

COVID-19 Vaccine Acceptability in Dental Auxiliaries in Pakistan. are we Ready Yet

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ABSTRACT:

Objective: This study provides evidence of the willingness among dental auxiliaries to vaccine acceptance. The data will help in awareness and control of spread of COVID-19.

Methodology: This descriptive cross-sectional survey was conducted from February 2021 to April 2021. The sample size was kept at 385, with 95 % confidence and 5% margin of error, out of which 340 responded. The sample population was selected via convenience sampling technique. Dental auxiliaries practicing within Pakistan for more than two years within an age range of 20 to 64, were included in the study. Descriptive statistics were used to summarize the questionnaire's responses, with the results being presented as frequencies and percentages and level of significance was set at $P \leq 0.05$.

Results: 340 dental auxiliaries participated in the study. 62.4% were in age range 18-34 years. 72.6% were males and 27.4% females. 90% participants were educated till grade 11 or above. 66.2% participants were not willing to get vaccinated and 5.3% were not sure if they want it or not. Participants of older age groups were more hesitant in receiving vaccine.

Conclusion: The findings of this research show high hesitancy rates for receiving COVID-19 vaccine among dental auxiliaries in Pakistan. Efforts should be made to educate people on scientific evidence basis and social media sites spreading misinformation should be banned.

Keywords: COVID-19, Vaccine, Willingness, Hesitancy, Dental Auxiliaries, Dental assistants

INTRODUCTION

A viral outbreak infected more than 5.5 million people over 144 countries .i.e. severe acute respiratory syndrome corona virus 2(SARS-CoV-2) which is also known as "COVID-19".¹⁻² Due to this pandemic, the World Health Organization (WHO) decided to structure a global campaign of prevention, early diagnosis and medical treatment.³ Coronavirus disease 2019(COVID-19) has had an adverse effect on people's health and lives along with a major downfall in the economy of the world.² This has been a propelling force for institutions and laboratories to obtain a COVID-19 vaccine.^{2,3}

In former times, just as SARS and Ebola were fatal and hazardous, the current coronavirus disease (COVID-19) highlights the vulnerabilities of humans in front of emerging infectious diseases.⁴ Researchers from different countries were in search of vaccines and development of different drugs that are also currently under trial.³ In the existing pandemic, however, the adversities are not limited to vaccine development but also embrace its worldwide manufacturing, distribution, and approval.⁵ A vaccine is considered to be the most anticipating intervention.⁶⁻⁹ Nevertheless, the awareness of public towards COVID-19 vaccine approval is not present. According to some studies, there are numerous reasons responsible for vaccine acceptance when a new vaccine is presented.¹⁰⁻¹² To mention some of the factors, they are safety and efficiency of the vaccine, adversative health consequences, misapprehensions about the requirement for vaccination, lack of trust in the health organization, lack of awareness among the community on vaccine-preventable diseases.^{11, 12}

In China, demographics and public awareness are the analysts of vaccination acceptance.¹¹ In Hong Kong, anxiety level and vaccine history were the main forecasters towards vaccine acceptance.¹³ According to a different study, a greater hesitance in United States was associated with lesser vaccine uptake and superior confidence related with higher vaccine uptake was reported.¹⁴ Various studies were carried out to see the spread of COVID-19 vaccine over a large population area.^{15, 16} A study was carried out among the health workers in China to see how the vaccine works on the health workers compared with the general population.¹⁶ A similar study was carried out in the United States but 20% of the volunteer decided to decline the vaccine.¹⁵ A

vaccine needs to be safe for the public and effective before its distributed to the general population. Vaccine itself cannot wipe out the whole pandemic; it will still take time and help from the general population in order to eradicate the virus.¹⁶

Furthermore, healthcare professionals' acceptance of the COVID-19 vaccination is critical in order to positively affect general public acceptability and, as a result, achieve herd immunity as quickly as possible. As stated earlier false news and misinformation will only ignite the suspicions and the negligence towards the vaccine. It will create a strain on the healthcare industry and public health; that is why the success of the vaccine is necessary for the world to get back on its feet again, it stands as a pivot between individuals and the society. Although few studies to access acceptance of vaccines for different viruses like influenza or hepatitis have been conducted, but, to the best of our knowledge, scarce, if any local study is available to assess the acceptance of COVID-19 vaccine specifically in dental auxiliaries in Pakistan. Our study was planned to fill this research gap, with an objective to check willingness of COVID-19 vaccine among dental auxiliary in Pakistan.

MATERIAL AND METHODS

This descriptive cross-sectional survey was conducted from February 2021 to April 2021, to assess COVID-19 Vaccine Acceptability among Dental Auxiliaries in Pakistan. The study was conformed to STROBE guidelines for cross-sectional studies.¹⁷ This study was approved by Rawal Institute of Health Sciences Ethics Committee (Approval no.EA/21/00182) and all participants provided informed consent prior to enrolment in the study.

The sample population was selected via convenience sampling technique. The data was collected online during the COVID-19 pandemic during the period of the study. The data was collected from dental auxiliaries who were conveniently available and gave consent to participate in the study. Dental auxiliaries practicing within Pakistan for more than two years, lying within an age range of 20 to 64, were included in the study. Whereas, the auxiliaries who had graduated from abroad were excluded from the study. The sample size was kept at 385, as estimated using the

WHO sample size calculator, with 95 % confidence and 5% margin of error, out of which 340 responded.

Data was collected anonymously using a pre-existing questionnaire from participants who volunteered to be a part of the study sample.¹⁶ An online questionnaire was circulated after taking ethical approval from the institutional review board. Questionnaire was in English language and was kept anonymous. All the questions were Closed-ended.

The questionnaire on average took 2 to 3 minutes to complete. The purpose of study was explained at beginning of questionnaire. Informed consent was taken. Questionnaire was divided into four components. First component (Section I) gathered information about demographic data, second component (Section II) about job description of dental auxiliary and third (Section III) about knowledge and awareness of COVID-19 and last fourth section (Section IV) was about Vaccination willingness or reasons for not wanting to get vaccinated for COVID 19 infection .This questionnaire was used prior in various studies¹⁶ so the validity of questionnaire is already confirmed. Among 20 dental auxiliaries, a pilot survey was conducted. Cronbach's alpha value was found to be 0.865, which showed an internal reliability of the questionnaire. Sample size was estimated on the basis of the results of the pilot study. SPSS-23 was used to analyze the response to the questionnaire. Outcome data was of quantitative type. Descriptive statistics were used to summarize the questionnaire's responses, with the results being presented as frequencies and percentages and level of significance was set at $P \leq 0.05$. Chi-Square test also run to check the association between gender group and acceptance of vaccination among dental axillaries of Pakistan.

RESULTS

A total of 340 participants participated in this study, including 247 males and 93 females. The response rate of our survey was 83%. Demographic characteristics of participants are given in Table 1.

Table 1: Demographic and background characteristics of participants (n=340)

Age	Frequency	Percentage
18-34 years	212	62.4
35-50 years	105	30.9
51-64 years	23	6.8
Gender		
Male	247	72.6
Female	93	27.4
Education		
Grade 10 or below	25	7.4
Grade 11-12	208	61.2
Diploma	99	29.1

The people aged from 18-34 years took more part than the rest of the age groups. The old people and the mid age people were very few in number who participated. The data also shows that there is Male prevalence community as compared to the female community or they didn't participated much and the level of education is grade 11 – 12 who participated more. Rest there was very less contribution of Grade 10 or below, graduated and diploma holder community. (Table 1)

Table 2 shows the data that how people were willing to get vaccinated against the COVID 19 infection. Over all the P-value indicates that the results are highly significant. The people have significantly agreed that the vaccine is easily accessible and available in the market. Plus they have also significantly agreed that a large amount of people have been affected by covid and it is spreading at a very fast pace. In addition to that it is also indicated that the vaccine is only helpful if it is 100% effective. Many people also believe that companies who are selling the vaccine they are just manipulating the data and earning money out of it. If we consider the dental axillaries the maximum percentage have agreed that the vaccine is readily available in the market in comparison very few percentage agreed that there is nano chip in the vaccine.

Table 2: To examine the Willingness to get vaccinated for COVID 19 infection among Dental Axillaries.

	Yes	No	May Be	p
Do you have fear of getting infected with Covid?	275(80.9%)	65(19.1%)	-	.000
Is the vaccine for Covid 19 available in the market?	282 (82.9%)	58(17.1%)	-	.000
If the vaccine for Covid 19 available for free, will you get yourself vaccinated?	97(28.5%)	225 (66.2%)	18(5.3%)	.000
Vaccine do not provide immunity against COVID-19	204 (60.0%)	100(29.4%)	36(10.6%)	.000
Vaccines contain micro/nano-chip.	23 (6.8%)	216(63.5%)	101(216.5%)	.000
Vaccines are only useful when 100% effective	301(88.5%)	2(3.1%)	37(10.9%)	.000
Commercially available vaccines are not tested enough.	175(51.5%)	58(18.8%)	107(31.5%)	.000
Vaccine companies trick you into vaccinating to earn money.	141(41.5%)	44(12.9%)	155 (45.6%)	.000

DISCUSSION

The pandemic hitting the world resulted in the rising number of dental patients due to halting of the treatment at most places due to lockdown.¹⁸ This build up the pressure by creating more backlog of patients.¹⁸ Despite the multiple efforts to control the spread of infection, the cases kept on rising until vaccine became available to limit the morbidity and mortality.¹⁸ The availability of vaccine came with another challenge due to hesitancy of receiving vaccine thus affecting the success rate for reducing COVID-19 cases.¹⁸

Multiple surveys were conducted to see vaccine acceptance among general population and healthcare workers.^{18, 19, 20, 21} To our knowledge, rarely if any survey targeted to observe vaccine acceptance among dental auxiliaries. Even though the dentists and dental students are at high risk of getting affected by COVID-19 virus, dental auxiliaries are amongst the individuals with highest risk and exposure due to the nature of job. Dental auxiliaries also showed least knowledge about spread and prevention of COVID-19 as reported by Benny B and associates.²² They assist dentists in performing procedures while staying at chairside for suction and other tasks, they manage the instruments before and after

sterilization and they come in contact with patients, doctors, students, laboratory persons as well as other workplace colleagues. Thus this category in a dental set up carries highest risk involvement in spread of COVID-19 virus.

The results of present study tell that 66.2% of dental auxiliaries were not willing to get themselves vaccinated even if it was offered for free and 5.3% were not sure if they want to get vaccinated or not. These results are in contrast with the findings of another study who reported that 61% of medical nurses showed willingness to get vaccinated.²³ Although this result of nurses show low acceptance as well.²³ The results of current study are in accordance with a study by Jeffrey V and colleagues who reported that 46.8% of general population was willing to get vaccinated thus a very low percentage showed willingness.²⁴ Another study by Sallam et al also showed low acceptance of vaccine among general population of Jordan (28.4%), Kuwait (23.6%) and Saudi Arabia (31.8%).²⁵

Concerns relevant to COVID-19 vaccine showed that 51.5% believed that it is not tested enough so they are not sure about the outcomes. 80.9% said that they can still get infected with COVID-19 so avoided the vaccine. Only 6.8% believed the myth that there

is some microchip involved in vaccination plan. This finding was similar to study by Sallam et al where 27.7% had fear of microchip conspiracy involved in vaccination program.²⁵ In present study, majority wanted to avoid vaccine as they had doubts about the efficacy of vaccine to prevent COVID-19 infection. Other studies also observed vaccine efficacy as one the main factor affecting acceptance of vaccine. Who reported that hesitancy was because of the uncertainty of advantages related to vaccines.^{23,25}

The low acceptance rate of vaccine among dental auxiliaries may be due to the fact that 68.6% were not highly educated and below graduate level. This was similar to the results of study by Yang J et al who associated low education level with low acceptance of vaccine.²⁶ This also might be due to the fact that many cases have been reported to get affected with COVID-19 virus even after the vaccination thus further reducing the acceptance. The information should be provided on scientific grounds so that they do not believe the rumours and myths circulating around on social media without any scientific evidence.²⁵

The auxiliaries need to be targeted to educate them about the benefits of vaccine in reducing the morbidity if infected with the virus. They should be informed about how it helps in prevention and reduction of mortality. Moreover, they should be focused on more to make them comply to follow strict standard operating procedures to prevent the spread. Plenty of research^{24,25,26} points towards public educational campaigns, vaccine safety public messages and social distancing along with the help from the general public. Governments and social media (internet) regulating authorities need to work on not risking wide spread false news and misleading information against the vaccine. The vaccine uptake can also help determine the projections of inoculation of the public as well as identifying and developing strategies to improve further uptake.

Limitation of this study was that the data was collected online and many individuals might not have participated at all. To further improve the reliability of results, data should be collected personally to include maximum number of dental auxiliaries in the study to represent the entire Pakistan.

CONCLUSION

The findings of this research show high hesitancy rates for receiving COVID-19 vaccine among dental auxiliaries in Pakistan. This could result in inefficiency of the preventive measures being imposed by government to control spread of infection. The association of belief in myths related to COVID-19 vaccine and rate of hesitance to receive the vaccine should be a warning sign for institutional heads, policy makers, government and social media awareness platforms. Efforts should be made to educate people on scientific evidence basis and social media sites spreading misinformation should be banned. Instead of forcing the individuals to get vaccinated, adequate information about the benefits of vaccine will improve compliance and thus help in controlling the spread of infection.

Source of Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest: The authors have no conflict of interest to declare.

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