

Perception And Attitude Towards COVID-19 Vaccine: A Cross-Sectional Study From Pakistan

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Abstract

Objective: This study aimed to analyze the perceptions and attitudes towards COVID-19 vaccination.

Methodology: A cross-sectional study was carried out to analyze the perceptions and attitudes towards the COVID-19 vaccine. The study commenced in March 2021 following approval from the ethical committee. Data was collected using an online questionnaire and all the willing participants were included in the study. Additionally, patients and their caregivers visiting HIT Hospital Taxila for any purpose were also approached to complete the questionnaire. The data was analyzed using SPSS version 25 and the Chi-square test was applied to find out statistically significant differences ($p < 0.05$) in opinion across three groups i.e., age, gender and academic qualification.

Results: A total of 287 individuals were included in this study. 62% were females and 38% were males. 50% were doctors and 70% had received the vaccine. 83% did not express fear regarding vaccination, however, 50% of the respondents believed that they could contract COVID-19 after receiving the vaccine. Concerns about experiencing allergic reactions post-vaccination were reported by 35% of the participants, and 9% believed that COVID-19 vaccines were fake. 82% of the participants acknowledged the necessity of vaccination, even if they had previously contracted COVID-19. Only 7% believed that the vaccine would alter their DNA. Statistical analysis using the chi-square test was conducted to identify significant differences in opinions based on age, gender, and academic qualifications. The majority of the statistical correlation was found in these questions based on qualification. There was a statistically significant difference in opinion depending on academic qualification, health care and non-health care workers shown by p p-value less than 0.05.

Conclusion: Awareness and education of the general population regarding the safety, efficacy and benefits of COVID-19 vaccination is the cornerstone of the path to eradicating this pandemic. Different platform of social, print and electronic media plays a pivotal role in this regard. Collectively all these factors contribute towards the COVID-free Pakistan.

Keywords: COVID-19, vaccine acceptance, Pakistan, public awareness, myths

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1. Introduction

The COVID-19 pandemic started at the end of year 2019 and affected the whole world including developed and developing countries. Right from the beginning of this deadly pandemic, scientists were aware of the fact that the only cure for this distressing disease is to develop a vaccine. FDA has given emergency approval for the first COVID-19 vaccine use in the United States in December 2020². In Pakistan healthcare workers and older people were prioritized for vaccination initially but now this facility has expanded to the general population of all age groups and different types of vaccines are available³. Throughout the world a large number of people received vaccination against COVID-19, however, a major group of people were also reluctant to receive vaccines because of various conspiracy theories and social media is the prime source of

spreading this misinformation^{4,5}. Failures of polio eradication programs in Pakistan had experienced these was the major concern is very susceptible to such conspiracy narratives and has experienced failures of polio vaccination programs because of such claims.^{6,7}

The importance of vaccination cannot be denied. Vaccines play a pivotal role in the prevention of severe symptoms of the disease process. If the general population does not receive vaccination it results in the prolongation of the pandemic, increased risk of infection and disease-related complications including death. Resultantly it prevents the development of herd immunity and even the trivial reduction in vaccination individuals has paramount epidemiological results⁸ and leads to an increased economic burden. Some researcher suggested that 90% of vaccination is required to achieve acceptable herd immunity⁹, however, Kricorian K et al.¹⁰

recommend that vaccination penetration of 60% may be sufficient for this purpose which subsequently help to eliminate the pandemic. In this era of social media, there are a lot of myths and misinformation about the vaccine, so we designed this study to collect data regarding awareness, acceptance and myths about covid-19 vaccine.

2. Materials & Methods

A cross-sectional study was carried out amongst the general population from different walks of life to analyze the perceptions and attitudes towards COVID-19 vaccination selected by convenience sampling method. To collect data, we developed an online survey using questionnaires regarding beliefs and myths about vaccination. The study was started in March 2021 after approval from the ethical committee. A survey consisting of several questionnaires was created using Google Forms. The link was shared on different social media applications and participants were requested to fill out the questionnaires. Some patients and their attendants who were visiting HIT hospital Taxila for any reason were also included in the study and they were requested to fill out the form on the spot. All the individuals included in the study were given the purpose and summary of the research before the commencement of the questionnaire.

An online server form is used for data collection. Demographic information was noted. People were asked about their academic qualifications Their registration, vaccination status and fear regarding vaccines and their complications were also noted. They were questioned about myths and misbeliefs about the COVID-19 vaccine. Post-vaccination symptoms, their preference for different types of available vaccines, and the need for booster doses were also inquired. Their beliefs regarding the effectiveness of the vaccine in the prevention of COVID-19 symptoms, the severity of the disease and following the SOPs released by health authorities were noted. Participants were divided into different groups based on gender, age and academic qualification.

The data was analyzed using SPSS version 25 and the Chi-square test was applied to find out statistically significant ($p < 0.05$) differences in opinion between three groups i.e., age, gender and academic qualification.

3. Results

A total of 287 individuals were enrolled in the study, with 62% being females and 38% males. Among the participants, 50% were doctors, and 28% had not registered for vaccination. Out of the total, 70% had received the vaccine, and 83% did not express fear regarding vaccination. However, 50% of the respondents believed that they would contract COVID-19 after receiving the vaccine. Concerns about experiencing allergic reactions post-vaccination were reported by 35% of the participants, and 9% believed that COVID-19 vaccines were fake.

In terms of awareness, 82% of the participants acknowledged the necessity of vaccination, even if they had previously contracted COVID-19. A small portion, only 7% of the population, held the belief that the vaccine would alter their DNA. Following vaccination, 5% of the population remained asymptomatic, while 17% experienced mild body aches and pains. Additionally, 8% reported fever, 7% experienced headaches, and 42% had pain at the injection site as shown in Fig 1. Approximately 55% of the respondents believed that a booster dose would be required, and 50% expressed a preference for the Sinopharm vaccine as described in Table 1.

Regarding post-vaccination practices, 79% of the participants believed that wearing masks was still necessary as shown in Table 2, while 74% thought that it was still possible to contract COVID-19 despite vaccination. Furthermore, 74% believed that if they were to contract COVID-19 after vaccination, the symptoms would be mild. Regarding vaccine efficacy against variants, 65.5% of the participants expressed the opinion that the vaccines were not effective against all variants as shown in Table 3.

Statistical analysis using the chi-square test was conducted to identify significant differences in opinions based on age, gender, and academic qualifications as shown in Table 4. The majority of significant correlations were observed about academic qualifications. Statistically significant differences were found based on academic qualifications, distinguishing between healthcare and non-healthcare workers, as indicated by a p-value less than 0.05. Healthcare professionals believed in the need for new vaccinations for each new variant, experienced mild COVID-19 symptoms after vaccination, and believed in the need for booster doses annually. Conversely, those with non-healthcare backgrounds held contrary opinions, and

medical students did not believe in DNA alteration due to the vaccine.

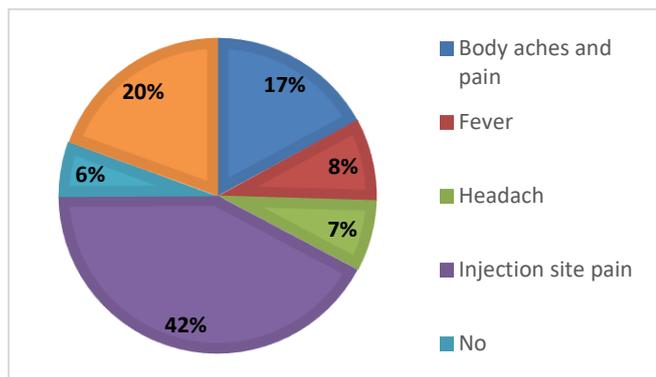


Figure-1 Post-vaccination symptoms

Significant differences in opinions were also observed between genders. The majority of female participants believed in the requirement for new vaccines for each new variant, the increased likelihood of COVID-19 contraction after vaccination, and the need for yearly booster doses to prevent COVID-19.

Table-1 Response to the question regarding the superiority of the vaccine

Response	Frequency (n)	Percentage%
AstraZeneca	12	4.2%
Pfizer	65	22.6%
Sinopharm	145	50.5%
Sinovac	58	20.2%
Sputnik	7	2.4%
Total	287	100.0%

Table-2 Response to the Question regarding mask-wearing post-vaccination

Response	Frequency (n)	Percentage
Yes	56	19.5%
No	227	79.1%
No answer	4	1.4%
Total	287	100.0%

Table 3 Response to the Question regarding the effectiveness of the vaccine against all variants of SARS-COV-2

Response	Frequency (n)	Percentage %
No	188	65.5%
Yes	99	34.5%
Total	287	100.0%

Table 4 Result of the Chi-square test shows significant differences based on gender and academic qualification

Sr #	Question	Pearson Chi-Square Asymptotic significance (2-sided)
Gender		
1	Do you think the vaccine is effective against all variants of SARS-COV-2	0.014
2	Do you think that you will not get COVID-19 after vaccination	0.001
3	Do you have any symptoms after vaccination	0.000
Education Qualification		
4	Do you think the vaccine is effective against all variants of SARS-COV-2	0.019
5	Do you believe that if you are vaccinated then you will only get mild COVID-19	0.000
6	Do you think that you don't need to wear a Mask after vaccination	0.000
7	Which of these vaccine is better in Pakistan	0.000
8	Do you have any symptoms after vaccination	0.015
9	Do you believe that COVID-19 vaccine will change your DNA	0.033
10	Do you think that COVID-19 vaccines are fake	0.027
11	Are you registered for COVID-19 vaccination	0.032

On the other hand, males held opposite opinions. Post-vaccination symptoms were predominantly reported by females, while males mainly experienced pain at the injection site.

5. Discussion

After accepting the COVID-19 pandemic in March 2020, the biggest challenge is to develop a vaccine against this dreadful disease. The next dilemma we faced in this journey was the refusal and hesitancy regarding vaccination¹¹. In Pakistan, we were very concerned about this issue as we were already suffering due to the failure of the polio vaccination program because of multiple factors which have social, political and religious basis^{12,13}. In this study, we tried to figure out the factors which can hinder the smooth vaccination program and to know about the myths and reservations regarding COVID-19 vaccination.

Only 37.4% of Jordanian people initially opted for COVID-19 vaccination¹⁴ which is fairly low as compared to our population. 70% of individuals who participated in our study received the vaccine and 83% were not afraid to get it done whereas Yigit M et al⁷ described that 66.1% of parents were hesitant to get foreign COVID-19 vaccine for their children as a study was conducted in children's hospitals of Ankara city and 37.4% were reluctant for the local vaccine.

Another study conducted by Lazarus JV et al¹⁵ aimed to determine the rate of COVID-19 vaccine acceptance and identify the factors that influence it among a diverse population of over 13,000 individuals across 19 countries. 71% of the participants expressed a desire to receive the COVID-19 vaccine. Among this group, 90% of the Chinese participants and 55% of the Russian participants were willing to be vaccinated. The results of our study revealed that 83% of the population demonstrated a willingness to receive the COVID-19 vaccine. Moreover, a mere 7% expressed concerns that the vaccine would have the potential to alter their DNA.

In our study healthcare workers were aware of the beneficial effects of the COVID-19 vaccine same results were seen in research done on medical students¹⁶ regarding awareness of hepatitis C as compared to engineering students.

Unlike the polio vaccination program, the awareness and acceptance regarding the COVID-19 vaccine was much better in Pakistan. Initially, we faced a lot of conspiracy theories against the COVID-19 vaccine and people called it an illusion and some sort of secret plot against Muslim countries which led to vaccination hesitancy. Later on, prompt and timely action of government officials, NCO, health care authorities, media houses and religious scholars regarding awareness, public education and availability of vaccines on a mass level for the general population made this program a big success and helped to hinder the spread of COVID-19. The tremendous collective effort was also reflected in our study as 70% of participants were registered for vaccination at the time of the survey and a similar percentage already received the vaccine. 83% of individuals were not afraid to get vaccinated. Only a trivial number of people believed in myths and conspiracy theories. Similar factors were highlighted by a study carried out by Khan YH et.

Katherine Kricorian et al¹⁷ conducted a study to highlight the factors responsible for the reluctance of participants towards the COVID-19 vaccine. These include health education, their experience and opinions regarding vaccination. The individuals who thought that this vaccine was not safe, were unaware of this disease and had faith in all the myths were less likely to receive the vaccine. They were also less literate, and underprivileged as compared to those who are in favor of the COVID-19 vaccine.

In a study conducted at the Combined Military Hospital in Rawalpindi, Pakistan, Abbas S et al¹⁸ aimed to identify the factors contributing to vaccine hesitancy for COVID-19. Their findings revealed that 55% of the participants believed that the vaccine had the potential to cause a COVID-19 infection. Interestingly, our study yielded similar results, with 50% of participants sharing the same opinion. In their study, they found that 11% of the participants held the belief that the COVID-19 vaccine would alter their DNA. Conversely, our study showed a lower percentage, with only 7% of participants expressing this opinion.

Jain J et al¹⁹ conducted a survey on medical students in India to assess vaccine reluctance and the factors contributing to it. 10.6% of medical students were hesitant to get the vaccine which was almost similar to

our study. They lack trust in government policies and were concerned about vaccine efficacy, safety. However, Mohi Ud Din²⁰ and colleagues conducted a study to evaluate the acceptance and hesitancy towards the COVID-19 vaccine among medical students in Faisalabad. Their findings indicated that female participants exhibited more resistance towards vaccination, which contrasts with our study where females believed in the necessity of the vaccine and reported experiencing more post-vaccination symptoms.

Our study involved real-time data from 287 participants, aiming to analyze the perceptions and attitudes of the general population towards COVID-19 vaccination. We found that 83% of our study group expressed no fear of receiving the vaccination. This significant percentage played a crucial role in effectively combating and eliminating this deadly disease from our country. However, it is important to note that our study group was relatively small, and in order to generalize the results on a larger scale, a larger number of participants would be required

5. Conclusion

The study emphasizes the diversity of opinions and attitudes towards vaccination, with both encouraging trends of vaccine acceptance and concerning misconceptions about vaccination and its efficacy. The findings underscore the importance of targeted education and communication strategies to address vaccine hesitancy and promote accurate information about COVID-19 vaccines. Various platforms including social, print, and electronic media play a pivotal role in disseminating this information. However, the importance of health authorities, religious scholars, social activists and politicians in creating awareness cannot be denied either. Collectively all these factors attribute towards the COVID free Pakistan.

CONFLICTS OF INTEREST- None

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Contributions:

K.M, F.B - Conception of study

K.M, F.B - Experimentation/Study Conduction

S.B, F.M - Analysis/Interpretation/Discussion

F.M, S.I.D - Manuscript Writing

S.B, L.M, S.I.D - Critical Review

L.M - Facilitation and Material analysis

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