

Impact of Covid-19 on Dentistry

Dr. Noor Ul Amin¹, Dr. Kamal Khan Hoti², Dr. Imran Saleem³, Dr. Sana Mukhtar⁴, Dr. Muhammad Khalid Usman⁵, Dr. Riaz Khan⁶, Dr. Tahira Sahar⁷

¹Consultant Periodontist, Frontier Medical & Dental College, Abbottabad

²Assistant Professor (Oral Pathology), Frontier Medical & Dental College, Abbottabad

³Assistant Professor, Department of Operative Dentistry, Frontier Medical & Dental College, Abbottabad

⁴Demonstrator, Foundation University of Dentistry & Hospital

⁵Senior Registrar, Frontier Medical & Dental College, Abbottabad

⁶Trainee Medical Officer, Oral & Maxillofacial Department, Khyber Medical College of Dentistry, Peshawar

⁷Medical Officer, DUHS, PG (MHM), IoBM

ABSTRACT:

Objective: The COVID-19 outbreak, which has devolved into a public health calamity, has aroused widespread concern about infection control methods among health care staff, notably dentists. The goal of this study was to ascertain dentists' awareness, fear, and willingness to implement CDC-recommended practise adjustments during the COVID-19 pandemic.

Methods: We used an online survey form to conduct a cross-sectional analysis. After conducting a reliability analysis, the questionnaire was created using Google Forms and distributed to all dentists via social media and WhatsApp. The statistical analysis was performed using SPSS 20.0. We used frequencies and percentages to conduct a question-by-question analysis. The Pearson correlation coefficient and the Kruskal Wallis test were used to assess the association between level of awareness and educational achievement and work environment.

Results: The poll gathered data from 120 dentists who completed it online. The response rate was surprisingly acceptable given Pakistan's declaration of a state of emergency and the fact that the bulk of hospitals and clinics were either shuttered or operated with the bare minimum of employees. The Centers for Disease Control and Prevention's standards were fully comprehended by the majority of dentists. In comparison, 75% of dental professionals were concerned about catching an infection and 88% were concerned about performing therapy on their patients. Sixty-eight percent of them avoided procedures that generated aerosols, whereas only 28 percent protected themselves with rubber dam isolation. Additionally, a positive correlation ($p = 0.01$) was discovered between the designation and the level of knowledge on the subject. In a similar vein, a statistically significant relationship between qualification and job environment was discovered ($p = 0.03$).

Conclusion: The study's findings can be utilized to establish ways to assure compliance with infection control requirements in locations with a low level of compliance, such as developing

countries. Implementing awareness campaigns to aid people in overcoming fear, as well as providing faculty and staff in selected locations, could considerably contribute to minimising illness spread and, as a result, the strain on healthcare systems in underdeveloped nations like Pakistan..

INTRODUCTION:

According to the latest available information, the coronavirus disease outbreak (COVID-19) began in a seafood market in Wuhan City, China, and spread throughout the world. The World Health Organization (WHO) declared COVID-19 a public health emergency of worldwide concern in January 2020, and it has since spread throughout the world.^{3, 4,} and within a few months, the World Health Organization's Director-General declared COVID-19 a pandemic that had spread throughout the world⁵. Described by the United Nations Development Program (UNDP) as far more than a current global health catastrophe, the COVID-19 pandemic is the greatest challenge humanity has faced since World War II⁶.

Coronavirus is assumed to have originated from a zoonotic source⁷ and is structurally a single-stranded RNA with a length of 350 kilo base pair (kbp) and a length of 350 kilo base pair (kbp)^{8, 9}. Saliva, fingertips, nasal droplets, and less frequently, surface contact are all routes of transmission for the virus^{10, 11}, which is highly contagious. Coronavirus sickness has sparked widespread public health concerns due to its quick expansion, with the virus now controlling the entire international society⁷ as a result of its rapid proliferation. A large number of health care personnel have reported contracting the disease when working with those who have been afflicted. According to an Occupational Safety and Health Administration (OSHA) comment on worker exposure risk to COVID-19, dental practitioners are at extremely high risk of nosocomial infection and can become carriers of the illness as a result of their routine aerosol-generating practices¹². The same storey in the March 2020 issue of the New York Times, headed "The worker who confronts the biggest coronavirus danger," states that dental assistants are far more exposed to coronaviruses than nurses and general practitioners¹³. In order to lower the likelihood of COVID-19 infection and effectively minimise subsequent transmission, dentists should implement prophylactic measures and maintain a high level of expertise.

While fear is a normal and expected response to the present pandemic, acute anxiety can cause a state of panic, which can result in irrational behaviour, particularly in high-risk professions like as dentistry². Despite the fact that the Centers for Disease Control and Prevention (CDC), the American Dental Association (ADA), and the World Health Organization (WHO) have all published COVID-19 prevention guidelines¹⁵, the vast majority of dentists are still afraid and unable to treat patients in this situation because of their fear of the virus. According to certain reports, many dentists are not aware of these regulations².

As reported by Dental News Pakistan in May 2016, in impoverished nations such as Pakistan, it is still questionable if infection control measures are correctly followed in dental clinics and outpatient departments, as one of the most important influencing factors is finance or resources. Previous investigations, including one conducted at a Rawalpindi teaching hospital, have revealed a general lack of compliance with and awareness of the usage of personal protective equipment (PPEs) among dentistry students¹⁷. As in Karachi, Pakistan, just 20% of respondents were compliant, as opposed to

Kuwait (80%), New Zealand (85%), and Canada (85%), where compliance and awareness were significantly higher (84 percent). The absence of formal infection control training/knowledge, as well as a scarcity of available resources, is thought to contribute to non-compliance with cross infection control recommendations¹⁹, as a result of these factors. While such laxity cannot be tolerated during this current pandemic, it must be tolerated at all costs since it might have disastrous consequences, leaving a third-world country like Pakistan in significant economic and healthcare difficulties.

Because there is a paucity of data on a developing country such as Pakistan during the COVID-19 outbreak, the goal of this study is to determine dentists' awareness, fear, and compliance with work practise adjustment throughout the outbreak period.

METHODOLOGY:

Between June 16 and June 20, 2020, an internet survey questionnaire was used to conduct a cross-sectional study. The Institute's Research & Ethics Committee granted clearance for the project on ethical grounds. The questionnaire was created using Google Forms, and a trial survey was conducted to determine the questionnaire's initial trustworthiness. There was a substantial correlation between classes, as indicated by correlation coefficients of 0.71. It was decided to use social media and WhatsApp to locate all central sites of Pakistani practising dentists in order to increase awareness throughout the country's regions. A questionnaire was then distributed to the Pakistan Dental Forum (the largest social media presence for Pakistani dentists), the Facebook pages of renowned dental institutes around Pakistan, and WhatsApp groups representing the Pakistani Dental Community after being identified.

During the COVID-19 outbreak, a standardised questionnaire was developed to examine Pakistani dentists' fear of, and compliance with, the modifications in work procedures that were implemented (Additional file 1: COVID-19 Questionnaire). Thirty-two closed-ended questions were included in the survey, six of which sought demographic information on the dentists and eight of which inquired about their fear and anxiety levels during the COVID-19 pandemic. The fear and anxiety-related items in this questionnaire were derived from those found in a questionnaire used in a study conducted in thirty different countries by Ahmed et al. 2. The following questions tested dentists' knowledge of and adherence to the most recent CDC and ADA practise standards, as well as their ability to communicate effectively with patients.

Statistical Analysis:

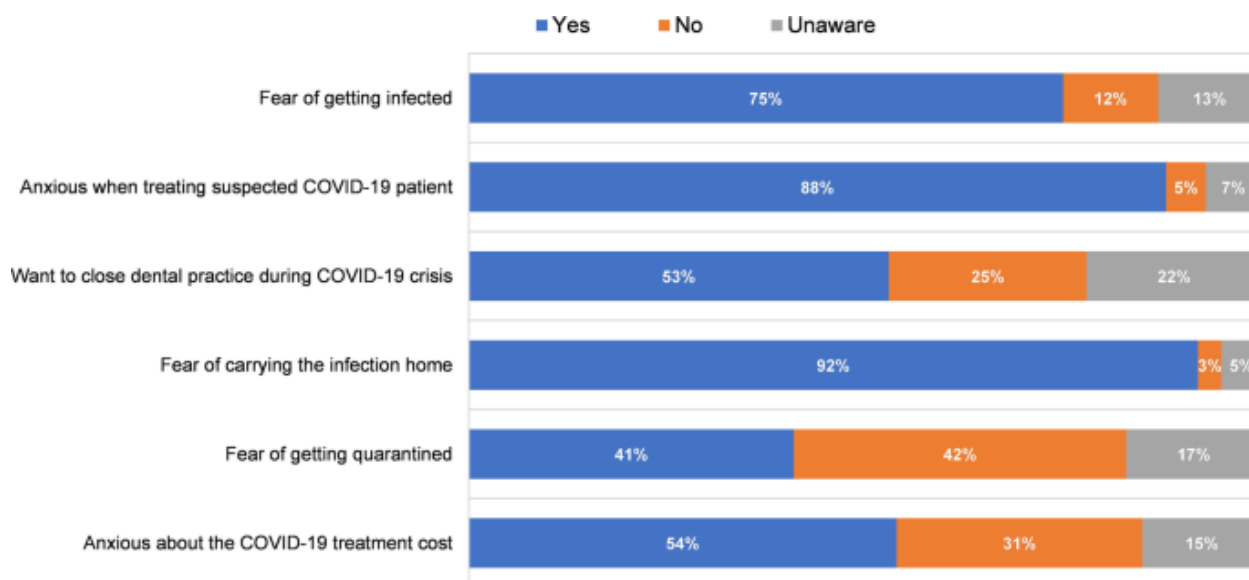
Analysis of the data was carried out using the Statistical Package for the Social Sciences (SPSS) version 20. (SPSS 20.0). For qualitative data, frequency distributions and percentages were determined. After that, we went over each response and calculated the percentages for each one individually. The Pearson correlation coefficient and the Kruskal–Wallis H test were used to examine the relationship between awareness level, designation/qualification, and work environment, respectively.

RESULTS:

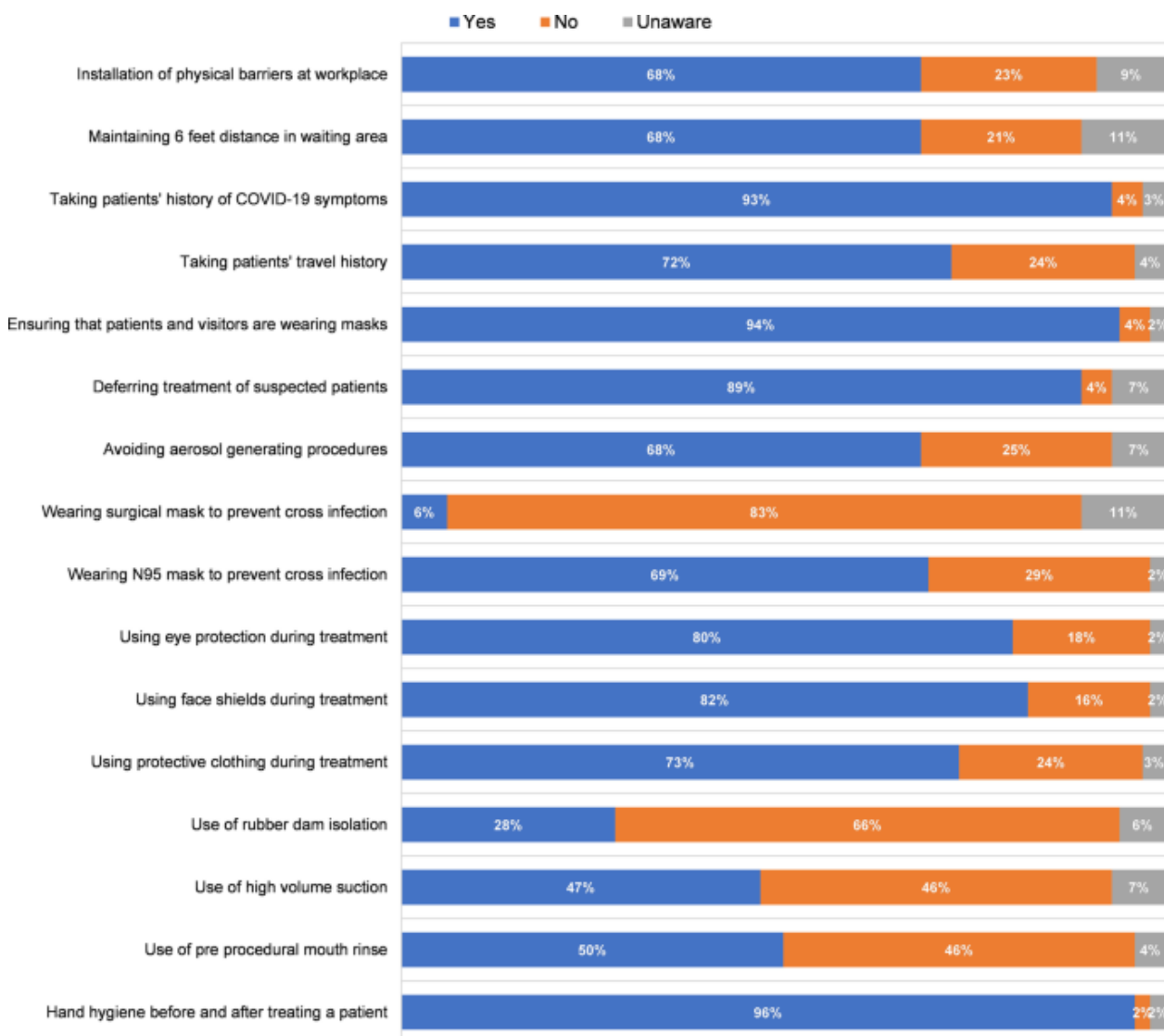
The demographic characteristics of the dental professionals are listed below:

Demographics	Numbers (%)
Gender	
Male	51(42.5)
Female	69 (57.5)
Age	
20–30 years	69(57.5)
31–40 years	30 (25)
41–50 years	13 (10.8)
50 years and above	8 (6.6)
Qualification/designation	
House officer	24 (20)
General practitioner	40 (33.3)
Postgraduate trainee	26 (21.6)
Consultant/specialist	30 (25)
Which practice do you work in?	
Government	37 (30.8)
Private hospital	43 (35.8)
Clinic	40 (33.3)

The anxiety and fear level of the dental professionals is evaluated and listed below:



The modifications in practices and knowledge awareness are analyzed in the dentists that are listed below:



DISCUSSION:

This is the first statewide study conducted in Pakistan on fear and anxiety levels, as well as dentists' knowledge and practise adjustments (as recommended by the Centers for Disease Control and Prevention, the World Health Organization, and the American Dental Association) during the current epidemic. According to a 2012 survey, just 8500 of Pakistan's 13,000 dentists were actively practising their profession. However, according to the results of the current study, only 120 dentists in Pakistan completed and submitted the survey questionnaire. Because the questionnaire was supposed to be completed by practising dentists exclusively, this low response shows that the vast majority of dentists were not in practise throughout the time period covered by COVID-19. This could be owing to the fact that the country is under lockdown, or it could be due to the fact that dentists are legitimately afraid to operate during that time period.

A natural psychological reaction to events such as the current pandemic, which is resulting in an increasing death toll², is fear and dread. In healthcare professionals, the fear of contracting a disease or bringing a virus home has been associated to the development of psychological stress in two studies^{20 and 21}. Recent research found that a significant proportion of dentists (75 percent) were

concerned about contracting an infection on the job, and an even greater proportion (92 percent) were concerned about transmitting the virus to their patients' homes. Based on findings from a Turkish investigation, 90 percent of dentists are afraid of contracting an infection, and 95 percent are anxious about spreading the virus to their families¹.

Patients' medical histories are critical, and this is especially true in light of the continuing pandemic, because a COVID-infected patient presenting severe symptoms may be the source of the infection for others. According to the findings of the current study, 93 percent of dentists in Pakistan sought information about their patients' COVID-19 symptoms, and 68 percent avoided performing aerosol-generating operations.

In the past, dentists have been more susceptible to contracting airborne infections, and as a result, they should exercise greater caution when treating patients during the current epidemic. Face covers and goggles should be worn throughout dental procedures to prevent splatter. Personal protective equipment (PPE) was well-known to the vast majority of dentists in Pakistan, who were conversant with the Centers for Disease Control and Prevention (CDC) standards for the use of PPE (eyewear 80 percent, face shield 82 percent and protective clothing 73 percent). Dentists in the United States wore N95 masks, compared to only 12.36 percent of dentists in Turkey¹. Considering Pakistan's status as a third world country that received extensive foreign assistance during this time period, this high percentage may be understandable.

In order to reduce droplet spatter and aerosol production, the Centers for Disease Control and Prevention (CDC) recommends the use of dental dams, particularly during the COVID-19 pandemic. When it came to aerosol-generating operations, only 28 percent of dentists in the current study used rubber dams, compared to 13.84 percent of Turkish dentists¹. This low percentage can be attributed to the fact that many dentists find it difficult and time-consuming to utilise rubber dams on each patient on a consistent basis. Identical responses (14 percent) to the usage of rubber dams were observed in a poll performed in 30 different nations².

However, even though the Centers for Disease Control and Prevention (CDC) notes that there is no published evidence to support the therapeutic benefit of pre-procedural mouth rinses (PPMRs), they recommend their use to reduce the amount of oral bacteria in aerosols generated during dental procedures. Based on the findings of Ahmed et al., only 24 percent of dentists worldwide used pre-procedural mouth rinse², while in our study, 50 percent of Pakistani dentists used mouth rinse before to treatment.

The current study gathered information from a range of locations around Pakistan. In addition, geographical differences in practise modification awareness were discovered in the study. According to the findings, there was a weakness in the application of the Centers for Disease Control and Prevention standards. Due to the remoteness and lack of security in the region, healthcare personnel may be deprived of crucial information and equipment, which could account for this situation.

We found a positive link between awareness level and doctor's qualification/designation as well as work setting, showing that awareness level increases with doctor's qualification/designation. Similar to this, physicians working in private hospitals reported a greater overall degree of awareness than physicians working in public hospitals. In particular, private hospitals have historically worked to

maintain their outstanding reputations by adopting and adhering to cross infection rules and tight oversight, in part because they are well compensated for winning patients' trust and contentment.

In our study, one drawback was the small number of dentists who were actively practising throughout the pandemic, which led in a low response rate, which may have limited the generalizability of the findings²². Another stumbling block was our inability to get equitable participation from all of Pakistan's regional governments and organisations. Because of the scarcity of data in the region, it is important to proceed with caution when interpreting the findings.

CONCLUSION:

This study provides crucial information for the development of strategies for overcoming fear and increasing knowledge of the importance of adhering to current infection control recommendations among Pakistani dentists, particularly in areas where compliance is low, according to the authors. As a result, disease containment will be aided and, in the long run, the burden of healthcare in a third world country such as Pakistan will be lessened.

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