



Effect of COVID-19 Outbreak on Professional Approach of Dental Practitioners during Lockdown and Unlock Phases in North India – A Crosssectional Survey

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Abstract

Background: December 2019, 27 cases of pneumonia of unknown cause were reported in Wuhan City, Hubei Province of China. In March 2020, the WHO declared "Covid-19" as a pandemic and Public Health Emergency of International concern. Dental professionals remain at high risk of contracting Covid-19 because of proximity to the patients while providing treatment.

Aim: To evaluate awareness and knowledge about Covid-19 among dental practitioner. Also, to assess their fear and anxiety lockdown and Unlock phase.

Method: The survey was created using the free-access Google Forms application and the link to the online survey was sent through a WhatsApp, E-mail, & Facebook to dentists in northern states and union territories of India. Data collection was done during lockdown and unlocks phases and latter was analysed statistically. Results: During lockdown phase, it was found that fear of exposing himself (76%) and fear of exposing their family members (93.8%) was more. As Unlock is in progress only 57.8% of dentist opened their clinic. Dental practitioners are well aware of the situation now (95.3%). Despite of all measures to stop cross contamination of infection using Personal Protective Equipment's, use disinfectants, encouraging hand hygiene protocol, infrastructural changes in clinical setup and also strictly following the guidelines from competent authority, 82.5% of respondent are still worried about going back to work. May be because of this reason, 89.6% of the dentists recommended that the patients should be treated at dedicated Covid-19 dental hospitals/clinics. As of now unlock phase has been in progress, condition is getting worse, number of deaths are increasing with each passing day, in fear of their family getting infected, is the biggest reason of their anxiety, but still they have accepted the current situation and continue to live with this.

Conclusion: The Covid-19 outbreak has revealed numerous shortcomings in the dental care system. Due to the lack of preparedness, the dental sector had suffered a lot. Dentists should learn from the experience which they acquired in current situation, and should redefine their practices to the new normal & also prepare themselves for any such situation in future.

Keywords: COVID-19; Anxiety; Dental practitioner

Introduction

December 2019, pneumonia outbreak of unknown etiology happened in Wuhan, China. This outbreak has influenced almost everyone's aspect of life. Globally, as of November 8, 2020, there have been 49, 578, 590 confirmed cases of COVID-19, including 1, 245, 717 deaths, as per the data available to World Health organization (WHO). In India total cumulative cases were 85, 07, 754 with 1, 26, 121 cumulative total deaths reported [1].

Originally COVID-19 was started via a zoonotic transmission associated with the seafood market and later it was recognized that human to human transmission played a major role in the subsequent outbreak [2]. The virus primarily affects the respiratory system, although other organ systems are also involved. Lower respiratory tract infection related symptoms including fever, dry cough and dyspnoea were reported. In addition, headache, dizziness, generalized weakness; vomiting and diarrhoea were also observed. The asymptomatic incubation period for individuals infected with Covid-19 has been to be 1-14 days, and individuals were also reported even after 24 days and it was also confirmed that asymptomatic individuals can also spread infections [3]. The mortality associated with Covid-19 is low, however it has a high spreading potential. Since the COVID-19 outbreak was so fast and devastating, many countries have shut down their teaching institutions, social gatherings, sports activities, events, airports, and

even banks in an attempt to control the spread of the infection. In India, 22nd March was declared as *Janta Curfew*, by Prime Minister of India and on 25th March first nationwide lockdown was implemented which was extended up to 8th of June in phased manner to contain the spread of infection. Besides this, several individuals went into self-quarantine in order to play their part in society by limiting the spread of disease.

Healthcare facilities are necessarily required for any society and are rarely closed under such pandemic conditions. Healthcare professionals are exposed to a higher risk of getting infected due to their close contact with infected patients in particular; dentists perform their duties in close contact with patients. To et al. showed that alive viruses were present in the saliva of infected individuals by viral culture method [4]. A study published by Xian Peng, showed that, dental

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practice can represent a high risk of contagion [3]. Dental patients and professionals can be exposed to pathogenic microorganisms, including viruses and bacteria that infect the oral cavity and respiratory tract. Dental care settings invariably carry the risk of COVID-19 infection due to the specificity of its procedures, which involves face-to-face communication with patients, and frequent exposure to saliva, blood, and other body fluids, and the handling of sharp instruments. The pathogenic microorganisms can be transmitted in dental settings through inhalation of airborne microorganisms that can remain suspended in the air for long periods, direct contact with blood, oral fluids, or other patient materials, contact of conjunctival, nasal, or oral mucosa with droplets and aerosols containing microorganisms generated from an infected individual and propelled a short distance by coughing and talking without a mask and indirect contact with contaminated instruments and/or environmental surfaces.

Therefore, dentists have a high risk of getting infected from patients and potentially spreading it to their peers, families, and other patients. Under these circumstances, it may be natural for dentists to develop a fear of being infected by their patients leading them to close their practice. This study was designed to assess awareness of professionals, their fears & response towards practice during lockdown and unlock phase.

Material and Methods

A cross-sectional questionnaire-based online survey with convenience sampling was conducted. The survey questionnaire was prepared during the lock down in India, to assess their awareness, attitude towards their practice during lockdown and unlock phases. The questionnaire was shared in the form of Google document through various channels such as WhatsApp, Facebook messenger, and E-mails to 510 dental practitioners in North India. The questionnaire survey was opened on 01 June 2020 and closed on 08th July, 2020 midnight. Participation in the study was totally voluntary. One of the authors who were expert on the research subject reviewed the questionnaire and had a consensus on the validity of the questionnaire. Ethical approval was granted since this was a survey-based study. A total of 365 responses were received. The data were entered in Microsoft Excel (2010) and analyzed latter on.

Results

Out of a total of 365 responded, there were 147 males (40.27%) and 218 females (59.72%). The age of the patient ranges from 25 to 60 years of age with the mean age of 42.5 years. Qualification distribution revealed 65.5% as dental graduates (BDS), 31.2% as dental specialists (MDS), 2.7% as registered dental practitioner. 20.8% of the respondents were working in a rural set up whereas 76.2% were practicing in urban area. The professionals were also categorized based on the experience; 69.6% were having <5 years of work experience, 9.6% were under the bracket of 5-10 years, while 17.5% had more than 10 years into practice. Almost all (88.2%) the respondents have upgraded their practices and include all the necessary types of equipment's in their daily practice after the Covid-19 outbreak such as visual alert posters, hand hygiene protocol, alcohol-based hand rub at the entrance, modification of existing patient waiting area to maintain 1-2 m of social distancing, avoidance of air conditioners unless equipped with HEPA filters, nonoverlapping appointments, providing surgical masks to each patient at the entrance, discouraging patients number at a single time.

Discussion

This survey provided us an insight into the awareness of dental professionals, possible reason to practice and not to practice, during

lockdown. Also, this survey gives us a picture of biggest fear, among professionals even after Unlock. Survey was designed as multiple-choice questionnaire divided into various sections.

The first section was focused on socio-demographical characterization which includes gender, age, educational status, working profile, work experience, work place, marital status, no. of family members, state/UT, any medical condition as given in Table 1 & Figure 1.

Among respondents, the majority were females (59.72%). The predominant age group range between 25-40 years of age with highest percentage of 80.5%. Of all the participants maximum were graduates (65.5%) whereas 31.2% were postgraduates, mostly having experience less than 5 years (69.6%). A study published by Pascal Geld Setzer et al. showed that Diabetes and hypertension prevalence is high in middle and old age across all geographical areas and sociodemographic groups in India, and hypertension prevalence among young adults is higher [5]. On assessment of medical condition of participants in our survey, 47.67% responded that they don't have any medical condition, whereas 29.06% reported with diabetes and 23.28% of hypertension. The awareness of dental professionals regarding COVID-19 was 98.1%. Such large number may be attributed to the fact that various awareness programs have been initiated by Governmentt of India. While responding to a questionnaire regarding source of information regarding COVID-19, 35.1% practitioners responded that radio and television were the primary source of information. This response was not surprising as initially, when lockdown was announced there was no information regarding COVID-19, its management and its implementations in dental practice. On 28th June 2020 Dental council of India had announced free online webinars as continuing dental education program for whole dental community [6]. A large number of private practitioners, specialists from various branches, Dental schools responded very well to this decision. Although, more participation of dental professional in webinars should be there but still 30.1% response to webinars is an acceptable number. Factors like poor internet connectivity must be taken into consideration for improving this number as not everyone has access to these webinars due to technological barriers in India. Dental webinars played a vital role in upgrading the dental fraternity to meet the present and upcoming challenges. Dental Council of India should conduct these kinds of webinars more often in future even after pandemic is over. While responding to a question how dangerous COVID-19 is, 57% dentist responded it as severe whereas 35.9% mentioned it as moderate, the procedural choice remains limited to emergency procedures in 84.4% dental professionals. The possible reason may be due to increased awareness of COVID-19 among professionals.

The reason for continuing, not continuing clinical work, assessment of fear and anxiety during lockdown phase. During lockdown all offices of Govt. of India, it's autonomous and subordinates' offices were closed including offices of state/union territories governments. Commercial and private establishments were closed. Only shops with essential commodities were allowed including food, groceries and dairy shops. Hospitals and all related medical establishments including their manufacturing and distribution units, such as dispensaries, chemist shops, laboratories, clinics, nursing homes, and ambulances will continue to remain functional. On 16th April, in a notification through DCI dental colleges all over India were informed to postpone their treatment plans of their non-emergency patients to avoid cross-infection caused by clustering in Dental Colleges [7]. It has also recommended deferring all elective procedures and remaining restricted to emergency procedure only.

Demographics	Variable	No. of participating Dentists	%age
Gender	Male	147	40.27
	Female	218	59.72
Age	25-40	294	80.5
	40-50	69	16.7
	50-60	5	1.4
Marital Status	Married	167	45.8
	Unmarried	196	53.69
Qualification	BDS	239	65.5
	MDS	114	31.2
	Registered Dental Practitioner	10	2.7
Number of family members	2	9	2.5
	3	32	8.8
	More than 3	319	87.4
Work Place	Rural	76	20.8
	Urban	278	76.2
Occupation	Private Practitioner	208	57
	Academician and Practitioner	145	39.72
Work Experience	< 5 years	254	69.6
	5-10 years	35	9.6
	>10 years	64	17.5
State/ UT	Delhi	48	13.2
	Haryana	28	7.7
	Himachal Pradesh	31	8.5
	Jammu & Kashmir UT	185	50.7
	Ladakh UT	6	1.6
	Punjab	12	3.3
	Uttar Pradesh	28	7.67
	Uttarakhand	22	6.0
Any of the following medical condition	Diabetic	106	29.06
	Hypertension	85	23.28
	None	174	47.67

Table 1: Socio-demographical characterization.

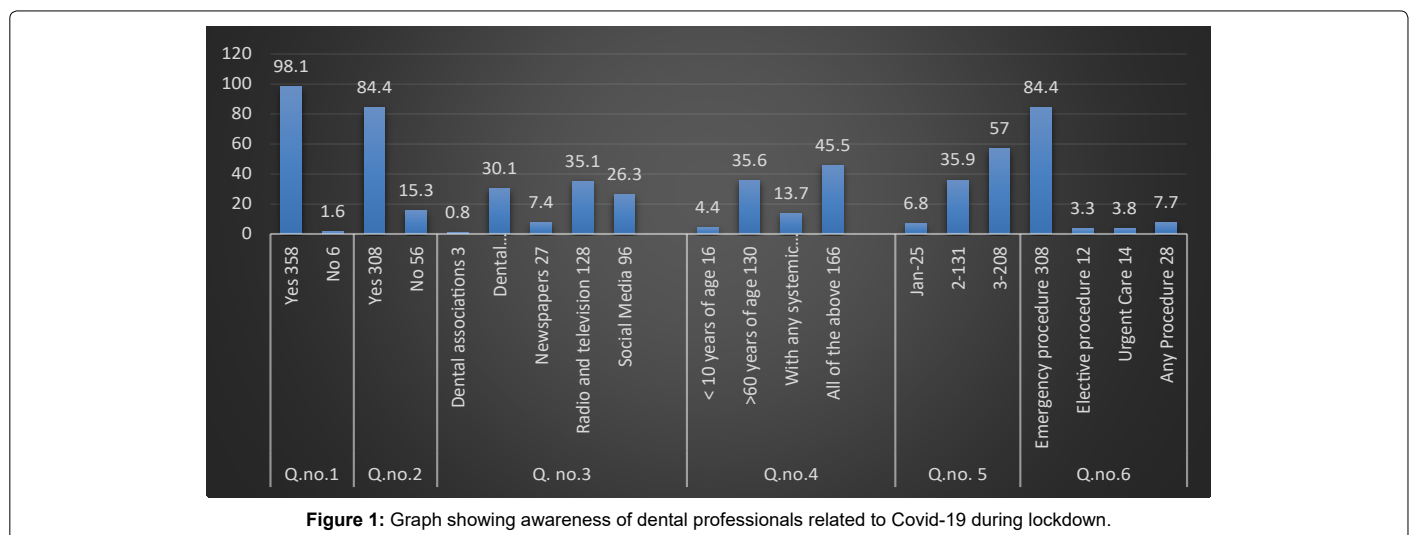


Figure 1: Graph showing awareness of dental professionals related to Covid-19 during lockdown.

Later Guidelines issued by Ministry of Health and family welfare on 19th May allowed dental practitioners to perform only emergency and urgent care. Procedures were categorized as Emergency and Urgent Care [8]. The clinical conditions of dental origin, which require priority care but do not increase the patient's death risk are categorized as URGENT and which increase the patient's death risk are categorized as EMERGENCY. After 20th May

2020 many, practitioners still avoided to open their clinic because of the fear of getting infected but a large number of practitioners started their practice. When responding to a question regarding their practice during lockdown, 68.2% dentist responded that they had to complete regular appointments of patients and also, they didn't want patients to agonize with pain (90.5%). This response showed the moral responsibility of dental professionals towards

Questionnaire	Response		
	Yes (%)	No (%)	
Q no. 1 Are you aware of Covid-19 symptoms?	358 (98.1)	No (1.6)	
Q no. 2 Do you think you have adequate evidence-based knowledge regarding Covid-19?	308 (84.4)	56(15.3)	
Q no. 3 What is your present source of information on Covid-19?	Source	No. of response	Percent
	Dental Literature/webinars	110	(30.1)
	Dental Associations	3	(0.8)
	Newspapers	27	(7.4)
	Radio & Television	128	(35.1)
Q no.4 According to your opinion which group is more vulnerable to Covid-19 infection?	Social Media	96	(26.3)
	<10 years of age	16	(4.4)
	>60 years of age	130	(35.6)
	With any systemic diseases	50	(13.7)
Q no.5 How dangerous is Covid-19? Rate on a scale of 1-3	All of the above	166	(45.5)
	1	25	6.8
	2	131	35.9
	3	208	57
Q no.6 What was your preference of patients for procedures during lockdown?	Emergency procedure	308	84.4
	Elective procedure	12	3.3
	Urgent care	14	3.8
	Any Procedure	28	7.7
Why Dental Practitioners continued their work during lockdown?			
Question	Response		
	Yes (%)	No (%)	
Q no.7 I have to complete my regular patient appointments	251 (68.2)	105 (28.5)	
Q no.8 I don't want my patient to suffer with pain	333 (90.5)	26 (7.1)	
Q no.9 My clinic owner asks me to continue my practice	117 (31.8)	236 (64.1)	
Q no.10 I work in a dental clinic with all modern facilities to contain the spread of infection	230 (62.5)	120 (32.6)	
Q no.11 Financial constraints have forced me to continue my practice during this pandemic	141 (38.3)	211 (57.3)	
Q no.12 Any other reason?	Yes 39 (10.6)	314 (85.3)	
Why Dental Practitioners suspended their work during lockdown?			
Question	Response		
	Yes (%)	No (%)	
Q no.13 I fear for exposing myself to Covid-19	222 (76)	70 (24)	
Q no.14 I fear for exposing my family members to Covid-19	274 (93.8)	14 (4.8)	
Q no.15 I work in an inadequately equipped dental clinic	60 (20.5)	225 (77.1)	
Q no.16 I believe that during this pandemic patient should be treated at dedicated covid-19 dental hospitals/clinics designated by the Govt. of India	253 (86.6)	39 (13.3)	
Q no.17 My financial situation allows me to suspend my clinic until the cases start to decline	222 (76)	70 (24)	
Q no.18 Patient cancelled their appointments because of the fear of getting infected	247 (84.6)	36 (12.3)	
Q no.19 Dental clinic where I work was closed	238 (81.5)	44 (15.1)	
Q no.20 Any other reason?	33 (11.3)	252 (86.3)	
Fear & Anxiety assessment of dental care professionals during LOCKDOWN phase			
Question	Response		
	Yes (%)	No (%)	
Q no.21 Are you afraid of getting infected with covid-19 from a patient and co-worker?	242 (65.8)	116 (31.5)	
Q no.22 Are you anxious when providing treatment to a patient who is coughing or suspected of being infected with covid-19?	289 (78.5)	67 (18.2)	
Q no.23 Do you feel nervous when talking to patients in close vicinity?	299 (81.2)	59 (16)	
Q no.24 Do you have fear that could carry the infection from your dental practice back to your family?	280 (76.1)	74 (20.1)	
Q no.25 Are you afraid of getting quarantined if get infected?	247 (67.1)	110 (29.9)	
Q no.26 Are you anxious about the cost of treatment if you get infected?	234 (63.6)	120 (32.6)	
Contributing factors			
Q no.27 Do you think adequate Personal protective equipment were available to carry out routine dental procedures?	143 (39.2)	203 (55.6)	
Q no.28 Was there sufficient availability of Disinfectants in the market during lockdown?	150 (41.1)	202 (55.3)	
Q no.29 Do you think cost of Equipment (UV lamps, vaporized hydrogen peroxide fumigation systems, non-thermal disinfection devices, ozone generators) are very high?	273 (74.8)	75 (20.5)	

Q no.30 Was it feasible for you to acquire equipment during lockdown?	76 (20.8)	264 (72.3)
Q no.31 Do you have sufficient space in dental clinic/dental hospital to accommodate separate rooms for doffing and donning of PPE, efficient ventilation systems?	210 (57.5)	132 (36.2)
Q no.32 Do you think there was lack of knowledge on Procedures, work safety protocols, lack of management to adjust the dental clinic/dental hospital to the new procedures	243 (66.6)	101 (27.7)
Anxiety and fear during Unlock		
Q no.33 Have you opened your clinic now?	211 (57.8)	132 (36.2)
Q no.34 Are you now aware more of current situation than before?	348 (95.3)	4 (1.1)
Q no.35 Are you worried about going back to work and consequently being at risk of contagion?	301 (82.5)	51 (14)
Q no.36 Are you now following the guidelines issued by competent authority?	337 (92.3)	11 (3)
Q no.37 Have you made any changes in clinical setup for patients?	313 (85.8)	26 (7.1)
Q no.38 Do you have adequate Personal protective equipment now to carryout routine dental procedures?	186 (51)	158 (43.3)
Q no.39 Do you have sufficient space in dental clinic/dental hospital to accommodate separate rooms for doffing and donning of PPE, efficient ventilation systems?	168 (46)	175 (47.9)
Q no.40 Are you now afraid of getting infected with Covid - 19 from a patient and co-worker?	297 (81.4)	52 (14.2)
Q no.41 Are you anxious when providing treatment to a patient who is coughing or suspected of being infected with covid-19 in present time?	238 (65.2)	111 (30.4)
Q no.42 Do you feel nervous when talking to patients in close vicinity?	302 (82.7)	46 (12.6)
Q no.43 Do you have fear that could carry the infection from your dental practice back to your family?	320 (87.7)	27 (7.4)
Q no.44 Are you afraid of getting quarantined if get infected?	206 (56.43)	159 (43.56)
Q no.45 Are you anxious about the cost of treatment if you get infected?	195 (53.4)	151 (41.4)
Q no.46 Do you feel afraid when you hear that people are dying because of covid-19?	287 (78.6)	61 (16.7)
Q no.47 Have you accepted the current situation and continued to live with it?	205 (56.2)	140 (38.4)

Table 2: Awareness of Dental professionals related to Covid-19 during lockdown.

their profession that they don't want patients to suffer during these hard times even after risking their lives.

Dental professionals are already predisposed to a number of occupational hazards. These include exposure to infections (including Human Immunodeficiency Virus and viral hepatitis); percutaneous exposure incidents, dental materials, radiation, and noise; musculoskeletal disorders; psychological problems and dermatitis; respiratory disorders; and eye insults. High standard safety measures are followed by every dentist in their clinics to prevent themselves. In our survey 62.5% clinicians reported that their clinics were well equipped to contain the spread of infection. The possible reason was due to the safety measures already taken up by professionals to prevent the spread of infection. Although many dentists choose to practice during the pandemic situation, still as large number of dentist's populations chooses not to practice because of fear of exposing themselves and their families (76% and 93.8%).

Whereas 86.6% agreed to the statement, that during this pandemic patient to be treated at dedicated COVID-19 dental clinics assigned by the Ministry of Health and family welfare.

As we all are well aware of COVID-19, the symptoms may vary from the presence of fever and dry cough to nonspecific symptoms such as shortness of breath, conjunctivitis, sore throat, diarrhoea, vomiting, fatigue, and muscular pain [3]. The possible routes of transmission are through cough, sneeze, and droplets inhalation. In addition, COVID infection could occur through contact with asymptomatic patients. This survey shows maximum dentists 76% responded that their financial condition allows them to suspend their clinics for time being, until cases declines. The possible reason may be due to the fear of symptomatic/asymptomatic carrier carrying infection from their clinics to home. Due to the awareness of COVID-19 among dental professionals, dentists responded, 78.5% that they were anxious and feel nervous when in close vicinity of patient/person having cough or any other suspected symptom. During lockdown 67.1% of dental surgeons were afraid of getting administrative quarantined if get infected. Not only the colleagues that were afraid of the situation,

but also patients, were probably aware of the risks in the dental clinic, since 84.6% reported appointment cancellation directly from patients.

Possible factors contributing to not to practice during lockdown were: Lack of resources which leads to fear and anxiety among professionals. Like in our survey, 55.6% dentist reported that there was lack of PPEs, non-availability of disinfectant (55.3%), and the cost of the equipment's was very high (74.8%). Lack of knowledge on procedure safety protocols 66.6%, leads to the fear of uncertainty among professionals.

As unlock was announced by the Government, 57.8% opened clinics, while 36.2% were still in state of dilemma. 82.5% still thinks that they are continuously at risk of contagion even after following the guidelines issued by the competent authority. Almost every professional 82.5% have made clinical infrastructural changes and geared up them for this challenge. Fear of being isolated is common in 56.43% whereas 43.56% are not afraid now. When compared to lockdown phase this number is reduced as the Government of India changed guidelines time to time and introduced home isolation instead of administrative quarantine. Fear of getting infected and cost of treatment are still the common fear factors among general mass. Many dentists have accepted the situation 56.2% while a large number has not accepted the situation (38.4%).

Trying to plan for the future without a sense of the past is like trying to plant cut flowers Daniel Boorstin.

No text would be complete without setting the stage for what is to come by exploring the path by which we have travelled. Pandemic like SARS and anthrax has already caused us to look again our dental health infrastructure and our ability to respond to new threats. Will we enter a new phase of Dental public health? Will we strengthen the protection from and rapid response to unknown or undefined threats to health? The quick responses and measures taken to stop the spread of SARS epidemic indicate how much necessity is to respond promptly to contain the spread. Several key events have shaped the profession of dental public health to make it what it is today.

Conclusion

Overall, this study has shown an acceptable level of awareness and preparedness among dental practitioners concerning COVID-19 news, spread, and prevention recommendations, with the highest level of awareness of the Ministry of health and family welfare guidelines and recommendations. Some dentists reported being unaware of some clinical-patient management procedures to limit the spread of the disease leading them to suspend their clinics, although the procedures were listed in the MHA guidelines. Thus, dental professionals are required to carry out educational sessions for their dentists and staff on the latest COVID-19 recommendations.

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