

Original Article

Impact of COVID-19 in Private Dental Practice in West Bengal: A Cross-sectional Survey

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ABSTRACT

Background: Coronavirus diseases (COVID-19) is a public health emergency of international concern. The dental professionals are considered to be at high risk, as most of the treatments may lead to the spread of infection due to direct proximity with saliva, blood, and aerosols generation. This survey aimed to analyze the impact of post-COVID-19 concerning private dental practice by registered dental practitioners in West Bengal.

Methodology: A self-designed questionnaire written in the English language, and sent via online mode by a link was created using Google documents among five hundred private dental practitioners using the Email address and WhatsApp groups. After 1 month two hundred and seven (207) responses were collected from Google form and Google Excel sheets were downloaded and sent for statistical analysis.

Results: Among the participants 98.6% felt that COVID-19 pandemic affected their income though practice continued by 95.2% with reduced frequency. Educating the patient regarding Covid-19 was done by leaflet 10.1%, banners 38.2%, audio-visual 33.3%, and verbally 18.4%. N-95 mask, surgical mask, eyewear, face-shield are used by 83.6% surgeons and hand protection was done by nitrile gloves 56.5%, latex gloves 10.1%, plastic gloves 1.4%, and double surgical gloves 10.1%. Aerosol-generating procedures are continuing in 90.8% clinic whereas 76.8% installed extraoral gadgets like extraoral suction, fumigator, HEPA filter, and UV light.

Conclusion: COVID-19 pandemic has affected the dental practice and economy of dental surgeon. Good number of surgeons installed extra-oral gadgets. Widespread education and modified practice may solve the problem partially.

Key words: Coronavirus, Questionnaire, Survey.

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INTRODUCTION:

With the outgrowth and prevalence of covid-19, dentistry is facing its darkest hours. Alongside paramedics, nurses, and other health workers, dental surgeons are also at the highest risk of contracting and transmitting the coronavirus. An unexampled outbreak of pneumonia of unfamiliar etiology in Wuhan city, Hubei province in China emerged in December 2019.^{1,2} The COVID-19 pandemic in India is part of the worldwide pandemic of coronavirus diseases caused by severe respiratory syndrome coronavirus (SARS-CoV-2). The first case of a novel coronavirus in India, which originated from China, was reported on 30 January 2020, and the first case of a novel coronavirus in West Bengal, was reported on 17 March 2020. Various literature and expert opinion have shown that novel coronavirus can be transmitted from person to person through direct or indirect contact, or through coarse or small droplets, and 2019-nCoV can also be transmitted directly or indirectly through saliva.³ The dentists may practice cautiously and be prepared once the practice resumes. It is important to implement sound preventive measures in dental clinics and optimize their clinical practice to the changing trends to ensure safe and risk-free practice.⁴ Hence, the current survey study aimed to assess the level of awareness regarding, COVID19 and infection control measures among dental practitioners in the state of West Bengal. So the present survey aimed to analyze the post-COVID-19 impact among private dental practitioners in West Bengal.

Objectives: To assess the area wise awareness by registered dental practitioners in West Bengal, Assessment of dental practitioners' knowledge, attitude, in the private dental clinic after COVID-19; Preparedness of dental health personnel in the private clinic against COVID-19;

To assess their choice and reliability on personal protective equipment (PPE) and to assess if the pandemic has affected their daily income.

Only graduates who are registered with the state dental council and practicing in private dental clinics of West Bengal are included in this survey study.

METHODOLOGY

A self-designed questionnaire was written in English language. The questionnaire was pre-tested for validity and was revised according to the feedback. A set of 25 questions was selected, among them 20 questions finalized. A set of twenty questionnaires online mode of a link was created using Google documents, and the link was circulated among five hundred private dental practitioners in West Bengal using the Email address and WhatsApp groups. Informed consent was taken from all the participants before sending the questionnaire. Responses from only those dental practitioners who gave consent by answering the questionnaire within the limited time frame of 1 month were included in the study. Timely reminders were sent as well. The participation was completely voluntary and all the participants had an option of opting out of the study by not filling the questionnaire consisted of a total of twenty questions. After 1 month two hundred and seven (207) responses were collected from Google form and Google Excel sheets were downloaded and sent for statistical analysis.

Questionnaire:

The questions were a mix of multiple-choice questions, related to the practical scenario of registered private dental practitioners during this Covid -19 pandemic. A total of twenty questions were set finalized through expert opinion.

Statistical analysis:

The sample size was calculated using OpenEpi Version 3. The sample size was estimated to be 205. A questionnaire was then formulated on Google forms which were then circulated to the participants via various WhatsApp groups and Email addresses. We got responses from 207 participants and the data was express in percentage.

RESULTS

This questionnaire-based survey highlighted important key features, analyzed the major concerns of dental surgeons, and tried to evaluate the various areas of anxiety.

Most participant of dental surgeons are male (92.2%) with a preponderance towards practicing in city area (74.4%). Many of them (69.6%) are practicing for 5 to 10 years. During the present pandemic situation 95.2% dental surgeons are continuing their practice by reducing the frequency to thrice a week 46.4%, twice a week 31.4%. Alteration of patient's appointment schedule to avoid gathering of patients in the waiting room is practiced by 96.6%. Only 3.4% of dental surgeons discontinued their practice. Most of the dental surgeons (99%) educated their patients and relatives regarding personal protection in view of COVID-19 pandemics through leaflet (10.1%), banners (38.2%), audio-visual (33.3%) and verbally (18.4%). DCI (Dental Council of India) guidelines are followed in 96.1% clinic. Though 77.8% of dentists regularly use rubber dam, 8.7% started using during the COVID-19 pandemic. A vast majority of the participants (83.6) are using N-95 mask, surgical mask, eyewear, face-shield to protect their face and for body protection 82.1% polled for PPE & 14% polled for surgical gown. Regarding hand protection different types of gloves used - nitrile gloves 56.5%, latex gloves 10.1%, plastic gloves 1.4%, and double surgical gloves 10.1%. Different types of sterilization, procedures e.g. autoclave,

UV chamber, boiling water and chemical sterilization all together as applicable is preferred by 79.2%. Majority of participants (98.6%) felt that COVID-19 pandemic affected their income. Most dental surgeons (96.1%) are maintaining all waste disposable methods. Aerosol-generating procedures is continuing in 90.8% clinic, though 76.8% of participants installed extraoral gadgets like extraoral suction, fumigator, HEPA filter, and UV light, in their clinic. Finally, the participant's opinion regarding prophylaxis medication revealed that 30.9% taken hydroxychloroquine, 35.3% taken vitamin - C, 7.7% taken vitamin- D, and 21.7% not taken any prophylaxis regime. (Table 1, 2)

DISCUSSION

The Covid-19 pandemic outbreak remains the biggest threat to human beings due to the high mortality rate associated with their infections.⁴ The World Health Organization (WHO), American Dental Association (ADA), Dental Council of India (DCI), have issued several interim guidelines and protocols to prevent the spread of COVID-19 in dental setup. Local governing authorities have issued guidelines, only to provide emergency treatment.⁵ Until now, in India there are several reports disclosing mortality and morbidity among dental and medical health-care workers.⁶ We can see most of the dental surgeon's age group is 31-50 years, so they belong to the high-risk group for novel coronavirus infection. The present survey study reflects that majority of dentists are belonging to the city area. The population density in the city area is 24000 per sq. Km which is much more than the district town and village area.⁷ The basic concept in the mode of novel coronavirus transmission is mainly through inhalation/ingestion/direct mucous contact with saliva droplets, respiratory fluids, aerosols, they can also survive on surfaces, objects that are exposed to infected body fluids.⁸ Owing to the nature of the dental procedures

Table 1: Result of the survey

Sl . No	Questionnaires	Parameters	Findings
1	Age of Dental Surgeon (years)	25 – 30 31 – 50 51 – 65 > 65	21.7 % 73.9 % 3.9 % 0.5 %
2	Gender of dental surgeon	Male Female	92.2% 7.8%
3	Area of practice	City District town Village	74.4% 17.9% 7.7%
4	Practice experience	<5 years 5–10 years 10-15 year >15 year	15% 69.6% 9.7% 5.8%
5	Are you continuing your practice in the present COVID-19 pandemic?	Yes No	95.2% 3.4%
6	What is the frequency of opening a dental clinic?	Once a week Twice a week Thrice a week Six-days a week	7.7% 31.4% 46.4% 14.5%
7	Have you altered your patient appointment schedule to avoid gathering of patients in the waiting room?	Yes No	96.6% 3.4%
8	Have you given patient education related to personal protection in the COVID-19 Pandemic?	Yes No	99% 1%
9	If yes, then which of the following methods you have followed to educate your patients?	Leaflet Banners Audio-visual method Oral consultancy	10.1% 38.2% 33.3% 18.4%
10	Have you followed DCI guidelines in your clinic including staff and auxiliary?	Yes No	96.1% 3.9%
11	Do you use a rubber dam during endodontic procedures?	Regularly using Don't use Started using it during the COVID19 pandemic	77.8% 13.5% 8.7%
12	Which method is used for the protection of body garments?	Personal protective equipment (PPE) Surgical gown Plastic gown Any others	82.1% 14% 3.4% 0.5%

Table 1: (Continued)

Sl . No	Questionnaires	Parameters	Findings
13	Which method is used to protect the hand?	Latex gloves Nitrile gloves Plastic gloves Double surgical gloves	10.1% 56.5% 1.4% 10.1%
14	Which method is used to protect the face?	Surgical mask N95 mask Eyewear & Face shield All of the above	9.2% 6.8% 0.5% 83.6%
15	Which of the following is used for the sterilization of instruments?	Boiling water Autoclave & UV chamber Chemical sterilization All of the above	9.7% 10.6% 0.5% 79.2%
16	Do you think the COVID-19 pandemic affects the commercials?	Yes No	98.6% 1.4%
17	Are you maintaining all waste disposal methods?	Yes No	96.1% 3.9%
18	Are you continuing aerosol-generating procedures in your clinic?	Yes No	90.8% 9.2%
19	If yes, then which of the following gadgets you have installed in your clinic?	Extra-oral suction Fumigator He pa-filter & UV light All of the above	6.3% 2.9% 1% 76.8%
20	Do you take any prophylactic regime?	Hydroxy-chloroquine Vit-C Vit-D3 None of the above	30.9% 35.3% 7.7% 21.7%

and treatments, dental clinics and dental practitioners seem to be at high risk for this infection. Dentists are often in close contact with patients and are the first line diagnosticians for oral diseases. So we can say dental surgeons belongs to high risk group for novel coronavirus infection. Most of the dental surgeons have given patients education related to personal protection in COVID-19 pandemics.⁸ A majority of dental surgeons are continuing their practice but the frequency of opening of dental clinic reduced during the COVID-19 pandemic and this unwanted circumstance is statistically significant. A Majority of dental surgeons

used a rubber dam to prevent the expansion of novel coronavirus infection. All the dental surgeon protected their face by using masks (N-95, Surgical), face shield; protected their body garments by using a surgical gown, Personal protective equipment, plastic gown, and protected their hands by using gloves (latex, nitrile, plastic). According to the Dental Council of India, 13 May 2020 guidelines in the current COVID-19 Pandemic, Dentists, auxiliaries, and also patients undergoing dental procedures are at high risk of cross-infection.^{9,10} Many asymptomatic patients may be carriers.¹¹ For this reason, it is suggested that all patients visiting a dental

Table 2: In-depth analysis of area and frequency of practice

			Question 3		Total		
			No	Yes			
area	city	N	3	151	154		
		%	1.9%	98.1%	100.0%		
	town	n	3	34	37		
		%	8.1%	91.9%	100.0%		
	village	n	1	15	16		
		%	6.3%	93.8%	100.0%		
Total		n	7	200	207		
		%	3.4%	96.6%	100.0%		
P value			0.142, not significant				
			Question: 6				Total
			Once a week	Twice a week	Thrice a week	Six days a week	
area	city	n	9	56	74	15	154
		%	5.8%	36.4%	48.1%	9.7%	100.0%
	town	n	5	8	14	10	37
		%	13.5%	21.6%	37.8%	27.0%	100.0%
	village	n	2	1	8	5	16
		%	12.5%	6.3%	50.0%	31.3%	100.0%
Total		n	16	65	96	30	207
		%	7.7%	31.4%	46.4%	14.5%	100.0%
P value			0.005, Significant				

clinic must be treated with due precautions as they maintain all sterilization protocol, waste disposal protocol, reduced aerosol-generating procedures, installed extraoral gadgets like extraoral suction, fumigator, HEPA filter, and UV light, in their clinic.^{10,11} Many dentist uses prophylactic oral Vit-C, Vit-D, Hydroxychloroquine etc. to increase their immune power.

The central govt. and state govt. have suggested lockdown as a control measure to prevent the spread of the virus. Most of the dentists rely on private practice for the source of their income and lockdown seemed to have negatively impacted.^{12,13} Furthermore,

once the practice resumes there may be a decrease in the patient flow, ultimately affecting the monthly income.¹⁴ Also, this survey reflects that the average daily income of a dentist has reduced significantly owing to the present situation and which has altered the lifestyle of the dentist. Although the pandemic posed various drawbacks and threats to the profession of the dental fraternity, it still stands out as one of the most lucrative specialties of healthcare.¹⁵

Despite, our best efforts there are few limitations in our survey study first the low response rate, second the cross-sectional nature of the study, and the limited time

frame of data collection. This could result in sampling error and therefore, our results might not have accurately reflected the true levels of awareness of dental practitioners across West Bengal state. We wish to conduct further multicentric studies with larger sample.

CONCLUSION

COVID-19 has a devastating impact on the dental fraternity, and it is difficult to ascertain the full extent and severity of its long-term impact at this point. The professional future of dental practitioners and the sustenance of their practices is a serious concern. The pandemic of COVID-19 has created a panic nationwide. Also, this survey reflects that the average daily income of a dentist has reduced significantly owing to the present situation which has altered their lifestyle. Although the pandemic posed various drawbacks and threats to the profession of fraternity, it still stands out as one of the most lucrative specialties of healthcare.

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