

Evolution of Dentistry with COVID-19 – A Pilot Study

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Abstract

Objective: The objective was to determine the effect of clinical practices with emergence of COVID-19 and its impact on socio economic status.

Study type, settings & duration: This cross-sectional pilot study was conducted among dental surgeons practicing in public and private sectors of Karachi including clinical and academic institutions for a period of one month in August 2020.

Methodology: Dental surgeons practicing in the public and private sector completed the detailed questionnaire, which was shared online, regarding SOPs followed in a dental clinic before and during COVID-19.

Results: The online questionnaire was filled by only thirty-three dental surgeons, mostly females aged between 20-30 years and having 1-5 years of experience. Only 51.5% of dentists were providing emergency treatment to patients with severe pain and infection. Of the total, 81.8% participants agreed that the spread of this virus has affected many lives as well as the way of operating routine practices. It was deduced from the results of the study that about 42.4% of dentists think it's difficult to educate people and make them understand the importance of being responsible.

Conclusion: We can conclude that COVID-19 has affected the patient's flow and management and patient education has become more important now than ever before.

Key words: COVID-19, corona, dentistry.

Introduction

The outbreak of coronavirus evolved rapidly into a public health crisis and an economic crisis as well.¹ The American Dental Association stated in the guidelines for the dental practitioners to postpone elective surgeries. Due to restrictive functionality orders issued by governing bodies and complete lockdown nationwide, there was a decrease in dental consultations. Several regions worldwide were debating over discontinuation of public and private dental practices.² There was also a reduction in elective treatment that negatively impacted the

dental health industry.¹ Eventually inability to screen patients before proceeding to treatment led to closure of most of the dental practices round the globe.³ Currently, the pandemic has shifted the insight from utilizing all dental services to just the emergency care services. However, all pain management treatments are included in urgent dental care and were allowed to proceed as well as management of uncontrolled oral bleeding, facial trauma, dental trauma, tooth fractures and surgical procedures like biopsies of abnormal tissues were treated as a dental emergency.⁴ It resulted in affecting the employment among dentists, operating and non-operating dental staff. Besides, the dental material-producing and supplying industry has also suffered loss of work. The health care worker being in close proximity to the patient is at a high risk of disease transmission.⁵ It should be noted that a proper ventilation system can play a potential role in avoiding such a situation.⁶

In order to maintain the standard of oral health care, the additional cost of the PPE and other equipment had led to an increase in the expenditure with less return. The regulating bodies of third-world countries and their government fully understood the relentlessness of the situation and offered full

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SS conceptualized the project along with drafting, revision & writing of manuscript. SS & SH did the data collection. HF, RA & IM performed the literature search. SH also did the statistical analysis.

support to dental practices and emerging businesses. The Canadian government has set up an economic plan in March 2020 to support small businesses. Dentists can also apply and benefit from this support. In this way, they can save their practices from immediate closure due to financial stress. The Government of the UK has also formulated a plan to support the business owners by giving loans or credits. Similarly, other high-income countries announced different plans and schemes to ensure minimal loss of business owners. Additional support was also provided to the health care sector.¹ However, similar measures can be taken by the governments of low-income countries in order to support the dental economy.²

Hence, the purpose of this pilot study was to provide a brief overview of the recommendations for routine dental practice and to determine the changes in dental practices before and during COVID-19. Its effects on the economic situation and to analyses that how the dentists have learned to adapt with the change.

Methodology

This pilot study was conducted among the dental surgeons practicing in public and private sectors of Karachi including clinical and academic institutions for a period of one month in August 2020. Data was collected through online questionnaire, designed on Google form, devised by author to assess the knowledge, attitude and practices using 39 items. Reliability of the questionnaire was checked by applying cronbach's alpha, which showed 0.7 alpha value. The questionnaire was divided into two parts. The first part focused on general routine practice, whereas, the second part emphasized individually on WHO guidelines, to be followed in COVID-19 period. To avoid the doubling of data, it was made sure that one response per email address was collected and it was checked individually before final assessing. As only 33 participants participated, the study is considered as a pilot study. The dental students, house officers, post graduates and dental surgeons having one or more than one year of experience were included in the study whereas all medical students, medical house officers, medical post graduates and all paramedical staff were excluded. Data analysis was done using Microsoft Excel 2013 under descriptive analysis using frequency and percentile statistics. Results were calculated in a tabular and bar chart form.

The Ethical approval was obtained from ethical committee of Sir Syed College of Medical Sciences (Dental Department), Karachi.

Results

This was a pilot study on 33 dental graduates and mostly were from private and public sectors of Sindh province which contributed 54.5% of the total samples. The study included males (42.4%) and females (57.6%) aged between 20-30 years (57.6%) with 1-5 years of experience in their field of practice (Table-1).

As soon as the lockdown was imposed as a safety measure to avoid the spread of virus throughout the world. Dental clinics were obligated to delay or re-scheduling elective treatment procedures. Walk-in patients were no longer entertained and only 51.5% of dentists were providing emergency treatment to the patients with extreme pain and severe infection.

Major SOPs for COVID advised by the WHO were followed by the majority of the participants. These SOPs included wearing a mask, 3-6 feet. social distancing, washing hands thoroughly and avoiding shaking hands. The use of disposable instruments, PPE, double mask, and face shield was more frequent as compared to the situation before COVID. However, rubber dam usage and disinfecting the surfaces and room were common in both the conditions. These SOPs were now more strictly followed by the study participants when compared to SOPs followed before COVID-19 (Table-1).

Out of 33, only 27 participants (81.8%) agreed that the spread of COVID affected the lives of many people. Furthermore, the impact of this virus had not only affected clinical practice as 75.8% participants preferred to consult on phone and video consulting but the economy, finances and the way of operating routine practices were affected. Although the private clinical practice was not running on a routine basis, about 54.5% dental practitioners continued providing emergency treatment. The concept of e-consultation and e-clinic evolved with so many difficulties, challenges and uncertainty, 21 dentists are still planning to commence their work in the field of dentistry by altering ways of practice. While the minor percentage of dentists has decided to move towards their other field of interest other than dentistry like administration and teaching field. It was deduced from the results of the study that about 42.4% dentists think it's difficult to educate people and make them understand the importance of being responsible and adopting precautionary measures (Table-2).

Table 1: Frequencies distribution of participants.

Variables	Classification	%
Frequencies distribution of Participants Qualification	Dental Student	9.1
	House Officer	6.1
	Dental Surgeon	48.5
	Post Graduate Trainee/Resident	18.2
	Consultant	18.2
Age	20-30 years	57.6
	30-40 years	39.4
	40-50 years	3.0
Working as	Practicing Dentist	54.5
	Academician	12.1
	Both	33.3
Year of experience	1-5 years	60.6
	6-10 years	24.2
	11-15 years	12.1
	16-20 years	3.0
Gender	Male	42.4
	Female	57.6
Doctors treating their patients in Lockdown	Open and had normal patient influx	9.1
	Open but had lower patient volume	21.2
	Close but had seen emergency patients	51.5
	Closed and did not see any patient	18.2
Reopening of private clinic after lockdown	April	18.2
	May	18.2
	June	42.4
	I did not stop practicing at any point	21.2
	Less than 50%	63.6
Patients flow after lockdown	More than 50%	36.4
Distribution of SOPs followed before and During COVID	Before COVID	
	Always	66.7
	Sometimes	33.3
During COVID	Always	87.9
	Sometimes	6.1
	Not at all	6.1

Discussion

This pilot study applies a descriptive analysis of dental practice during the lockdown in the mid of 2020. We observed a significant reduction in clinical and surgical activities at the beginning and during the COVID pandemic which severely affected the dental economy.⁷ According to our study, 78.8% of the population reported increased costing of equipment demonstrating that the dental as well as general economy of Pakistan was affected by the COVID pandemic. Similar outcomes were identified through a study by Salik et al.⁸ It then leads to unforeseen consequences like temporarily holding off the practice or even changing the work field. Of the respondents, 81% agreed that COVID-19 had an impact on their clinical practice. It has mainly affected the running cost of the clinics.⁹ About 78.1% of practitioners experienced skyrocketing overhead costs for buying necessary equipment and cleaning and sanitizing agents which is similar to study conducted by Risko et al in October 2020.¹⁰ According to the results of our study, 69.7% of respondents agreed that

patients were not willing to pay extra for the extra precautionary measures being used to improve quality of treatment in clinics.⁹ The low turnover rate of patients and reduction in utilization of dental services affected the employment among dental staff, and dental material-producing and supplier industry.² However, in this study, 54.4% of respondents were able to pay staff on time. Another study estimated the size of the COVID-19-related unemployment shock to be between 2 and 5 times larger than the typical unemployment shock.¹¹

In order to maintain the highest quality of infection control by limiting the number of patients, 51.5% of dentists were providing emergency treatment to patients with dental emergencies and walk-in patients were no longer entertained. This step was crucial to maintain the highest levels of infection control in the dental office as prescribed by WHO guidelines.¹² Most dentists reopened their clinics and resumed their clinical procedures in June 2020 but this virus has affected more than 50% of patient's flow, similar results were found in study done in china.¹³

Table 2: Frequency distribution of clinical impact of COVID on dental practice.

Variables	Responses	N (%)
Do you think COVID-19 will have an impact on your clinical practice?	Yes	27 (81.8)
	No	3 (9.1)
	May be	3 (9.1)
Will you prefer Emergency treatment for COVID-19 patients?	Yes	18 (54.5)
	No	5 (15.2)
	May be	10 (30.3)
Do you think COVID had an impact on the operating cost of your clinic?	Yes	26 (78.8)
	No	2 (6.1)
	May be	5 (15.2)
Do you think that the cost of setting up a new dental clinic will be much higher than it was before?	Yes	27 (81.8)
	No	2 (6.1)
	May be	4 (12.1)
Have you experienced skyrocketing overhead costs for buying necessary equipment and cleaning and sanitizing agents?	Yes	26 (78.8)
	No	1 (3.0)
	May be	6 (18.2)
Has it affected your turnover and are you able to save and pay your staff on time?	Yes	18 (54.4)
	No	5 (15.2)
	May be	10 (30.3)
Will you prefer consultation on phone and video conferencing and one-to-one visit for important procedures only?	Yes	25 (75.8)
	No	3 (9.1)
	May be	5 (15.2)
Is your staff cooperative and understands the gravity of the situation?	Yes	28 (84.8)
	No	1 (3.0)
	May be	4 (12.1)
Do you usually feel upset or frustrated having to face so many challenges (especially if you are new into this career)?	Yes	13 (39.4)
	No	13 (39.4)
	May be	7 (21.2)
Have you thought of continuing your dental practice in other ways possible?	Yes	21 (63.6)
	No	5 (15.2)
	May be	7 (21.2)
Have you thought of changing/switching your career due to increased difficulties or challenges	Yes	7 (21.2)
	No	24 (72.7)
	May be	2 (6.1)
Is your local government helpful in anyway? (Including providing PPE, taxes, bills, etc.)	Yes	5 (15.2)
	No	25 (75.8)
	May be	3 (9.1)
Are patients afraid to visit dental clinics?	Yes	19 (57.6)
	No	6 (18.2)
	May be	8 (24.2)
Do you feel an increase in anxiety levels of patients during visits?	Yes	19 (57.6)
	No	6 (18.2)
	May be	8 (24.2)
Are patients willing to pay extra to cover up the costs of extra precautionary measures being used to improve quality of treatment in your clinic	Yes	5 (15.2)
	No	23 (69.7)
	May be	5 (15.2)
Do you think it is easy to educate the public and prevent panic while promoting the health and well-being of patients during this challenging time?	Yes	11 (33.3)
	No	14 (42.4)
	May be	8 (24.2)

Most dentists reopened their clinics and resumed their clinical procedures in June 2020 but this virus has affected more than 50% of patient's flow, similar results were found in study done in china.¹³ It was seen from the results of our study that 66.7% of doctors always followed SOPs before the pandemic and during the COVID whereas 87.9% followed the guidelines religiously to keep running the practice safely as dental procedures are consider as high risk in spreading COVID(5). About 84.8% of the respondents agreed they have a cooperative staff following all protocols, however a study claimed that in developing countries like Pakistan, it is still a

debatable topic whether infection control protocols are followed or not.¹⁴ The lack of formal training, poor compliance and knowledge on use of PPEs (personal protective equipment) in infection control and limited resources is thought to be the reason for not adhering to cross infection control guidelines. This can be confirmed by a few previous studies showing results where only 20% of the respondents in Karachi, Pakistan were compliant in use of PPEs unlike in other countries like Kuwait, New Zealand, Saudi Arabia and Canada where knowledge and compliance was far better (84%).¹⁴

Our results showed that 72.7% of dentists continued practice in dentistry despite of challenges. Similarly, a study suggested that, although a lot of people suffered negative career shock, especially the people who are new to enter this field of dentistry may have significant career consequences for several years. But certain psychological resources such as career competencies and resilience – could make this career shock more manageable.¹⁵ The utilization of tele-health services in dentistry, has helped to some extent by charging patients minimally before physical visit if necessary.¹⁶ About 30% of the dentists switched to tele-health services ensuring patient's safety. A recent study suggested that telemedicine and e-health can be adopted in times of health emergency, as a convenient, safe method of providing clinical care¹⁷ which is similar to this study as 75.8% participants preferred consultation on phone and video conferencing. Our study results stated that 75% of the dentists agreed that no help was provided by the government in anyway. However, government of other countries were very supportive.¹⁸ Majority (42.4%) of the participants agreed that it was not easy to educate patients regarding pandemic and prevent panic among the general public. A KAP study about COVID in China revealed high knowledge levels.¹⁹ Furthermore, a study in Saudi Arabia also showed good knowledge and positive response to COVID-19 mitigation measures.²⁰ In order to get better results a detailed study is necessary to get more responses from different provinces or even different parts of the world, using Google form platform to make it feasible.

To summarize, the novel corona virus has significant impact on flow of patients in clinics. In light of patient care and guidelines by government, patient management evolved from face-to-face to tele clinics. It is suggested that the government should provide support to help young dentists to establish their career in this difficult times.

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