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Charting the Path Forward: Lessons from COVID-19 for Future Pandemics

S. Kumar[1], Z. Abbasi[2], Y.A.Abidi[3], I.Sajjad[4], M.K.Khan[5]

[1,2,3]Operative Dentistry Department, Jinnah Sindh Medical University.
[4]Periodontology Department, Jinnah Sindh Medical University.

ABSTRACT

Objectives: The objective of this study is to assess and compare the impact of COVID-19 on dental practices with that on other medical specialties, with the goal of deriving lessons and strategies for navigating future pandemics effectively.

Study Design: Cross-sectional study. This study was conducted at the department of Operative Dentistry, Sindh Institute of Oral Health Sciences, JSMU, Karachi,

Method: This cross-sectional study was conducted amongst medical and dental practitioners working in clinic or hospital settings in Sindh province. A valid reliable online questionnaire-based survey was designed that comprises 4 sections that primarily focuses on risk evaluation and readiness of health professionals in addition to these financial constraints, patient outcome, operational values, and strategic intents to deal with pandemic in future.

Results: Based on infectivity, following study's investigation did not find any significant differences between general practitioners and dentists. Regarding effect on monthly income, 42% had 0% impact, out of which 33% were from the dental profession. Besides this the patient flow to dental offices declines to 88% whereas, dental professionals stop practicing due to several reasons where fear of infection was amongst the most prevalent. Despite this medical health professionals face the same issue however, their patient flow, financial conditions and alternate methods of consultations (tele-medicine/online consultations) provide tremendous aid in effective practice management.

Conclusion: To sum up, the effects of COVID-19 on dental practices highlight the necessity of adaptability, creativity, and a strong emphasis on patient care and safety. By drawing lessons from the difficulties encountered during the epidemic, dentists will be better equipped to handle upcoming interruptions and go on offering vital oral health services to their communities.

Keywords: Pandemic, infection, practice management, morbidity, dental care

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INTRODUCTION

A pandemic known as 'COVID-19' started from 12th December 2019 in Wuhan, China, very soon its cases were reported in over 200 countries across the world (1). This pandemic disturbed the professional as well as personal life activities (2). WHO showed concern over spread of virus in countries with weak health care systems and advised to take all precautions to avoid spread of this virus (3,4). The COVID-19 pandemic is a health emergency that has

severely impacted healthcare services, caused substantial public and healthcare worker morbidity and mortality, had severe economic effects, and had a significant psychological impact (5).

All Healthcare professionals were exposed to a greater risk of getting infected due to very close contact with patients (6,7). The risk of cross infection was very high among dental practitioners and patients due to the characteristics of dental clinics (6,8). Concerning that risk of spread, dental regulatory authorities such as the ADA, were urging dentists to defer all non-essential or elective dental treatment for all patients and to conduct only emergency dental treatments until the situation get better (6). Several dental practices closed down practices for an uncertain period or modified their procedures according to recommended guidelines to emergency cases only (6,9). Dentists were advised to take strict precautionary measures and avoid operations that could produce droplets or aerosols.[8]

Corresponding Author:

Name: Dr. Sudesh Kumar

Affiliation: Operative Dentistry Department, JSMU.

Email: Sudeshluhana@gmail.com

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There was not only risk of getting infection, but Physician groups of every specialty have experienced the financial effects of the COVID-19 pandemic (10). The COVID-19 epidemic was posing severe financial issues for hospitals and healthcare organizations worldwide (11). According to a study by Gomes CM et al > 50% in income reduction was reported in Brazilian urologists that modified their health and lifestyle (2). Two opinions developed for practitioners regarding their clinical practice. One was to suspend the clinical practice for unknown period of time that could put financial burden on clinicians (12). Other opinions were to deal with patients but with additional precautions, due to high risk of getting infected from patients and possibly spreading it to the other patients, peers, and families (6,12).

Within the framework of the ongoing epidemic, physicians must simultaneously manage an excessive volume of patients while continuing to provide high-quality care. When doctors put work before their own health, it can result in presenteeism. Compromising one's own safety with the requirements of a patient might lead to moral discomfort and moral dilemmas. In order to manage, physicians need to put their own health first, look for assistance, and deal with unfavorable psychological effects (13).

Global pandemics such as the flu in the 20th century, the bubonic plague in the 14th century, and HIV/AIDS in the 20th and 21st centuries have impacted human history, and COVID-19 is unlikely to be the last (14). Worldwide, a variety of tactics have been

implemented in accordance with each nation's unique health care infrastructure and population composition (15). One issue that has arisen is the delay in putting policies into place. Health care personnel and their patients experienced trauma and moral suffering as a result of the lack of a coordinated response, which put further strain on an already overburdened healthcare system and caused it to restrict care and personal protective equipment (16).

It is important to comprehend how COVID-19 has affected dentistry practices in contrast to other specializations for a number of reasons.

Risk Evaluation and readiness: We may evaluate the varying risk levels that healthcare professionals experience by contrasting the impact on dental practices with those on other specialties. Future pandemic preparedness plans, including resource allocation, PPE distribution, and infection control tactics, can benefit from the insights gained from this evaluation (17).

The financial ramifications: Comparing the financial effects of COVID-19 on dental offices to those of other specialties can reveal differences in terms of income loss, government assistance, and resilience to the economy. Having this knowledge is essential for planning financial backups and promoting focused financial aid in the event of a public health emergency (17).

Operational Flexibility: Analyzing the ways in which dental offices and other specialties modified their schedules, adopted telemedicine, and implemented patient triage protocols during the pandemic can provide light on operational tactics that improve continuity of care and resilience in times of emergency (18).

Patient Results and Healthcare Access: In order to determine the efficacy of healthcare delivery models and pinpoint areas for improvement in guaranteeing equitable access to critical treatments during emergencies, it is helpful to compare patient outcomes, access to care, and healthcare inequities across various specialties during COVID-19 (18).

Future Pandemic Lessons: This study is to draw practical lessons, best practices, and policy suggestions to improve the resilience of the healthcare system and lessen the impact of future pandemics by mapping out the future based on the experiences of dental offices and other specialties during COVID-19 (19).

The COVID-19 pandemic has had a significant impact on healthcare systems around the globe and presented previously unheard-of difficulties for medical experts in a variety of specializations. Because of the nature of their processes, infection control regulations, and patient management standards, dental clinics in particular faced significant challenges. This study aims to compare the experiences of other medical disciplines with the particular effects that dental practices encountered during the pandemic.

METHODS

After receiving approval from the Institutional Review Board of Jinnah Sindh Medical University

(JSMU/IRB/2021/-463), this cross-sectional study was conducted amongst the medical and dental practitioners working in clinic or hospital settings in Sindh province. Consent was taken from the participants before participation in the study. Participants who refused to give consent were excluded from the study. A researcher was present all the time for any query related to consent form or questionnaire that were provided in both English and Urdu. Data was gathered from 7th August to 5th September 2021. It was a questionnaire-based survey. A well-formulated questionnaire was designed through Microsoft Word and its reliability was checked through a pilot study which shows internal consistency around 0.7 to 0.8. The questionnaire comprised four components. The first section of the questionnaire recorded the demographic information of the patients including name, age, gender, education level, specialty, working area and working setup. In the next section 17 questions were asked regarding their professional and personal life practice during COVID-19 wave. In the third section vaccine related questions were asked. In the fourth section six items were added to find out the impact of COVID-19 on their financial condition. Personal information of participants was only available to the principal researcher. Responses, only those that met inclusion criteria included in the study. Data was entered in SPSS software version 23 (SPSS Inc., Chicago, USA). Descriptive statistics (percentages and frequencies) were calculated for all characteristics and survey responses.

RESULTS

Out of the 481 filled questionnaires, 440 forms were included in study. Forty-one forms were excluded because of incomplete data. Out of the total participants, there were 275 males (62.5%) and 165 females (37.5%). Around 81.8% of the respondents were from the age group of 20-30 years (Figure I). The specialty of the participants is shown in TABLE I. Regarding working areas, 90 were found to be working in rural areas and 350 in urban areas.

When forms were filled 95.5% of doctors were working but 54.4% were performing routine /elective procedures, 39.8% doctors were carrying out only emergency procedures. During that time 60.2% participants reduced their timings of practice and 68.2% participants stopped performing open surgical procedures.

The data in table II also showed that 43% respondents never stopped practicing, 28.4% stopped for less than a month, 15.9% stopped for 3 months or less and only 9.1% stopped for 6 months or more. Reasons to stop working are shown in Table II. Regarding vaccines, 88.6% respondents were vaccinated.

TABLE I: Specialty of Participants

Specialty	N	%
Pulmonologist	2	.5
Dentist	135	30.7
Dermatologist	4	.9
ENT Specialist	5	1.1
Ophthalmologist	3	.7
General Medicine	118	26.8
General physician	30	6.8
General Surgeon	77	17.5
Gynecologist	15	3.4
Neurology	3	.7
Orthopedics	20	4.5
Pediatrician	16	3.6
Pathology	4	.9
Physiotherapist	5	1.1
Radiologist	3	.7

TABLE II: Reasons to Stop Practice Amongst Dental Practitioners

Reason to stop Practice?	N (%)
COVID-19 Fear factor	60 (13.6)
Govt. recommendation	100 (22.7)
I got COVID Positive	45 (10.2)
I never stopped	190 (43.2)
Overload of COVID-19 patients	45 (10.2)
Total	440 (100)

Effects on the financial condition of respondents are shown in table III. Change in lifestyle (55.7&) and reducing staff (13.6%) were the commonly used ways to survive with financial burden. Regarding effect on monthly income, 42% had 0 zero impact, 38.6% had 25% impact, 13.6% had 75% impact and 5.7% had 100% impact on their monthly income. Further financial data is shown in TABLE III & IV.

TABLE III Financial Data

	0% n (%)	25% n (%)	75% n (%)	100% n (%)
Due to COVID-19 how much of your monthly income is affected?	185 (42.0)	170 (38.6)	60 (13.6)	25 (5.7)
Was the patient's turnover affected due to the pandemic?	20 (4.5)	255 (58.0)	140 (31.8)	25 (5.7)

TABLE IV: Financial Data

	Yes n (%)	**No n (%)**	**No Response n (%)**
Did you get into debt to manage *pandemic?*	155 (35.2)	260 (59.1)	25 (5.7)
Did you receive any support (e.g. tax waiver exemption rent)	25 (5.7)	385 (87.5)	30 6.8
Did you go bankrupt? Negative bank reserves??	35 (8.0)	375 (85.2)	30 (6.8)

Data in table IV showed that around 35.2% participants got debt to manage their financial situation, whereas 8% went bankrupt by this pandemic.

Besides this the patient flow to dental offices declines to 88% whereas, dental professionals stop practicing due to several reasons where fear of infection was amongst the most prevalent. Despite this medical health professionals face the same issue however, their patient flow, financial conditions and alternate methods of consultations (tele-medicine/online consultations) provide tremendous aid in effective practice management.

DISCUSSION

Numerous infectious diseases that have the potential to spread globally and endanger human life have plagued the world for ages. A number of these epidemics were brought on by the spread of novel diseases or a re-emergence of known diseases with a few mutations in genes (17). The COVID-19 epidemic is not the first and most likely won't be the last. On contrary to the believed perception that dentists were at high risk of getting infected, a study by M W.B. Araujo et al concluded that if dentists follow the proper infection control protocols, their risk to get infected is not more than any other health care worker (20).

During the early stages of the pandemic, dental practices saw a more marked reduction in patient volume in contrast to other medical specialties like internal medicine or primary care. Patients' unwillingness to seek dental care unless absolutely required and the postponing of non-emergency dental procedures were contributing factors in this. Many dental clinics experienced a sharp decline in revenue as a result, which put them under financial hardship and occasionally resulted in closures (21).

Moreover, compared to other disciplines, dentistry posed greater challenges in terms of the transition to telemedicine and virtual consultations. The viability of virtual care in dentistry is limited since dental examinations frequently require in-person evaluation and treatment, but some standard consultations and follow-ups in other

medical areas could be performed remotely.

Proper infection control protocols including PPEs are very important to avoid spread of any infection in clinical setups. Emphasizing it in every private practice would reduce the load of each communicable disease in our society. Combining this situation with the current economic situation of Pakistan, it is very difficult for moderate clinical practices to equip themselves with each protective method (22).

According to the data, COVID-19 pandemic has severely strained Pakistani private healthcare providers' finances primarily of dental surgeons, aggravating already-existing issues in the industry. These individuals worked at private facilities and had to deal with higher personal protective equipment (PPE) costs, fewer patients because of lockdown procedures, and general economic strain as a result of the epidemic. The impact on the American economy has been felt strongly in every sector, including the medical field. Physician organizations of various sizes and specializations have felt the financial consequences of the pandemic (22). The implementation of tailored financial assistance systems for private healthcare personnel is necessary in order to equip them for potential future crises. This covers insurance plans, tax breaks, and government subsidies for necessities. Infrastructure, telemedicine capabilities, and cooperative pandemic preparedness plans are also critical investments. Pakistan can enhance its ability to manage future health emergencies and maintain access to high-quality healthcare services by giving precedence to the economic security of private healthcare employees and fortifying the industry's resilience. As a result, government organizations should assess more thorough analyses of many elements in order to get ready for the coming catastrophe (23).

SR Hasan et al.'s study also discovered detrimental effects on Pakistani physicians. They discovered that 80.6%, or 97 out of them, reported feeling stressed out while on duty. 78 doctors, or 65.3% of the total, reported significant levels of stress, to the point where they considered quitting due to concern of contracting an infection. The other demotivating reasons were lower earnings and pressure from family members. Eighty-five physicians (71%) said their families had put pressure on them to quit (24).

In Pakistan, the government started the allowance for medical employees hired by government hospitals but doctors of private hospitals were not taken care, also private clinics did not get any government support financially. Furthermore, due to this outbreak, doctors were forced to create a better and safer working environment for their patients, employees, and selves. This might have increased overhead costs for the clinic and lowered profit margin even more.

The investigation is initially constrained by its cross-sectional design and lack of longitudinal follow-up. In this study, it is not possible to attribute doctors' observed outcomes solely to the factors and socio-environmental data that were included. Some study results or interpretations may change as a result of the addition of co-variables and sociodemographic observations (such as employment status, specific financial difficulties,

and the number of treated patients). Within a few months, the study's data collection phase was over. Given the urgency of this crisis and the quick changes in laws and infection rates, these factors might also have an impact on the findings provided by the respondents.

CONCLUSION:

To sum up, the effects of COVID-19 on dental practices highlight the necessity of adaptability, creativity, and a strong emphasis on patient care and safety. By drawing lessons from the difficulties encountered during the epidemic, dentists will be better equipped to handle upcoming interruptions and go on offering vital oral health services to their communities.

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Dr. Sudesh Kumar: Principal Author designing the concept.
Prof. Zubair Abbasi: Acquisition, analysis, or interpretation of data for the work
Prof. Yawar Ali Abidi: Drafting the work or revising it critically.
Dr. Isma Sajjad: Final approval of the version
Prof. M Khalil Khan: Substantial contributions to the conception or design of the work