

COVID -19 Vaccine Acceptance among the Residents of Pakistan

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ABSTRACT

Background: Despite the major developments in the vaccination, world health organization due to sudden rise in vaccine-preventable diseases has identified vaccine hesitancy as a major threat. Vaccine hesitancy gets stimulated by the health-related information acquired from various sources, hence is a major problem for health care authorities.

Objectives: The main objective of the study was to assess the acceptance of COVID-19 vaccines and its predictors along with the attitude towards these vaccines by the public of Pakistan.

Method: This cross-sectional survey was conducted from Jan -March 2022 in Pakistan. The survey from the current study was adopted from a previously conducted research. Male and female participants over the age of 18 were included for the current survey. Participants who declined to participate and providing incomplete details were excluded from the study. Institutional ethical approval for the research was obtained. Chi square test was conducted to assess association between the variable while descriptive statistics were used in form of frequencies.

Results: From a total of 1194 participants, there were 232 (19.4%) males and 962 (80.6%) females. When enquired regarding finding vaccines to be safe, 69% of females and 75% of the males both agreed. In response to finding single dose of vaccine better than the multiple dose most of the females (38.5%) and males (47.4%) disagreed. Likewise, majority of females (81%) and males (84.5%) agreed that immunisation will protect against corona virus. In response to pharmaceutical companies being able to develop efficient COVID-19 vaccine, majority of the study participants agreed. When enquired about getting worried on hearing news of side effects, 61% females and 56% males stated not getting worried.

Conclusion: An efficient and safe vaccine against COVID-19 is a vital factor in managing and bringing an end to the COVID-19 pandemic, however, wide acceptability of the vaccine is necessary. Public health policy developers must address the wide misinformation spreading regarding the COVID-19 vaccines. Moreover, government should aim to disseminate adequate information about the efficacy and safety of vaccine that will increase the trust of general public on government and will be beneficial in future.

Keywords: Vaccine, acceptance, concern, Pakistan, Corona virus

INTRODUCTION

The current pandemic of COVID-19 instigated due to infection SARS-CoV-2 has affected approximately 108 million people worldwide in more than 150 different countries.¹ The current pandemic has threatened not only the economic and educational situation worldwide but also brutally affected the healthcare system globally.^{2,3} The current worldwide spread of the new "Delta COVID-19" variant has edged the new race against the COVID-19 vaccines, henceforth making a major risk to susceptible populations.⁴

Presently, no definitive treatment plans are available for treating COVID-19 infection effectively.^{1,5,6} Till date, several vaccines have been formulated and approved for immunization purpose.⁷ Safe and easily available prophylactic vaccine are instantly required to sustain the spread of the current pandemic, which has led to devastating economical, medical and social consequences.⁸

Interestingly testing of clinical trial started back in March 2020, however by April 2020, 100 different vaccines were being formulated all using different approaches, among them five reached the clinical evaluation stage while 73 reached the investigative stage.^{9,10} By 12th November 2020, the total number of vaccines developed for preclinical evaluation had increased to 164. Amongst them 48 different vaccines reached the clinical evaluation stage, while 4 vaccines successfully reached the phase three trial, these included AstraZeneca's AZD1222, Moderna's mRNA-1273, Pfizer/BioNTech's BNT162b2, University of Oxford and Gamaleya's Sputnik V vaccine.^{10,11} WHO identified Pfizer/BioNTech's vaccine along with two different forms of Astra Zeneca/Oxford vaccine created by Astra Zeneca-SKBio (Republic of Korea) and the Serum Institute of India.¹⁰

Introduction of vaccination programmes within the country has the advantage to herd immunity without needing a significant

percentage of the country population to be infected.¹¹ Though, such immunity involves adequate proportion of the residents to be vaccinated. Even though vaccination is essentially identified as useful means to lower and reduce the risk of getting infected with COVID-19, its success depends on the resident's eagerness to be immunized. Lastly Vaccination programs are only productive in case of high acceptance rate of the vaccine.¹²⁻¹⁴

Previously conducted studies have identified various factors that affect the acceptance of the COVID-19 vaccine. These consist of risk perception of the vaccine efficiency, perception regarding the disease and the attitude of the public towards the vaccination process as whole.¹⁴ Moreover governments officials, health care workers must be prepared to deal with the hesitancy and built vaccine knowledge that will help the public to accept this process of immunisation.¹⁵ Hence, the aim of the study was to assess the acceptance and attitude of COVID-19 vaccines by the general public of Pakistan.

METHOD

This cross-sectional study was carried out among the residents of Karachi, Pakistan from January to March 2022. Male and female participants over the age of 18 were included for the current survey. Participants who declined to participate and providing incomplete details were excluded from the study. Institutional ethical approval was obtained for this survey that was conducted according to the declaration of Helsinki.

The questionnaire used for this study was modified from a previously conducted survey. Initial part of survey comprised of demographic details of the study participants which included age, gender, marital status, education level and employment status. While the subsequent position contained questions related to participants views regarding finding vaccine to be safe, finding single or multiple doses better, view regarding vaccine protecting

against COVID-19, pharmaceutical companies will formulate a safer vaccine, vaccine formulated in China are safer than rest of world, participants worrying upon hearing news of side effects. Lastly questions related to most trusted source of information regarding COVID-19 vaccine and type of vaccine received were also enquired from the study population.

Statistical analysis: Data was collected and statistically analysed using the Statistical Package for Social Sciences, Version 21. Chi square test was conducted to assess association between the variable while descriptive statistics were used in form of frequencies.

RESULTS

Table 1 exhibits the demographic details of the study participants. From a total of 1194 participants, there were 232 (19.4%) males and 962 (80.6%) females. About 76% participants belonged to age group 18-25 years, while 12% aged 26-35 and more than 35 years respectively. Regarding the marital status, 42% were single while 58% were married. Regarding the employment status 86.3% were employed as compared to 13.7% who were unemployed.

Table 2 identifies association of views of study participants when compared with gender. When enquired finding vaccines to be safe, 69% of females and 75% of the males both agreed. In response to finding single dose of vaccine better than the multiple dose most of the females (38.5%) and males (47.4%) disagreed. Likewise, majority of females (81%) and males (84.5%) agreed that immunisation will protect against corona virus. In response to

pharmaceutical companies being able to develop efficient COVID-19 vaccine, majority of the study participants 57% females and 57.8% males agreed. Regarding finding vaccine made in China safer than those formulated in other countries, most of the individuals disagreed. When enquired about getting worried on hearing news of side effects, 61% females and 56% males stated not getting worried. Regarding reduction in chances of reinfection with corona virus, most of the participants gave neutral response.

Table 1: demographic details of participants

Variable	n	%
Gender		
Males	232	19.4
Females	962	80.6
Age		
18-25 years	900	75.37
26-35 years	146	12.22
More than 35 years	148	12.39
Marital Status		
Single	500	41.87
Married	694	58.12
Education Level		
Undergraduate	780	65.4
Postgraduate	414	34.6
Employment status		
Unemployed	164	13.7
Employed	1030	86.3

Table 2: Association of gender with the study variables

Variable		Males	Females	P- value
Do you feel vaccine are safe	Agree	174 (75%)	668 (69.4%)	0.046
	Disagree	16 (6.89%)	49 (5.09%)	
	Neutral	42 (18.1%)	245(25.46%)	
Do you find single dose vaccine better than multiple dose vaccine	Agree	90 (38.8%)	271 (28.2%)	0.000**
	Disagree	110 (47.4%)	370 (38.5%)	
	Neutral	32 (13.8%)	321 (33.4%)	
Is it important to get vaccinated to protect from COVID-19?	Agree	196 (84.5%)	777 (80.8%)	0.047
	Disagree	10 (4.3%)	24 (2.5%)	
	Neutral	26 (11.2%)	161 (16.7%)	
Pharmaceutical companies are going to develop safe and effective COVID-19 vaccines?	Agree	134 (57.8%)	549 (57.1%)	0.001
	Disagree	22 (9.5%)	38 (4.0%)	
	Neutral	76 (32.8%)	375(39%)	
Vaccines made in China are safer than vaccines brought from part of world	Agree	98 (42.2%)	277 (28.8%)	0.000
	Disagree	30 (12.9%)	123 (12.8%)	
	Neutral	104 (44.8%)	562 (58.4 %)	
Do you get worried after hearing about COVID-19 Side effects	Agree	62 (26.7%)	182 (18.9%)	0.028
	Disagree	130 (56%)	584(60.7%)	
	Neutral	40(17.2%)	196(20.4%)	
After vaccinated chances of COVID-19 are reduced?	Agree	48(20.7%)	135 (14%)	0.000
	Disagree	60 (25.9%)	363 (37.7%)	
	Neutral	114(49.1%)	459(47.7%)	

Figure 1 identifies the most common vaccine type subjected to Pakistani population. It can be seen that majority of the participants were vaccinated with Sinovac followed by Sinopharm.

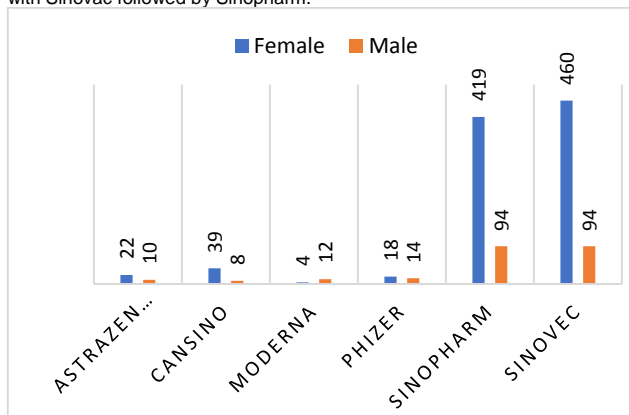


Figure 1: Vaccine type in relation to gender

In figure 2 the most trusted source of information regarding COVID-19 was by Health care providers (40%) followed by government officials (18%).

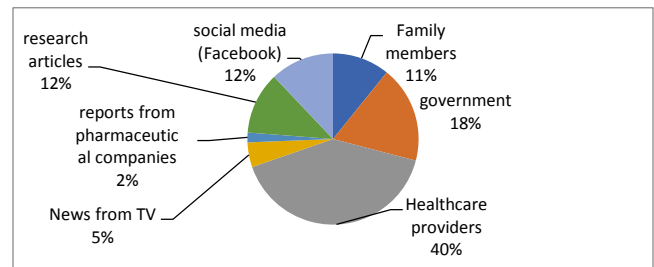


Figure 2: trusted source to get information for COVID-19 Vaccine

DISCUSSION

There seems to be a reluctance in the general population in accepting COVID 19 vaccine because of the related myths and misinformation.¹⁶ On the other hand, people are also anxious to

get free of this pandemic and mass vaccination appears to be a favourable measure in this regard.¹⁷

The current study was aimed to examine the acceptance level of COVID-19 vaccine among the residents of Karachi, Pakistan. Their knowledge about the COVID-19 vaccine, its efficacy, worry about its side effects and safety of Chinese vaccines were assessed by asking various questions.

Most of the study participants, both male and females, agreed that they found vaccines to be safe. These findings agree with a previously reported study where participants agreed getting vaccination, provided, they received adequate information regarding the safety and efficiency of vaccine.¹⁸ Similarly majority of participants, both male and female, agreed that it was important to get vaccinated in order to get protection from COVID-19 infection. It has been reported that about 80% acceptance was noted in China, Singapore, and South Korea. Similarly high tendency in acceptance of vaccine was also seen in the general population of Brazil and South Africa.¹⁹

Majority of our study participants stated that multiple doses of vaccine were better than single dose of vaccine. 57-58% of participants believed that pharmaceutical companies were going to develop safe COVID-19 vaccines. It was also inquired from the participants whether the vaccines made in China are safer than the vaccines from other parts of the world to which majority of participants remained neutral. A small number of participants (13%) only disagreed to it while 42% male participants and 29% females agreed to it.

About the effectiveness of the covid vaccines, majority of participants remained neutral whereas about 26% males and 38% females did not believe that chances of covid 19 infection are reduced after getting vaccinated. This finding does not strictly agree with a previous study in which majority participants (70.15%) believed that the vaccine would eliminate COVID-19 virus.¹⁶

Participants were asked about their worry on hearing side effects of the covid vaccine, 56% males and 60% females disagreed. About 27% males and 19% females showed worry about the side effects of such vaccines. One of the reasons for this hesitancy is due to the misinformation regarding covid 19 vaccine, which reached public mainly through the social media.²⁰ There is not enough information available about the vaccines, there is lack of trust in government organizations supplying the vaccine and the impact of social media posts affect their judgement regarding the vaccine acceptance²¹. The most significant obstacle in vaccine acceptance globally appears to be related to the efficacy of vaccine and worry associated with the vaccine's side effects.^{22,23,24}

In other studies, participants showed concern that due to development of vaccines in a short time, its not possible to assess their long-term effectiveness and potential side effects, and the vaccine approval procedure would move too quickly without accurately assessing the safety and efficacy of the vaccines.²⁵

CONCLUSION

In conclusion, this survey suggests that an efficient and safe vaccine against COVID-19 is a vital factor in managing and bringing an end to the COVID-19 pandemic, however, wide acceptability of the vaccine is necessary. Public health policy developers must address the wide misinformation spreading regarding the COVID-19 vaccines. Moreover, government should aim to disseminate adequate information about the efficacy and safety of vaccine that will increase the trust of general public on government and will be beneficial in future by decreasing hesitancy towards COVID-19 vaccines. Public health workers globally should focus on educating and developing faith among the uncertain and hesitant population concerning safety, efficacy, and harmful side effects of the COVID-19 vaccine.^{26,27}

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