

# Impact of the Covid-19 Outbreak on the Dental Profession in Pakistan

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## ABSTRACT

The COVID-19 outbreak has affected dentists all over the world, including those in the Pakistan. It has had a huge impact on the practice of dental professionals as they are in direct contact with oral and nasal secretions of patients in the field. We conducted this study to find out how dental practitioners felt about the outbreak and how they believed it will affect the dental profession. To assess the impact of COVID-19 outbreak in Pakistan an exploratory cross-sectional study of dental professionals was conducted. Self-administered questionnaires were distributed to consenting participants between October and December 2021 via an online data collection platform (Google forms). These questionnaires were to collect the data about the understanding and awareness about the pandemic's impact on respondent's sociodemographic and psychological health. The data analysis in this study was done using the Statistical Package for the Social Sciences (SPSS) version 20. The study included 118 dental practitioners from the Pakistan, with an average age of 39.25 years and a majority of the participants were males. COVID 19 was determined to be well-understood by nearly 91 (77.1 %) respondents. COVID-19 was of the grave concern for more than half of the participants, 64 (54.24%), with the danger of catching the virus in the dentistry clinic being the most concerning cause of concern 64 (54.24%). It is concluded that the dental practitioners had an excellent awareness about the epidemiology, diagnosis, prevention, and treatment of COVID-19.

**Keywords:** COVID-19, Pneumonia, Dental, Awareness, Psychology

## INTRODUCTION

A pneumonia like disease was reported for the very first time amongst the visitors of a seafood market in Wuhan, China, in December 2019 [1]. Lately it was discovered that the causal agent was a new viral strain that belonged to family of the coronavirus. Therefore, this strain was named as 2019 novel coronavirus (2019-nCoV) [2]. Subsequently, the International Committee on Taxonomy of Viruses (ICTV) renamed it severe acute respiratory syndrome coronavirus (SARS-CoV-2) and the disease was termed as coronavirus disease (COVID-19) [3]. The outbreak of COVID-19 was declared a global pandemic on 11<sup>th</sup> of March 2020 by World Health Organization (WHO) [4] and it spread rapidly infecting almost half billion with 6.2 million reported deaths worldwide [5].

Commonly COVID-19 transmitted through direct (cough, sneeze, or droplet inhalation) or contact (oral, nasal or eye mucous) routes [6]. It is infectious disease with mild symptoms (cough, difficulty in breathing, headache, fever, myalgia and smell and tastelessness) that can recover in couple of weeks. The severe symptoms include pneumonia, kidney failure and eventually death mostly in aged individuals that have compromised immunity due to other co-morbidities [7]. Sometimes, the infected persons remain asymptomatic but still they have tendency to transmit the infection. The patient's saliva is one of the sources of disease transmission [8].

Among the healthcare workers the dental practitioners face grave risk of infection as they frequently exposed to saliva and nasal fluids of the patient. The use of ultrasonics and other radiations pose the threat of viral entry through aerosols, or these aerosols contaminate surfaces that might be the source of infection for the entrants [9]. Regulatory bodies and associations for dental care in different countries including Pakistan have issued advisories during pandemic to postpone procedures to eliminate possible spreading of infection.

There are 64 dental training institutes in Pakistan with all dental specialities. Currently the training candidates are frightened about their training and future due to the pandemic, but the infection risk has increased the psychological toll. Therefore, it is need of the time to study the group of dental training candidates in training institutions. The information, knowledge, perception and

understanding about the pandemic's challenge will be of innumerable benefit for training institutes. Therefore, this study aims to assess the awareness, understanding, and approach of Pakistan dental practitioners towards COVID-19 and its psychological effects on their practice.

## MATERIALS AND METHODS

A consent was sent to all dental practitioners of the Pakistan to contribute. The study was comprised of the positive respondents only. A platform (Google forms) was used to collect data between October and December 2021 by distributing a self-prepared questionnaire to each contributor. The method of sampling used was purposive with sample size of 118 and 95% confidence interval.

The questionnaire had four major sections assessing, i.) respondents understanding and awareness of pandemic, ii.) respondents' socio-demographics, iii.) pandemic implications with respect to infection control, iv.) pandemic's impact of respondents' lives. The questionnaire was consisted of 63 questions about the respondent's understanding about (epidemiology, diagnosis, and cure of the disease), (PPE for aero and non-aerosol procedures), perception and attitudes towards infection control and effects on respondent's psychological benefit. The positive response score one while negative response marked zero. The respondent's score above 50% reflected satisfactory while below 50% was marked insufficient. Respondents were contacted through email or WhatsApp for participation. The data was analysed by using (SPSS) version 20.

## RESULTS

The dentists participated in this study were 118 from different institutions of the country. The age of the respondents ranged between 25 and 65 with average age of 39.25 years. Majority of the respondents 59 (50.43%) lie in 2<sup>nd</sup> age group of 35-45 years. The data regarding age, sex and expertise is presented in table 1.

Majority of the respondents 91 (77.1%) claimed that they are well informed about COVID-19. The majority (109 respondents) also claimed that they get information mostly from social media

(Table 2). The other major sources of information categorized were family 92 (77.97%), Religious 81 (68.64%), co-workers 71 (60.17%) and the TV 64 (54.24%). Very few of the respondents have narrated that they get information from other channels i.e., radio, mobile texting, academics, and friends.

Table 1: Age, sex and expertise of the participants

Respondents	Number (N)	Percentage (%)
Age		
25-35	21	17.95
36-45	59	50.43
46-55	28	23.93
56-65	9	7.69
Average	39.25	
Sex		
Male	76	64.10
Female	42	35.90
Expertise		
General Practice	10	8.55
Community odontology	7	5.98
Conservative odontology	5	4.27
periodontology	21	17.95
Orthodontology	17	14.53
Endodontology	9	7.69
Prosthodontology	11	9.40
Pediatric Dentistry	14	11.97
Oral Pathology	2	1.71
Oral Medicine	1	0.85
Oral and Maxillofacial Surgery	21	17.95

Table 2: Information sources about the Pandemic

Source	Respondents	Percentage (%)
Television	64	54.24
Radio	13	11.02
Newspaper	17	14.41
Mobile Texting	26	22.03
Academics	42	35.59
Colleagues	71	60.17
Friends	52	44.07
Religious Contacts	81	68.64
Family	92	77.97
Social Media	109	92.37

Only 41 people had officially attained training for infection control of COVID-19. 47 (39.8%) respondents narrated that they are attending the systematic training sessions on regular basis. Almost half (24) of the respondents who are attending systematic

training programs are attaining these opportunities on quarterly basis (Table 3).

Table 3: Awareness and approach towards infection control

Parameters	Number (N)	Percentage
Views about having latest information regarding COVID-19		
Yes	103	87.29
No	15	12.71
Attained an official training for COVID-19 infection control		
Yes	41	34.75
No	77	65.25
Attended systematic training for infection control		
Yes	47	39.83
No	71	60.17
Frequency of systematic training participation		
Weekly	0	0.00
Monthly	4	3.39
Bimonthly	5	4.24
Quarterly	24	20.34
Half Year	13	11.02
Every Year	2	1.69

Almost all the participants proved that they have a perfect understanding of COVID-19 disease. Generally, 94 (79.67%) contributors demonstrated sufficient knowledge, while only 24 (20.33%) were having knowledge less than the threshold level. The average noted score percentage of positively responded questions was 61.15% while the negatively responded question percentage was 38.85%.

The majority of the contributors 93 (78.81%) responded positively that the causal agent of the COVID-19 is SARS-CoV 2, while 25 candidates have negative opinion. 99 (83.90%) respondents were of the view that the virus have an incubation period of almost two weeks, while most of them 95 (80.51%) and 87 (73.73) were familiar with the vaccine and had a positive perception towards vaccination procedure, respectively. Only 63 persons had responded that the physical distance had to be maintained at 1 meter while others were of the view that it would be 2 meters. There were 81 (68.64%) respondents who think that asymptomatic infected persons can be a source of disease spreading while 37 (31.36%) contributors negated this option. It is also very clearly evident from the results that a major proportion of the contributors knew adequately about the main symptoms, major spreading routes, extreme threat groups, diagnosis and the prevention measures. The response of the contributors to every question is presented in Table 4.

Table 4: The Contributors response to asked questions

Question	Response			
	Positive	Percentage	Negative	Percentage
Causal agent of COVID-19	93	78.81	25	21.19
Normal incubation period	99	83.90	19	16.10
Familiarity with vaccination	95	80.51	23	19.49
Perception about vaccination	87	73.73	31	26.27
Knowledge about social distance	63	53.39	55	46.61
Asymptomatic infected individual and viral spreading	81	68.64	37	31.36
Symptoms				
Difficulty in breathing	107	90.68	11	9.32
Cough	105	88.98	13	11.02
Fever	92	77.97	26	22.03
Body pains	97	82.20	21	17.80
Smell and tastelessness	61	51.69	57	48.31
Pneumonia	47	39.83	71	60.17
Diarrhoea	53	44.92	65	55.08
Jaundice	17	14.41	101	85.59
Fatigue	113	95.76	5	4.24
Sleepy	82	69.49	36	30.51
Asymptomatic	77	65.25	41	34.75
Transmission Routes				
Infected droplets (Coughing, sneezing, talking, blowing, Spitting)	115	97.46	3	2.54
Air transmitted	74	62.71	44	37.29
Hugging	37	31.36	81	68.64
Touching Contaminated surfaces	106	89.83	12	10.17

Transfusion	11	9.32	107	90.68
Saliva	57	48.31	61	51.69
Highly exposed Individuals to COVID-19				
Healthcare staff	118	100.00	0	0.00
Patients' handlers	99	83.90	19	16.10
Patients' relatives	86	72.88	32	27.12
Patients social contacts	78	66.10	40	33.90
Aged	91	77.12	27	22.88
Travellers	88	74.58	30	25.42
Diabetic Patients	101	85.59	17	14.41
Personals with compromised immunity	103	87.29	15	12.71
Smokers	115	97.46	3	2.54
Disease (COVID-19) Diagnosis				
RT PCR with endotracheal aspirate	18	15.25	100	84.75
RT PCR with bronchoaveolar aspirate	27	22.88	91	77.12
RT PCR with nasopharyngeal swab/sputum	107	90.68	11	9.32
RT PCR with oropharyngeal swab/sputum	104	88.14	14	11.86
Prevention				
PPE wearing by health workers	117	99.15	1	0.85
Surfaces cleaning and disinfection	96	81.36	22	18.64
Isolation of patient or suspect	98	83.05	20	16.95
Hand washing	118	100.00	0	0.00
Proper Sanitization	112	94.92	6	5.08
Avoidance to touch (Eyes, Nose, Mouth and surfaces)	67	56.78	51	43.22
Maintaining distance	89	75.42	29	24.58
Wearing face mask	109	92.37	9	7.63
Vaccination	103	87.29	15	12.71
Cure Options				
Azithromycin with chloroquine	86	72.88	32	27.12
Ivermectin	45	38.14	73	61.86
Remdesivir	21	17.80	97	82.20
doxycycline	18	15.25	100	84.75
clarithromycin	11	9.32	107	90.68
ceftriaxone	48	40.68	70	59.32
amoxicillin	51	43.22	67	56.78
amoxicillin-clavulanic acid	73	61.86	45	38.14
ampicillin	34	28.81	84	71.19
gentamicin	32	27.12	86	72.88
benzylpenicillin	71	60.17	47	39.83
tazobactam	32	27.12	86	72.88
ciprofloxacin	89	75.42	29	24.58
ceftazidime	21	17.80	97	82.20
cefepime	8	6.78	110	93.22
vancomycin	18	15.25	100	84.75
meropenem	47	39.83	71	60.17
cefuroxime	28	23.73	90	76.27

The respondents had highly acceptable opinion in choosing the right PPE to carryout aerosol and non-aerosol procedures in presumed or verified cases of COVID-19. Majority of the contributors were of the opinion to wear PPE during dental procedures (Table 5).

The contributors have responded critically about the prevention strategies being followed to minimise the spreading of the disease. Only 41 (34.75%) candidates had endorsed that the preventive measures taken in the clinics are effective against the control of disease spreading, while 111 (94.07%) responded that aerosol procedures can be the reason for disease spread. A lot of respondents 109 (92.37%) had endorsed that they would suggest a patient to test for RT-PCR if he had visible symptoms of COVID-19. Many of them 74 (62.71%) showed willingness to buy their own

PPE kits and majority was also agreed for hand washing, training and clinic sanitization on regular basis (Table 6).

Table 5: Opinion and understanding of respondents about the use of PPE

Variable	Number	Percentage
PPE for non-aerosol procedure		
Mask	103	87.29
Gloves	115	97.46
Respirator	76	64.41
Face shield	109	92.37
Gown	112	94.92
PPE for aerosol procedure		
Mask	88	74.58
Gloves	108	91.53
Respirator	115	97.46
Face shield	118	100.00
Gown	114	96.61

Table 6: Perception/Attitude of the respondents towards COVID-19 prevention

Perception/Attitude	Endorsed	Percentage	Not-Endorsed	Percentage
Current prevention measures in clinics are efficient against COVID 19 spread	41	34.75	77	65.25
Ready to attend COVID-19 infection control training	102	86.44	16	13.56
Aerosol producing procedure is a grave risk for COVID-19 spreading	111	94.07	7	5.93
Willingness to self procure PPE for use prevent the disease spread	74	62.71	44	37.29
Hand Washing after attending patient	118	100.00	0	0.00
Mask wearing by waiting patients	115	97.46	3	2.54
Covid test suggestion for constantly coughing/sneezing patient	109	92.37	9	7.63
Sanitization of clinic	88	74.58	30	25.42
Proper ventilation of clinic	97	82.20	21	17.80

The responses of the contributors presented in table 7 about their concerns of disease spreading and its impact on them. Majority of the respondents felt highly insecure in preparing, observing, or conducting the dental procedures at clinics.

Table 7: Psychological impact on the respondents

Parameter	Not Frightened	Little Frightened	Highly Frightened
Observing practice in clinic	11	43	64
Doing Practice in clinic	5	56	57
Physical Distancing in clinic	21	64	33
Preparing for procedures	12	61	45

## DISCUSSION

The COVID-19 outbreak has had a profound influence on dental practitioners. According to a recent study, the pandemic had enormous economic, social, and psychological effects on responders, affecting their future orthodontic practise, particularly in terms of infection prevention [10]. This study was a survey that received 118 responses from dental practitioners of the Pakistan. According to the response 64.10 percent of responders were men while 35.90 percent were females. More than 92% of people surveyed said that they have learned about COVID-19 mostly from social media. Previous research [11] had also presented that social media was most effective channel in spreading awareness among people about COVID-19. Senior professionals mostly reported that they relied on television to keep up to date during the pandemic. Ventola [12] conducted a survey and reported that almost 15% people among healthcare professionals utilise the internet to attain information. Because of the recent advancement and innovation in social media, lot of information, both medical and non-medical, is being shared and exchanged between the professionals and the common public than ever before.

The dental practitioners familiar with the history, symptoms and proper diagnosis of disease can identify the patient and can suggest patient to test for COVID-19. During this study the authors noticed that majority of the people from dental profession knew a lot about COVID-19. The respondents showed correct knowledge about the symptoms and causing agent of the COVID-19 [13]. It's not surprising because the professionals are expected to keep up with the pandemic and how it may impact their dental practise. Publications from scholarly journals and extensive national and international health programmes have all contributed to this understanding. Social media, which was previously designated as a main source of information, is now easier to access.

Infection control and universal precautions are essential in the prevention of COVID-19. These precautions are of particular importance in the dental profession [6]. Prevention and control from the infection are fundamental components of providing a safe and high-quality patient care environment. If appropriate safety measures are not opted, infections in a dental practise can spread rapidly and cause considerable destruction. Even though regular infection control procedures are mandatory, the survey shown that the majority of respondents (60.17 percent) did not receive regular infection control training. Almost majority of the respondents stated that they were ready to participate in COVID-19 infection control training. This positive attitude is essential during the pandemic. Therefore, the training institutes must adequately equip the professionals in prevention and control for COVID-19. Providing professionals with PPE, a safe working environment, and training are chief organizational and industrial challenges [14]. The prevention of the COVID-19 transmission, only one third of the contributors considered the current infection control measures at their dental care clinics were effective. Despite the paucity of infection control training for COVID-19, most of the contributors agreed on the significance of hygiene for healthcare professionals and the usage of facemasks by patients to avoid viral spread [15].

It is strongly advised that the dental health personnel should wear PPE i.e., masks, goggles, gowns, gloves, face shields, and

shoe covers [6, 15]. Each participant of the study emphasised the substantial threat of COVID-19 transmission through aerosols procedures in dental care. It's quite enlightening that the majority of respondents had ability to classify the fundamental PPE requirements for performing aerosol or non-aerosol generating dental treatments on suspected or confirmed COVID-19 patients. Misusing PPE or not knowing which PPE to use for each process might put a dentist's life in peril. This is especially important for aerosol-generating activities, and almost all respondents mentioned the need for respirators, gowns, gloves, eye goggles, and face shields. Inappropriate use of PPE, specifically at public institutions with inadequate resources, is common in Pakistan. However, according to [16], non-sterile gloves can be used for both aerosol and non-aerosol generating dental procedures. It also emphasizes the necessity for more PPE training, as recommended by WHO [15]. Improper wearing and doffing of PPE might compromise infection control methods.

Numerous researchers have argued about the influence of the COVID-19 epidemic on the mental health of healthcare personals [17]. The main impacts of concern are anxiety, and dread of being ill. According to the findings of this research, more than 90% of contributors articulated that the practice is of great concern regarding dental work. Their biggest dread while working at the clinic was exposing themselves. Therefore, any individuals who may be harmed by the outbreak should seek psychotherapy at all training locations. As previous outbreaks demonstrate, people benefit from tangible and practical assistance [18]. The individuals within institutions, as well as colleagues, friends and family can also assist the frightened. All these factors contribute to one's health and friendship.

## CONCLUSION

The dental professionals who took part in the study displayed an elevated level of understanding of the epidemiology, diagnosis, prevention, and treatment of COVID-19. Most of them had excellent understanding of appropriate personal protective equipment to use in the clinic, as well as a positive attitude toward preventing COVID-19 from spreading within the dentistry clinic. However, there was still a lack of understanding of proper infection control protocols, such as the specific sequence for donning and removing the PPE required for patient treatment. The COVID-19 pandemic had a psychological influence on the responders, with the most common concern being a fear of contracting the SARS-CoV-2 virus while working in a dental clinic.

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