

# Resumption of dental practice after COVID-19 lockdown: perspectives of dental professionals in Karachi, Pakistan

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## ABSTRACT

**Introduction:** In the COVID-19 pandemic, the implementation of the lockdown led to the closure of dental practices. Restricting treatment to emergency patients, having to use Personal Protective Equipment and the fear of contracting the virus led to modifications in the techniques and methods used to provide efficient dental care to the patients. However, it caused a significant psychological and financial impact on the dental community. The purpose of this research was to evaluate dentists' perceptions regarding the psychological, financial, and general impact of the COVID-19 pandemic on the reopening of their dental practices.

**Methods:** This cross-sectional analytical study was conducted using a validated questionnaire, which was distributed among 257 dental practitioners working in Karachi through the social media app (WhatsApp®) from May 2021 to May 2022. The questionnaire included four sections and 26 items, recording data for demographics, psychological effects on resumption of dental practices, workplace disinfection, and precautionary measures along financial impacts. Data were analyzed using SPSS, version 21.0. p-value  $\leq 0.05$  was taken as statistically significant.

**Results:** A total of 200 filled questionnaires were received, making the response rate 77%. The majority of respondents were females (67%). More than half of the respondents (55.5%) were working in dental OPDs. Most participants affirmed that they did not have a COVID-19 screening area nor patient triage was being done in dental OPDs. Closure of dental practices caused financial problems for all dental practitioners, more specifically for those that were associated with both public and private types of practices (84.9%). The majority of the dentists in private practice (94.4%) declared that their workplaces were being disinfected, while 47.7% of dental practitioners working in the dental OPD affirmed that they had enough financial stability to keep using Personal Protective Equipment. Approximately 64.9% of professionals practicing in dental OPDs and 33.3% in private practice believed that the reopening of dental practices was responsible for the re-spread of the coronavirus

**Conclusion:** Significant anxiety and stress related to COVID-19 were seen among dental practitioners. Some CDC-recommended guidelines such as the use of Personal Protective Equipment were being implemented whereas COVID-19 screening and patient triage were found deficient.

**Keywords:** COVID-19, Dental Practitioners, Impact, Psychological Stress

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## Introduction

In 2019, the world was hit by a fatal pandemic known as COVID-19 caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-

Cov-2). The first case originated in Wuhan province of China on December 31<sup>st</sup> 2019,<sup>1</sup> but soon took over the world and was announced as

a global health issue on 31st January 2021.<sup>2</sup> According to WHO consensus globally, as of 12<sup>th</sup> May 2022, there had been 516,922,683 confirmed cases of COVID-19 including 6,259,945 deaths, whereas in Pakistan alone there had been 1,528,833 confirmed cases with 30,375 deaths.<sup>3</sup> To control the spread of the virus and protect individuals, a worldwide lockdown was imposed, which was enforced in Pakistan on 23rd March 2020. The lockdown affected all aspects of life, and dentistry was no exception.

One of the most important considerations in dentistry is the prevention of infection by controlling cross-contamination. According to several reports, Coronavirus spreads through respiratory droplets e.g. during sneezing, while talking or even coughing, having physical contact with the person affected by a coronavirus, or by touching a contaminated surface. It stays on inanimate surfaces like metal, glass, or plastic for approximately 9 days if the surface is not disinfected.<sup>4,5</sup> Dentists work close to patients and are therefore exposed to aerosols and droplets.<sup>6</sup> In April 2020, the American Dental Association (ADA) and the Center for Disease Control and Prevention (CDC) advocated dentists limit dental procedures to emergency and urgent care only.<sup>7</sup> As a result, numerous public and private dental practices had to be closed down since they became financially unviable. However, with the gradual decrease in cases, it was decided to ease the lockdown restrictions, and finally, the government terminated the lockdown in September 2020.

On 24th November 2021, a new variant of COVID-19, B.1.1.529 was reported to the World Health Organization (WHO) which was named Omicron on 26th November 2021 and classified as a Variant of Concern (VOC).<sup>8</sup> On 9th May 2022, the National Institute of Health (NIH) in Pakistan reported its first case of Omicron subvariant BA.2.12.1. Omicron is much more contagious and spreads faster than any other variant and according to the Center for Disease Control and Prevention (CDC), anyone infected with this variant can spread the virus to another regardless of the vaccination status.<sup>9</sup> American Dental

Association (ADA) put forth specific measures to limit the spread of COVID-19. These included inquiring about patients' recent travel history; identifying symptoms of respiratory tract infection (RTI), recording patients' body temperature, and regularly decontaminating and disinfecting contact surfaces such as door handles, furniture and washrooms. In addition, rinsing patients' oral cavities with 1% hydrogen peroxide before proceeding with dental treatment, usage of a rubber dam and high-volume suction in procedures were also the recommended course of action.<sup>10</sup> Unfortunately, many dental practitioners in Pakistan were not aware of such guidelines to prevent cross-infection and hence were insecure and hesitant while treating their patients in the prevailing circumstances with the fear of getting infected themselves.<sup>11</sup> In addition, since the outbreak of this pandemic, an increase in demand for protective measures by dental healthcare workers was noticed but due to the lack of availability of appropriate Personal Protective Equipment (PPE), there was a rapid increase in their anxiety level. The fear of getting infected by this particular virus and its further transmission to loved ones and the community had spread panic among all healthcare providers, including dentists. Because of the disruption in the provision of routine dental procedures due to the lockdown, a devastating impact on the dental industry was observed, and due to the uncertainty of the emergence of new variants, it was hard to estimate the degree and longevity of this disruption. This has also translated to economic and social struggles for the global dental community.

This study aimed to evaluate the dentists' perceptions regarding the psychological, financial and general impact of the COVID-19 pandemic on the reopening of their dental practices. Based on the results of this study, recommendations can be made towards safer practices and coping mechanisms so dentists can continue their professional commitments and clinical procedures and develop a working environment that will not put a burden on the

practitioner's psychological and financial well-being while prioritizing patient care.

## Methods

This cross-sectional analytical study was conducted at Sindh Institute of Oral Health Sciences, Jinnah Sindh Medical University, Karachi from May 2021 to May 2022. Data was collected using a questionnaire with items assessing the issues faced by dentists on reopening or resumption of their clinical practices after the cessation of pandemic-related lockdown in the city of Karachi, Pakistan. All practicing dentists working in either the public or private sector who consented to be a part of this study were included. The total population of dental practitioners in Karachi is estimated to be 5000. As there was no specific outcome target, the sample size was calculated based on the assumption that the expected maximum frequency of the outcome factor is 50%. Using version 3.01 of Open Epi software for epidemiologic statistics, the required sample size for a 90% confidence level was 257 dental practitioners.

The fundamental draft of the questionnaire was formulated for the present study based on feedback from three dental specialists regarding the issues they were facing in the reopening of their dental practices. In addition, a pertinent literature search was made to identify items that could be modified and used in the local context. This process ensured that relevant items were developed for the questionnaire. The initial draft was piloted on eight dental health care providers, to determine the ease of understanding the questionnaire items, and any ambiguity in this regard was addressed, to finalize the survey form.

The final questionnaire included four sections and 26 items. The first section recorded the primary demographic data of the participants. The second section consisted of items inquiring about the psychological effects faced by dental practitioners on reopening or resumption,

workplace disinfection, precautionary measures along financial impacts.

After approval was obtained from the Institute's Ethical Review Board (Ref. No: JSMU/IRB/2021/423), the data was collected electronically by distributing the questionnaire via WhatsApp®. The link to the questionnaire along with the consent form was distributed among dental specialists through the social media platform (WhatsApp®) for the sake of convenience and to ensure that physical contact with the study participants was minimized. The instructions to fill out the form were mentioned along with the link. The potential respondents were reminded at one week's intervals to submit the form to maximize the number of responses collected. Confidentiality of the data was ensured and only the primary investigators had access to any identifiers.

Statistical Package for Social Sciences (SPSS) (SPSS Inc., Chicago, IL, USA) version 21.0 was used to analyze data. Mean and standard deviations of continuous variables were recorded. For categorical variables, frequencies and percentages were calculated. Stratification of data was done based on gender and practice. The chi-square test was used to assess the differences between the types of practices concerning the impact of reopening dental practices and a p-value  $\leq 0.05$  was taken as a statistically significant.

## Results

A total of 200 dentists out of 257 participated in the study, making the response rate 77%. The demographic details of the study participants are given in Table 1. Table 2 compares the responses of dentists working in different setups (public vs private) to the questions related to the modification of their practices.

Table 3 shows the responses of the participants on a 3-point Likert scale, related to various aspects of their clinical practices after re-opening. Data was summarized in mean and standard deviation.

**Table 1:** Demographic details of the study participants.

Variable		n (%)
Gender	Male	66 (33%)
	Female	134 (67%)
Type of Practice	Dental OPD	111(55.5%)
	Private setup	36(18%)
	Both Practices	53 (26.5%)

**Table 2:** Comparison of responses based on type of practice of study participants

1) Dental practice has a COVID-19 screening area for patients				
	Both Practices	Dental OPD	Private Practice	<b>p-value</b>
Yes	21(10.5%)	34(17%)	24(12%)	0.001
No	32(16%)	77(38.5%)	12(6%)	
2) Patient triage being done in dental practice currently				
	Both Practices	Dental OPD	Private Practice	<b>p-value</b>
Yes	28(14%)	46(23%)	23(11.5%)	0.049
No	25(12.5%)	65(32.5%)	13(6.5%)	
3) Performing elective dental procedures				
	Both Practices	Dental OPD	Private Practice	<b>p-value</b>
Yes	40(20%)	81(40.5%)	23(11.5%)	0.462
No	13(6.5%)	30(15%)	13(6.5%)	
4) Aware of the CDC guidelines recommended to prevent the spread of corona virus				
	Both practices	Dental OPD	Private Practice	<b>p-value</b>
Yes	45(22.5%)	90(45%)	21(10.5%)	0.714
No	8(4%)	31(15.5%)	5(2.5%)	
5) Undertaken any training for the proper precautionary measures to prevent the spread of corona virus				
	Both practices	Dental ODP	Private Practice	<b>p-value</b>
Yes	22(11%)	39(19.55)	20(10%)	0.094
No	31(15.5%)	72(36%)	16(8%)	
6) Closing of dental practices during lockdown caused any financial problems				
	Both practices	Dental OPD	Private practice	<b>p-value</b>
Yes	45(22.5%)	71(35.5%)	30(15%)	0.006
No	8(4%)	40(20%)	6(3%)	

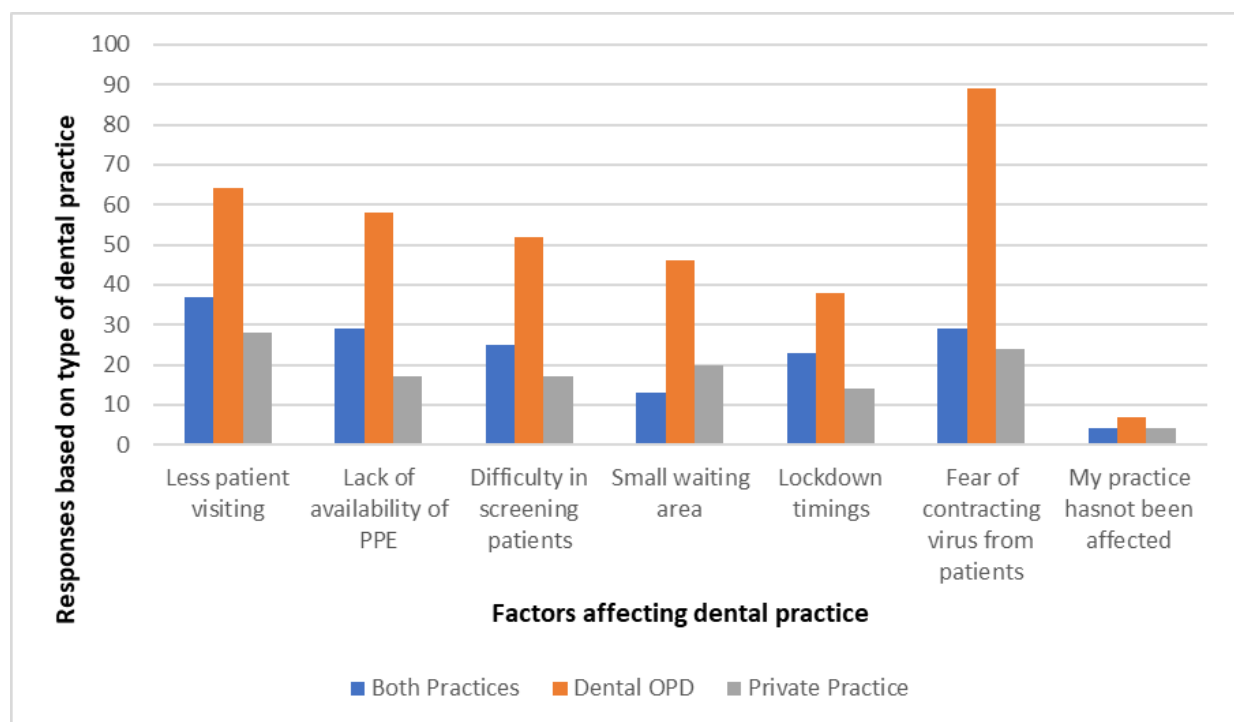
**Table 3:** Comparison of responses on 3-point Likert scale based on type of dental practice

1) Feel anxious about contracting COVID-19 from practice				
	Both practices	Dental OPD	Private practice	p-value
Yes	41(20.5%)	101(50.5%)	31(15.5%)	0.158
Unsure	3(1.5%)	1(0.5%)	1(0.5%)	
No	9(4.5%)	9(4.5%)	4(2%)	
2) Feel anxious that you might transmit COVID19 to your family members because of practice				
	Both practices	Dental OPD	Private practice	p-value
Yes	49(24.5%)	103(51.5%)	35(17.5%)	0.468
Unsure	0(0%)	3(1.5%)	0(0%)	
No	4(2%)	5(2.5%)	1(0.5%)	
3) Comfortable with the use of tele dentistry for dealing with patients				
	Both practices	Dental OPD	Private practice	p-value
Yes	30(15%)	62(31%)	22(11%)	0.635
Unsure	10(5%)	30(15%)	7(3.5%)	
No	14(7%)	20(10%)	5(2.5%)	
4) Arranging the seats in waiting area 6 feet apart will help prevent the spread of virus				
	Both practices	Dental OPD	Private practice	p-value
Yes	38(19%)	87(43.5%)	29(14.5%)	0.074
Unsure	8(4%)	5(2.5%)	5(2.5%)	
No	7(3.5%)	19(9.5%)	2(1%)	
5) Work place being disinfected				
	Both practices	Dental OPD	Private practice	p-value
Yes	37(18.5%)	7 (37.5%)	34(17%)	0.016
Unsure	4(2%)	14(7%)	2(1%)	
No	12(6%)	22(11%)	0(0%)	
6) Dental practice been affected by the current pandemic				
	Both practices	Dental OPD	Private practice	p-value
Yes	4 (20.5%)	93(46.5%)	33 (16.5%)	0.260
Unsure	2(1%)	7(3.5%)	1(0.5%)	
No	10(5%)	11(5.5%)	2(1%)	

When asked about the presence of the COVID-19 screening area, the majority of the practitioners (69.4%) working in the dental OPD affirmed that they did not have any such provision. Similarly, more than half of respondents (58.6%) practicing in the dental OPD and 47.2% of the respondents working in both OPDs and private practices declared that patient triage was not being done in their dental practices. In contrast, about two-thirds of respondents (63.9%) indicated that triage of the patients was being conducted. Closure of dental practices had caused financial problems for all dental practitioners, particularly for those who were associated with both types of practices (84.9%). The majority of the dentists

(94.4%) in private practice declared that their workplaces were being disinfected, while 47.7% of dental practitioners working in the dental OPD affirmed that they had enough financial stability to keep using PPE. Approximately 64.9% of dental professionals practicing in dental OPD and 33.3% in private practice believed that the reopening of dental practices was responsible for the spread of the coronavirus.

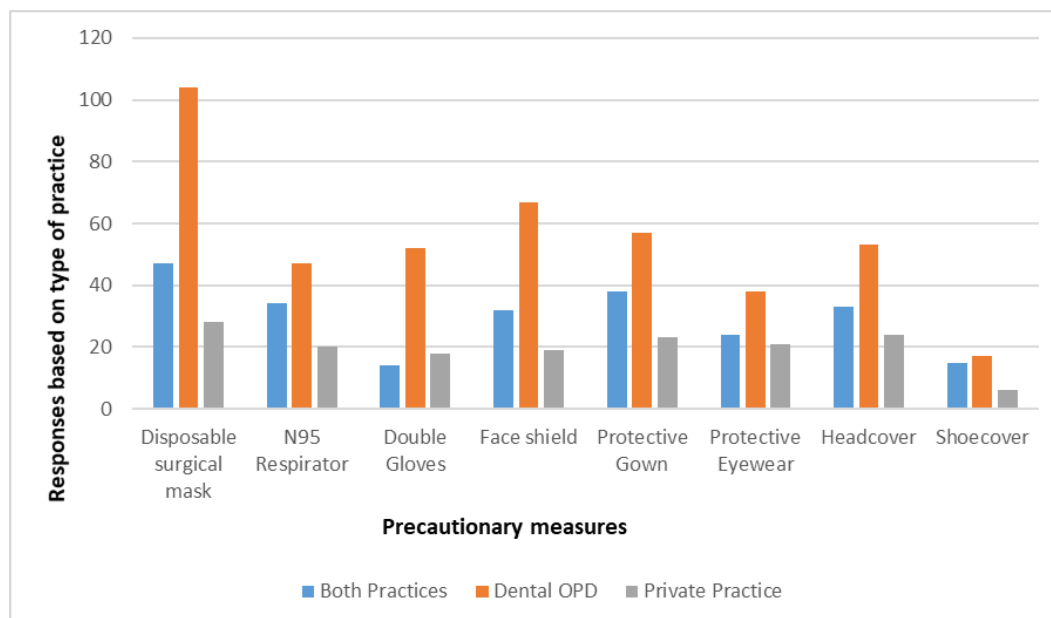
The majority of the participants, irrespective of the type of their practice, felt that the fear of contracting the virus from patients followed by a lower number of patients visiting their dental setups were the main factors affecting their practices (Figure 1).



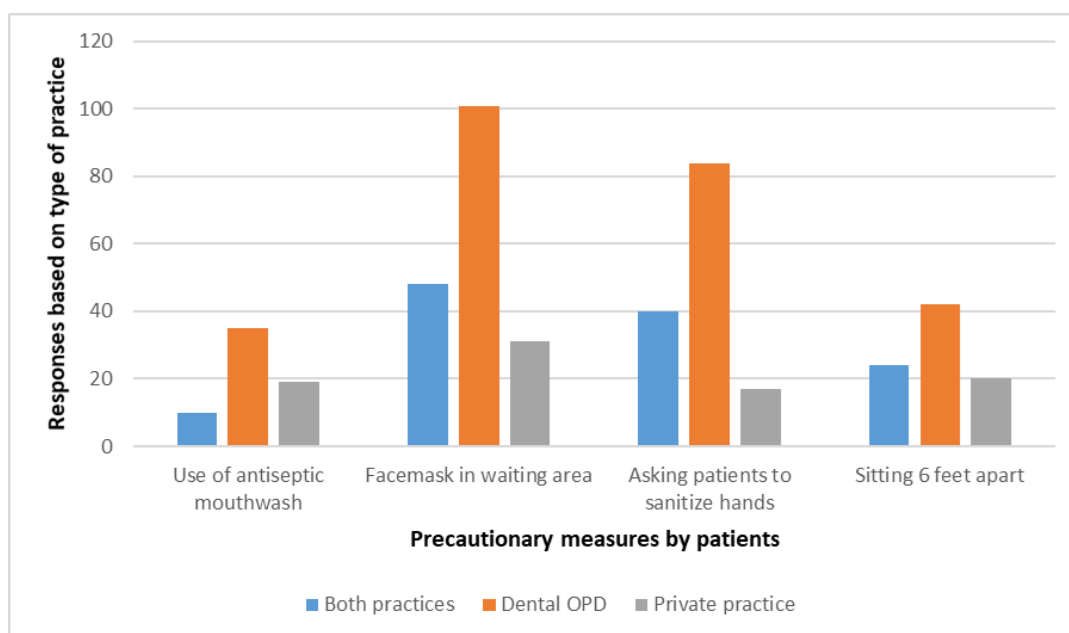
**Figure 1:** Factors perceived as affecting the practice of respondents due to the pandemic

Figure 2, shows the responses related to precautionary measures being taken by the respondents. The majority of the participants working in all setups reported utilizing disposable surgical facemasks and face shields the most as a precautionary measure against COVID-19 infection.

In Figure 3, the type of precautionary measures respondents were asking patients to take are shown. Participants in all types of practices reported asking patients to wear a facemask in the waiting areas and to sanitize their hands as the most significant precautionary measure.



**Figure 2:** Responses related to precautionary measures being taken in different types of dental practices by respondents



**Figure 3:** Responses related to the type of precautionary measures respondents were asking patients to take

### Discussion

This study was conducted to determine the psychological and financial apprehensions that dental healthcare workers faced when clinical practices had to be shut down in the face of COVID-19-related lockdown and the modifications they had to make to resume their dental practices once lockdown restrictions were eased. The results of this study add to the evidence that the daily increase in the cases of COVID-19 has significantly impacted the

working practices of the dental community. The majority of the participants of this study were female, and the reason for this could be the increasing global trend of females opting for professional careers, including dental surgery, compared to males<sup>12</sup>, as well as the greater number of registered dentists in Pakistan being females.<sup>13</sup> Irrespective of whether their dental practice involved the public or private sector, most of the participants felt anxious about the

possibility of contracting the virus from their practices and transmitting it to their families. This was similar to a study conducted by Kamran et al. who concluded that the majority of dentists (75%) were afraid of getting infected in the workplace and even a greater number (92%) were afraid they might transmit the infection to their families and acquaintances.<sup>14</sup> Most participants advocated that they will be more comfortable using other means such as teledentistry to deal with patients not in need of emergency services thus avoiding unnecessary in-person visits. Another research by Mahendran et al. about the psychological impacts of COVID-19 on staff in a dental teaching hospital showed that about 16.7% of participants had severe generalized anxiety while 53.3% had some anxiety symptoms about the COVID-19 pandemic. The majority of the participants in that study were concerned with the impact of COVID-19 on their loved ones, their health as well and the inherently infective nature of the disease. About 33% of participants did not have access to appropriate Personal protective equipment (PPE).<sup>15</sup> In addition to the fear of illness, a lesser number of patients visiting dental facilities during the lockdown also severely affected the practice of dental health professionals financially. Since dental treatment in developing countries is already considered non-essential, in the wake of the pandemic and lockdown where the government instructed restricted and 'only-essential' movement of the population, dental treatment has taken a further hit. Those patients who would otherwise consider visiting dental practices for their treatment needs showed further reluctance. A study conducted in Poland found that about 71.2% of the participating dentists entirely suspended their dental practice. The main reasons for this were the lack of adequate training of dental practitioners to implement the pandemic protocols, the availability of personal protective equipment, subjective perception of the risk of COVID-19 infection, and generalized anxiety about the ongoing pandemic.<sup>16</sup> However participants in the current study were aware of

the CDC guidelines to prevent the spread of the virus but had not received any training for implementation of the precautionary measures.

The participants reported not having access to appropriate and sufficient PPE as a protective measure against possible infection, making them hesitant to provide dental treatment to patients whose exact status of disease would be unknown and despite this, they were still performing elective dental procedures. Since the additional use of specific PPE equipment like gowns, N95 masks and face shields which were not previously used in every patient is now considered essential, the added cost incurred resulted in a financial burden for the dental health professionals participating in the study making it difficult for them to sustain their practices. The lockdown and cessation of dental practices have affected the dental practices of most of the respondents of our study, causing financial problems for them irrespective of the sector in which they practice. However, the majority of dental health professionals affirmed that they would continue their dental practices despite the additional costs involved. This shows a commitment by the participants to take the necessary precautionary measures to decrease the spread of infection through their practices. The initial closure of routine dental care in the UK resulted in profound stress and anxiety about financial stability among dentists. The cost of personal protective equipment as well as fewer patients visiting the clinics were quite concerning. The British Dental Association surveyed its members and found that only 8% of practices were confident in maintaining their financial sustainability.<sup>17</sup>

Most of the participants reported neither having a COVID-19 screening area nor patient triage being followed in their practices. This was particularly seen with dental health care professionals working in private setups. In the face of the pandemic, the provision of a dedicated area in clinical practices where incoming patients can be screened for possible symptoms of COVID-19 is recommended to



curtail the spread of infection. This may present difficulty in dental setups that are already operating in limited spaces but may be easier to apply in dental OPDs. However, all participants reported that their workplaces were being disinfected. In addition, the most frequent measure dentists were instructing their patients to undertake was to don facemasks in the waiting area. This is an effective step in reducing cross-infection in a closed area where multiple individuals may be seated. Moreover, the frequent use of hand sanitizer was also recommended by dental practitioners in all clinical setups. Only a few practitioners asked patients to use antiseptic mouthwash before the dental procedure, even though this has been shown to reduce cross-contamination.<sup>11</sup> Social distancing has been recommended as a necessary measure in the prevention of COVID-19 infection. The majority of the practitioners, particularly those working in Dental OPDs, suggested that arranging seats in the waiting area six feet apart could help prevent the spread of the virus.

Most participants also felt reopening dental practices could result in the rapid spread of the coronavirus, even though continued closure would result in significant financial problems for dental professionals. Therefore, constant monitoring needs to be ensured so that even with the gradual reopening of dental practices, the spread of infection is curtailed by continuously following the recommended protocols issued by regulatory authorities.

Even though the lockdown caused significant difficulty for the dental community, it was undeniably an important measure to prevent the ongoing rise in coronavirus cases. Study author Bhatt, from the faculty of medicine at Imperial College London, said, "Lockdown has had a really dramatic effect on reducing the rate of transmission, and without it, there would have been many more deaths from COVID-19".<sup>18</sup>

Although people have adapted to the new normal, with the occurrence of new variants, cases continue to rise at an alarming rate. Therefore, following the COVID-19 Ordinance,

all dental practices and facilities should have a protection concept that is appropriate to the situation and operation.<sup>19</sup> It is imperative to come up with strategies that would not only help contain the virus but also decrease the psychological burden on dental practitioners. Development and adherence to the set of guidelines and protocols proposed by national and international health organizations comprise mandatory vaccinations,<sup>20,21</sup> carrying out dental procedures in an airborne infection isolation room, high level of infection control measures such as transmission-based precautions as well as the implementation of teledentistry to minimize the direct contact with patients.<sup>22-26</sup> Adherence to a work plan for proper channeling of patients, easy access to specialized services dealing with handling psychological stress and ensuring mental wellness, monetary support, beneficial funds, child care and housing support are a few of the measures that can help ease the financial and psychological burden of health care workers including dental practitioners.<sup>27</sup>

It is recommended that at an individual level, maintaining a healthy lifestyle, meditation, listening to podcasts, reading books, keeping a journal, physical exercise, staying connected to friends and family, getting adequate sleep, a healthy diet, staying hydrated and seeking help when needed can be beneficial.<sup>28, 29</sup>

One of the limitations of this research is that only dental professionals practicing in Karachi were included in this study, therefore the results of the study cannot be generalized to the dental practitioners of the rest of the country. Also, the data collected was based on quantitative responses, and possible reasons behind the responses of the participants were not sought. Therefore, further research probing the influencing factors through qualitative study designs could be planned.

## Conclusions

This study shows that the COVID-19 pandemic and the ensuing lockdown resulted in significant anxiety and stress among dental health professionals, both because of the fear of

contracting COVID-19 as well the financial implications arising from the closure and limited patients in their practices. Even though the majority of the dentists reported using the appropriate PPE including gloves, masks and additionally coveralls and face shields in clinical practice following COVID-19, some recommended measures including the provision of triage and pre-treatment screening were not being practiced. COVID-19 is a reality with

which dental health practitioners need to co-exist and realize the financial cost caused by the decrease in the number of patients requiring only essential treatment as well as the added cost of supplemental PPE. However, they seem determined to take all essential measures to continue to provide dental health services to their patients and their community even in the face of the pandemic.

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