

COVID-19 Vaccination Awareness among Dental Surgeons at a Tertiary Care Hospital

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ABSTRACT

Introduction: Expedition of mass vaccination scheme is the only way to overcome the COVID-19 pandemic. Healthcare professionals have a key role in shaping public opinion about vaccines and are at a higher risk of being infected. Especially dentists, perform duties not only in close contact but with aerosol and droplets that come out of a patient's oral cavity.

Objective: To appraise the awareness concerning COVID-19 vaccination among dental surgeons and explore the potential drivers for their acceptance levels. These particulars are crucial for formulating new schemes and policies to cope with such emergency situations in near future.

Study design: Online cross-sectional study

Setting and duration: Department of Oral and Maxillofacial Surgery, Faisalabad Medical University, Faisalabad. May 2021 to June 2021.

Materials and methods: A self-organized questionnaire was conducted among 250 dentists. The questionnaire was designed in the manner to access their knowledge, attitude and perception regarding COVID-19 vaccination. The questionnaire contains a set of 20 questions. The questionnaire was distributed through an online survey link. The results were obtained and statistically analyzed through SPSS software and results were presented in percentages and frequencies.

Results: We analyzed 216 questionnaires completed by dental surgeons (male: 35.6%; female: 64.5%). Of the participants 80.5% considered that COVID-19 vaccine is safe and effective and 62% believe that it does not cause long term health problems. 72% considered the overdose of vaccination to be harmful whereas 88% agreed upon importance of vaccine for protection of people and were willing to recommend vaccine for relatives and friends. 63% participants consider pharmaceutical companies are developing safe vaccines and just over half of the participants consider Pak-Vac vaccine to be safe. Finally, 78.7% respondents were satisfied on government strategies regarding COVID-19 vaccination and 95% think that government should provide COVID-19 vaccination for all citizens free of cost.

Conclusion: The current study declares meager knowledge but more definite attitudes towards COVID-19 vaccinations among dental surgeons at a tertiary care setup. The conclusion suggest that health education programs and more precise information should be delivered and publicized by respective health authorities to abolish the vaccine hesitancy.

Keywords: COVID-19, Vaccine, Awareness, Dental surgeon

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INTRODUCTION

December 2019 had observed an unanticipated outburst of deadly COVID-19, originated from the new corona virus strain SARS-CoV2, that arise from the city of Wuhan in China and had become a grave health concern worldwide WHO proclaimed COVID-19 outbreak a pandemic on march 11, 2020 (Ali SH, *et al.*, 2020; van Bavel JJ, *et al.*, 2020). It was considered to be more concerning infectious than SARS-CoV and MERS-CoV because of its nosocomial transmission and increased number of cases worldwide (2).

Transmission of virus may occur through cough, sneeze or droplet inhalation or could be due to exposure with oronasal mucous membrane (Ali SH, *et al.*, 2020; Guo YR, *et al.*, 2020). Patients suffering from COVID-19 presented with the symptoms of fever, cough, myalgia or fatigue, headache, indiscriminate respiratory diseases ranging from mild common cold to life threatening pneumonia, organ failure and ultimately death (Guo YR, *et al.*, 2020; WHO, 2020). The estimated incubation period of virus was recorded to be of 2 to 4 days or may reach to 24 days after which the patients started showing symptoms of disease (Cucinotta D and Vanelli M, 2020).

Dental health workers are invariably at higher risk of contracting this infectious disease being in direct contact with the patient

and the route of transmission of virus and could be the source of spread of this highly contagious disease (van Bavel JJ, *et al.*, 2020; Cucinotta D and Vanelli M, 2020; Lazarus JV, *et al.*, 2020).

Health technologies like vaccines are widely used for preventing and halting the spread of this COVID-19 pandemic (Lin Y, *et al.*, 2020). Though the vaccine was launched in a very shorter period of time but it was challenging to access people's acceptance towards vaccination for COVID-19 as hesitancy for vaccination was found among the people even among the health care providers (Ali SH, *et al.*, 2020; Lin Y, *et al.*, 2020). There are certain misconceptions about the vaccine regarding the adverse effects of vaccine and lack of trust over the medical personals and health system (Ali SH, *et al.*, 2020, WHO, 2020; Lin Y, *et al.*, 2020).

In order to implement the most effective vaccine strategy at a tertiary care setup, an online survey was conducted to access the knowledge, attitude and perception of dental surgeons towards COVID-19 vaccine (Hossain MA, *et al.*, 2020).

The data derived from this survey would act as a baseline for future studies aiming to access and compare the aforementioned attributes at different times of pandemic (van Bavel JJ, *et al.*, 2020; Hossain MA, *et al.*, 2020). These particulars are crucial for formulating new schemes and policies to cope with such emergency situations in near future (Lin Y, *et al.*, 2020; Hossain MA, *et al.*, 2020).

MATERIALS AND METHODS

This was an online cross-sectional study carried out using a self-organized questionnaire based on COVID-19 vaccination awareness among dental surgeons at a tertiary care hospital. The study was conducted at PMC dental Institute, Faisalabad Medical University, and Allied Hospital Faisalabad over the interval of two months from May 2021 to June 2021. The research was approved by Faisalabad Medical University, FMU Ethical Research Committee.

Considering the results of previous studies and discussion with the board of supervisors, an online survey was generated comprising of total 20 questions with the objective of evaluating the awareness of COVID-19 vaccines among the dental surgeons.

The questionnaire was splitted into four segments. Segment A comprised of general information, segment B comprised of knowledge of dental surgeons towards COVID-19 vaccination, segment C comprised of attitude and segment D comprised of perception. The survey took only minutes to fill and submit. Prior to attempt the questionnaire, the rationale of research was illustrated to the partakers and was encouraged to respond to the questionnaire in order to collect data successfully.

The questionnaire was sent to 250 dentists out of whom 216 responded to the questionnaire. The partakers using the social media (WhatsApp) and inclined to take part in the study were incorporated in research and partakers reluctant to take part were barred from the research. The data was collected by generated an online link to the survey and was shared with the participants on social media (WhatsApp) and the confidentiality of data was maintained.

To put an end to any flaw in data collection process, it was looked after by one and the same specialist who analyzed the research questionnaire. Using SPSS version 27.0, the statistics were entered and presented in percentages and frequencies.

RESULTS

In present study sample size was taken 250 and 216 respondents participated in the survey with the response to ratio of 84.6%. Majority of the participants' age ranges between 21-30 years (88.3%). 139 (64.5%) participants were female and 77 (35.6%) were male dental surgeons. 22 (10.2%) respondents had not received all necessary vaccines in lifetime. Demographic details are presented in *Table 1*.

Table 1: Demographic details

S. No	Variables	Number of subjects
1	Gender	Accuracy: 95%
	Male	35.3% (76)
	Female	64.7% (139)
2	Age(years)	Accuracy: 95%
	21-30 year	88.3% (189)
	31-40 year	11.7% (25)
	41year above	-
3	Have you received all necessary vaccines in your lifetime?	Accuracy: 95%
	Yes	81.5% (176)
	No	10.2% (22)
	Don't know	8.3%(18)

Majority of dental surgeons, 174 (80.5%), considered COVID-19 Vaccination safe and effective. Besides, above half of dental surgeons 134 (62.03%) believed that COVID-19 vaccination do not cause long term health problems. According to 56% respondents COVID-19 vaccination do not cause any allergic reaction or autoimmune disorder. 71.6% dental surgeons considered the overdose of vaccination harmful (*Table 2*).

Table 2: Knowledge towards COVID-19 vaccination

S. No	Questions	Yes	No	Don't know
1	Do you think COVID-19 Vaccination is effective and safe	80.5% (174)	4.62% (10)	14.8% (32)
2	Do you think COVID-19 vaccination can cause long term physical problems?	11.1% (24)	62.03% (134)	26.8% (58)
3	Do you think COVID-19 vaccination can increase allergic reactions?	24.1% (52)	56% (121)	19.9% (43)
4	Dows COVID-19 vaccination increases risk of developing autoimmune disorders?	10.2% (22)	56.9% (123)	32.87% (71)

In current study 87.96% dental surgeons agreed upon the importance of COVID-19 vaccination for the protection of people while less than half 42.59% of respondents hesitated to recommend COVID-19 vaccines on official schedule. 87% respondents showed optimistic attitude and were willing to get vaccinated. Furthermore, for recommending the COVID-19 vaccination for relatives and friends 86% responses went to yes. Majority of dentists, 95.4% reported that government should provide COVID-19 vaccination for all citizens for free and 83.79% preferred to get vaccinated when they have no any symptom of COVID-19 (*Table 3*).

Table 3: Attitude rewards COVID-19 vaccination

S. No	Questions	Yes	No	Don't know
1	It is important to get vaccine to protect people from COVID-19	87.9% (190)	6.9% (15)	5% (11)
2	Do you sometimes hesitate to recommend COVID-19 vaccines on the official schedule for your patients, for example when you have questions about their benefits and risks?	42.6% (92)	49.5% (107)	7.87% (17)

3	If a vaccine against COVID-19 were available, would you be willing to be vaccinated yourself?	87% (188)	9.7% (21)	3.2% (7)
4	I encourage my family/friends/relatives to get vaccinated.	86.1% (186)	9.7% (21)	4.2% (9)
5	The government should make the vaccine available indistinguishably for all citizens for free?	95.4% (206)	0.9% (2)	3.7% (8)
6	Do you prefer to be vaccinated when you are symptom free of COVID-19?	83.79% (181)	11.6% (25)	4.6% (10)

63.3% of respondents thought pharmaceutical companies are developing safe and effective vaccines, but just above half partakers 52.8% assumed the "Pak-Vac" vaccine is safe. According to opinion of 78.7% respondents, the government strategies regarding COVID-19 vaccination were satisfactory. In addition, just below half participants 47.2% believed that COVID-19 pandemic can be extirpated without vaccination if everyone in society follows and maintains preventive measures. In present study 62.5% respondents overweighed the benefits of COVID-19 vaccines to its side effects (Table 4).

Table 4: Perception towards COVID-19 vaccination

S. No	Questions	Yes	No	Don't know
1	Pharmaceutical companies are going to develop safe and effective COVID-19 vaccine?	63% (136)	6% (13)	31% (66)
2	Do you think newly made vaccine in Pakistan (Pak vac) is safe and effective?	52.8% (79)	10.6% (23)	36.6% (114)
3	Are you satisfied with Government strategies regarding COVID-19 Vaccination?	78.7% (170)	16.2% (35)	5% (11)
4	Do you think that everyone in society follows SOPs' the COVID-19 pandemic can be eradicated without vaccination?	47.2% (102)	45.8% (99)	6.9% (15)
5	Do you think benefits of COVID-19 Vaccines overweigh its risks and side effects?	63.1% (135)	17.8% (38)	19.2% (43)

DISCUSSION

Epidemics and pandemics are infrequent circumstances, and they bring multiple challenges for the population (Ali SH, *et al.*, 2020). At current especially from the beginning of the year 2020 to now, people worldwide are fighting the deadliest COVID-19 pandemic (Ali SH, *et al.*, 2020; Lin Y, *et al.*, 2020). The COVID-19 pandemic has caused a vast global health crisis, and people from all over the world has suffered a lot, especially the daily wage earners because of the repeated lockdowns (Ali SH, *et al.*, 2020; Lin Y, *et al.*, 2020; Hossain MA, *et al.*, 2020).

The most pivotal thing in this catching disease is the awareness of its mode of transmission and sound plans for its prevention (WHO, 2020; Zhong BL, *et al.*, 2020). Social events and affinity such as handshakes are the leading cause of the spread of the COVID-19 infection, and the key to stop it is also in practicing social distancing, sanitizing hands and persistent hand washing (Cucinotta D and Vanelli M, 2020; Wang J, *et al.*, 2020). Wearing facemask is an effective physical interposition against disease transmission and its use of facemasks has become very common in third world countries including Asia (Lin Y, *et al.*, 2020; Hossain MA, *et al.*, 2020). Public perception of health risk plays an essential role in adopting the government measures to prevent the advancement of COVID-19, and these measures and actions had direct impact on lifestyles of people (Feng S, *et al.*, 2020).

Nowadays, people on the planet irrespective of their age, religion, race, profession are debating on COVID-19 pandemic and taking measures to avoid the deadly virus (Wang J, *et al.*, 2020). Furthermore, many people are demonstrating their school of thoughts regarding the COVID-19 vaccination program (Feng S, *et al.*, 2020). This study has ascertained the psychological factors such as knowledge, attitude, and perception of dental surgeons towards the COVID-19 vaccination awareness at a tertiary care hospital (Zanin MG, *et al.*, 2020; Bhartiya S, *et al.*, 2021).

In this research out of 250 questionnaires issued among the partakers 216 questionnaires were given back and investigated. Majority of partakers were female 83 (69.2%). This female primacy is comparable with the research results reported by Elhadi *et al.* 2020 which is 62.5%. The age of the participants in present research scaled from 21-30 years. This age primacy was also described by other research studies like Ali SH, *et al.*, 2020; Islam MS, *et al.*, 2021 which is 18-39 years and 18-65 years respectively.

The results of present research are mostly admissible despite some discouraging facts on primary knowledge and attitude of dental surgeons towards COVID-19 vaccination awareness for example majority of dental surgeons considered COVID-19 vaccination safe and effective but above half of dental surgeons believed that the vaccination can cause long term health problems. On contrary to this, the study conducted by Islam MS, *et al.*, 2021 who reported that only 60% of the participants got vaccinated and two-third of them considered it unsafe.

Regarding the results of present research, it was also not motivating to find that 56% of study participants think that COVID-19 vaccination can cause allergic reactions. It was encouraging to note that about 56.9% of the participants think that vaccination against COVID-19 cannot increase the risk of developing autoimmune disorders and 87.9% of the partakers think that it is important for an individual to get vaccinated to avoid COVID-19 infection but about 71.3% participants think vaccine overdose could be dangerous for health. Studies like Sah MK, *et al.*, 2020 and Abdul also reported that 43.7% and 81.5% participants respectively were sensitized about getting vaccination to prevent COVID-19 and were aware of WHO guidelines (Guo YR, *et al.*, 2020, Mannan DKA and Farhana KM, 2020; Zigron A, *et al.*, 2021).

About 87% of the partakers mentioned to get vaccinated if easily available. Studies like Hossain MA, *et al.*, 2020 and Islam MS, *et al.*, 2021 also showed the participants motivation to get vaccinated by themselves as well as for their relatives to get vaccinated (Elhadi M, *et al.*, 2020). About 95.4% of

the partakers demand that the government should make the vaccine available for all the citizens indistinguishably. Research results by Islam MS, *et al.*, 2021 and van Bavel JJ, *et al.*, 2020; also reported that a majority of the participants demand the availability of vaccine for public indistinguishably (Elhadi M, *et al.*, 2020; Zigron A, *et al.*, 2021).

Our present study showed that about 63% of the participants have the confidence on the pharmaceutical companies to develop an efficacious vaccine against COVID-19 and about 79% of participants thought Pak-vac to be safe and effective and are satisfied with the government strategies regarding COVID-19 vaccination programme. The participants also showed their confidence over the benefits of vaccine against COVID-19 vs. the risks. These results are in contrary with the results of Zigron A, *et al.*, 2021 who reported that 50% of the dental professionals were willing to receive vaccine and considered it effective. However only 47.2% of the partakers think that following SOPs can fully eradicate the COVID-19 pandemic without vaccination. This result is comparable with the studies reported by Ali SH, *et al.*, 2020; van Bavel JJ, *et al.*, 2020; Hossain MA, *et al.*, 2020.

CONCLUSION

The COVID-19 pandemic continues to inflict global havoc on lives and livelihoods, and the COVID-19 vaccine represents a possible glimmer of hope for the future. Vaccine acceptance in our cohort was depended on general attitudes towards vaccination. The current study declares meager knowledge but more definite attitudes towards COVID-19 vaccinations among dental surgeons at a tertiary care setup. The results suggest health education programs and more accurate information should be delivered and publicized by respective health authorities to abolish the vaccine hesitancy.

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AUTHOR CONTRIBUTION

All authors contributed to the manuscript. All were involved in the conception and design of study, acquisition analysis of data, interpretation writing the manuscript till the final approval and submission.

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