nd dose of vaccination. Almost 73.3% of respondents postulate that people who are suffering from comorbid conditions such as Cancer/ Diabetes/Hypertension, etc. can take the COVID-19 vaccines as they are considered "High-Risk Category". The majority of the participants 86.8% find it true that the 2nd dose of vaccination should be taken after 28 days of receiving the 1st dose. Approximately 88% of the respondents know that after receiving the dose of vaccine, they may have side effects such as pain, mild fever, and discomfort. The majority of the respondents 84.2% know that the vaccine is being kept at a temperature of 2-8 degrees Celsius. More than 68.8% of the respondents have an opinion that People with severe allergic reactions should not receive the COVID-19 vaccines.

Table 2: Attitude towards COVID-19 Vaccine in Percentage

Attitude	Strongly agree	Neutral	Strongly disagree
1. In order to protect people from COVID-19, it is highly recommended to get vaccinated with COVID_19 vaccinations.	75.66	37.17	4.86
2. Pharmaceutical companies have developed safe and effective COVID-19 vaccines	47.89	58.85	11.6
3. COVID-19 vaccines made in India are safer than those made in other world countries	46.46	56.19	15.04
4. Healthcare providers, pharmaceutical companies, Government, Scientific articles are the trusted information sources aboutCOVID-19 vaccines	67.17	45.13	4.86
5. Unforeseen impacts or adverse reactions of vaccinations are quite worrisome for me.	30.97	72.57	14.15

As per Table 2, the Majority (75.66%) of the participants strongly agreed that it is important to get a vaccine to protect people from COVID-19. Besides, less than 58.85% of the participants agreed that pharmaceutical companies will be able to develop safe and effective COVID-19 vaccines. Moreover, about half of the respondents 56.19% reported that COVID-19 vaccines made in India are safer than those made in other world countries. The majority 67.17% of respondents believed that Healthcare providers, pharmaceutical companies, Government, Scientific articles are the trusted information sources about COVID-19 vaccines, and 72.57% of respondents believed that Unforeseen impacts or adverse reactions of vaccinations are quite worrisome to them.

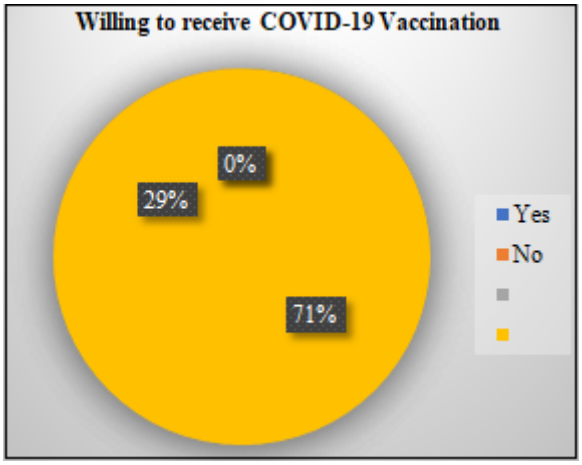

Figure I: Pie diagram represents the percentage distribution of respondents who are willing to receive COVID-19 vaccination

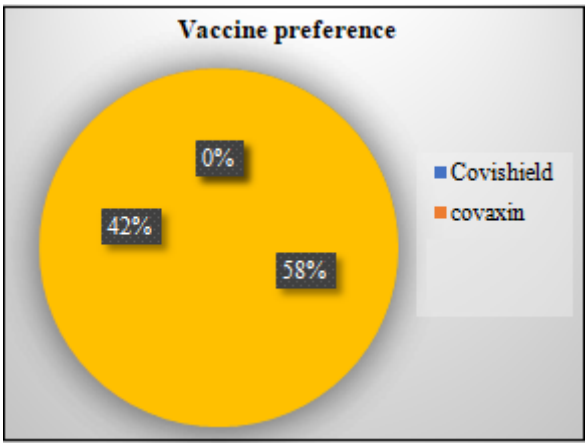

Figure II: Pie diagram represents the percentage distribution of respondent's preference towards COVID-19 vaccination

2660 participants were enrolled in the study of which, 71.1% were willing to get vaccinated.

While the Majority of the respondents 57.9% were ready to receive Covishield and 42.1 % Covaxin.

4. Discussion

COVID-19 has engulfed a lot of souls both young and old. It is a devastating tragedy where one cannot expect beyond their imagination. A variety of covid vaccines has been manufactured by many scientists worldwide and in India, Covaxin and Covishield had been widely distributed in all states and territories. To stop the ongoing pandemic, the covid vaccine is the only solution, and its mandatory that one should get vaccinated. Before getting vaccinated or jabbed, one should have good knowledge regarding covid vaccines to avoid confusion and doubts.

According to our study, 54 % of the population were graduates and have high knowledge about vaccines. The mean age of the participants was 28.18 years. Among the participants, the majority were females (71.4 %) and 28.6 % were males and the majority of the participants 54.9% were a student. Majority of respondents 71.1% believed that it is not true that the vaccines are not safe because they were

Licensed Under Creative Commons Attribution CC BY

developed quickly. Moreover, 52.3% of respondents think that vaccines can lead to long-term effects. The majority of the respondents 66.5% consider that you can still be infected with COVID-19 after getting vaccinated. About 86.5% have the perception that a person who had already been infected with COVID-19 does not need to be vaccinated. More than 63.5% have an opinion that People with immuno-suppression should not get vaccinated. Approximately 81.6% of the participants were having trust on COVID-19 vaccines will not alter the genetic changes of the body.

Further, the present study is supported by **Abdul et.al., (202)**[10]conducted a cross-sectional study to assess the knowledge, attitude, and acceptance of a COVID-19 Vaccine. This study did an online survey during the period June-September 2020, were collected from 26,852 individuals aged 19 years or older across six continents as part of 60 nationally representative surveys to determine potential acceptance rates and factors influencing acceptance of a COVID-19 vaccine. Results revealed that two-thirds of respondents were at least moderately worried about a widespread COVID-19 outbreak. Respondents reporting higher levels of trust in information from government sources were more likely to accept a vaccine and take their employer's advice to do so.

In the present study, the majority (75.66%) of the participants were strongly agreed that it is important to get a vaccine to protect people from COVID-19. Besides, less than 58.85% of the participants agreed that pharmaceutical companies will be able to develop safe and effective COVID-19 vaccines. The present study is supported by a previous research study conducted by **Aslan et.al., (2020)**[11]to determine the knowledge levels, attitudes, and practices toward COVID-19 among the Malaysian public. The overall correct rate of the knowledge questionnaire was 80.5%. Most participants had positive attitudes toward the successful control of COVID-19 (83.1%). Most participants were also taking precautions such as avoiding crowds (83.4%) and practising proper hand hygiene (87.8%) in the week before the movement control order started. However, the wearing of face masks was less common (51.2%).

In the present study, 71.1% willing to receive COVID-19 vaccination and show a positive response towards the vaccination. This is supported by a previous research study conducted by **Bharatiya et.al., (2021)**[12] in an urban slum in Mumbai, India. The main outcome variable was the responses related to COVID-19 vaccine acceptance among the study participants. The results were that a total of 1342 participants were included in the study. Among the study participants, nearly 79% were willing to take the COVID-19 vaccine when it is available for use and only 2% did not want the vaccination. More than 2/3rd of the people who responded that they are willing to accept the COVID vaccine belong to the no-income group.

It has also been supported by a research study conducted by **Islam et al., (2020)**[13]to assess the knowledge, preferences, and concern regarding the prospective COVID- 19 vaccine among adults residing in New Delhi, India was conducted from July-October 2020. Among the study population, 79.5% said they will take the vaccine while 8.8% said they were not going to take the vaccine and the remaining 11.7% had not yet decided about it.

5. Conclusion

The COVID-19 pandemic continues to wreak global havoc on lives and livelihoods, and the COVID-19 vaccine represents a possible light of hope for the future.

The study shows that COVID-19 vaccine hesitancy which is currently a concern in other countries is not an issue in India. This will help to improve the uptake of the COVID-19 vaccine. This will also lead to overall immunization programme strengthening, with scientific evidence, clear and consistent communication, and improved health literacy of both the community as well as the service providers.

Additional studies to identify the barriers to vaccine acceptance, and the populations at a higher risk for vaccine hesitancy are also critical. They will help the public health policymakers to formulate more definitive, efficient strategies that can help to implement the COVID-19 vaccination program successfully in India.

Funding: No funding sources

Conflict of interest: None declared

References

[1] Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real-time. Lancet Infect Dis. 2020; 20(5):533–4. https://doi.org/10.1016/S1473-3099(20)30120-1.

[2] Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020;382(18):1708–20. https://doi.org/10.1056/NEJMoa2002032.

[3] Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 Novel coronavirus in Wuhan, China. Lancet. 2020;395(10223):497–506.

[4] Bhatraju PK, Ghassemieh BJ, Nichols M, Kim R, Jerome KR, Nalla AK, et al. COVID-19 in critically ill patients in the Seattle region - case series. N Engl J Med. 2020;382(21):2012–22. https://doi.org/10.1056/NEJMoa2004500.

[5] Grasselli G, Zangrillo A, Zanella A, Antonelli M, Cabrini L, Castelli A, et al. Baseline characteristics and outcomes of 1591 patients infected with SARS-CoV-2 admitted to ICUs of the Lombardy region, Italy. JAMA. 2020;323(16):1574–81. https://doi.org/10.1001/jama.2020.5394.

[6] Paterson P, Meurice F, Stanberry LR, Glismann S, Rosenthal SL, Larson HJ. Vaccine hesitancy and healthcare providers. Vaccine. 2016;34(52):6700–6. https://doi.org/10.1016/j.vaccine.2016.10.042.

[7] Chakraborty I, Maity P. COVID-19 outbreak: Migration, effects on society, global environment, and prevention. Sci Total Enviro. 2020;728:138882.

Licensed Under Creative Commons Attribution CC BY

[8] World Health Organization. WHO SAGE Roadmap for Prioritizing uses of COVID-19 Vaccines in the context of limited supply. Geneva, Switzerland; 2020.
[9] Ministry of Health and Family Welfare, "Cumulative Covid Vaccination Report 2nd June 2021".
[10] Abdul, K., Mannan, Mursheda, F., Farhana. Knowledge, Attitude and Acceptance of a COVID-19 Vaccine: A Global Cross-Sectional Study. Munich Personal Archive. 2020. 1-23.
[11] Azlan, A., Hamzah, M., Sern, TJ., Ayub, S., Mohamad., E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. Plos one Journal. May 21, 2020. https://doi.org/10.1371/journal.pone.0233668
[12] Bhartiya, S., Kumar, N., Singh, T., Murugan, S. Knowledge, attitude and practice towards COVID-19 vaccination acceptance in West India. International Journal Community Medicine Public Health. 2021; March.8(3)
[13] Islam, F., Agarwalla, R., Panda, M., Alvi, Y., Singh, V., Debroy, A., Ray, A. Assessment of the knowledge, preferences and concern regarding the prospective COVID- 19 vaccine among adults residing in New Delhi, India-A cross sectional study. CC-BY-NC 4.0 International license. January 26, 2021.
doi: https://doi.org/10.1101/2021.01.23.21250164

Licensed Under Creative Commons Attribution CC BY