Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Dentistry Beyond Lockdown: Oral Healthcare Practitioner's Perceptions towards Novel Coronavirus (COVID-19)

Shilpa Pharande[1], Ketaki Bhor[2], Sheetal Potnis[3], Shilpa Jamenis[4], Vineet Vinay[5], Sharvari Karnik[6]

1. Reader, Department of Orthodontics & Dentofacial Orthopedics, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.
2. Assistant Professor in the Department of Public Health Dentistry, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.
3. Professor, Department of Orthodontics & Dentofacial Orthopedics, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.
4. Reader, Department of Orthodontics & Dentofacial Orthopedics, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.
5. Assistant Professor in the Department of Public Health Dentistry, Sinhgad Dental College and Hospital, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.
6. Post Graduate Student, Department of Orthodontics & Dentofacial Orthopedics, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune – 411041.

***ABSTRACT*:**

Background: The World Health Organization (WHO) has declared a global public health emergency against the outbreak of coronavirus disease (COVID-19) and since then has rapidly achieved a pandemic status. **Objective**: To assess the knowledge and attitude of oral healthcare professional towards Novel Coronavirus (COVID-19) regarding preparedness of starting the dental practice post lockdown period. **Methodology**: A cross-sectional study was conducted through an online survey using a pretested, validated, close ended, structured questionnaire on oral healthcare practitioners (OHCPs) (n=952). The knowledge and attitude was assessed based on 12 questions getting score of 1 or 0 and on 5-point likert scale respectively. The descriptive summary statistics included percentages, means and standard deviations. Z test for proportion was used to compare the proportion of correct and incorrect answers. **Results**: The mean knowledge score was 4.94+1.58, 6.471±2.2 with 600(63%) having fair knowledge score. The majority of OHCPs 900(94.5%) showed a positive attitude with mean score of 8.321±1.9. Only 95(10%) of the OHCPs were completely prepared to practice dentistry post lockdown period. **Conclusion**: OHCPs have a positive attitude, yet, there are areas where gaps in knowledge was observed. To effectively control infection spread, well-structured training programs must be launched by government to raise their existed knowledge.

Key words: COVID-19, lockdown, oral healthcare practitioners, preparedness

Received: 02/06/2020 **Modified:** 20/07/2020 **Accepted:** 24/07/2020

Corresponding Author: Dr. Ketaki Bhor, Department of Public Health Dentistry, Sinhgad Dental College and Hospital, S.No.44/1, Vadgaon(Bk.), 0ff Sinhgad Road, Pune-411041.

This article may be cited as: Pharande S, Bhor K, Potnis S, Jamenis S, Vinay V, Karnik S. Dentistry Beyond Lockdown: Oral Healthcare Practitioner's Perceptions towards Novel Coronavirus (COVID-19). J Adv Med Dent Scie Res 2020;8(8):38-45.

INTRODUCTION:

Coronavirus (CoV) infections are emerging respiratory viruses and are known to cause illness ranging from the common cold to severe acute respiratory syndrome (SARS). On 30 January 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern (PHEIC).[1] Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections typically spread through respiratory droplets or by contact. Another important route of transmission is if droplets of SARS-CoV-2 land on inanimate objects located nearby an infected individual and are subsequently touched by other individuals.[2] The main clinical manifestations are respiratory in nature, and they manifest after a mean incubation period of five days (range: 0–27 days).[3] To date, no antiviral treatment or vaccine has been explicitly recommended for COVID-19.[4]

In the process of preventing and controlling the disease, hospitals, as places where large numbers of people are brought close together, are especially important. Dental departments, in particular, face a higher risk of disease transmission by the very nature of dental treatment operations. The relevant characteristics of these operations are listed as follows: (I) the water mist generated by the air driven high-speed hand piece, air polisher, and various other instruments mixes with the saliva and blood of patients, forming aerosols and diffusing into the surrounding air; (II) dental treatment is characterized by relatively long operation times, which results in the persistent existence of aerosols within a large area of the clinical office and introduces a potential risk of spreading disease; (III) conventional protective measures are not 100% effective, and patients have no protection during the treatment process; (IV) the incubation period and possibility of patients concealing medical history could easily lead to the spread of disease; and (V) saliva, blood, and mixed water droplets carrying the virus would contaminate dental treatment equipment.[5,6] Also, the 2019-novel coronavirus (2019-nCoV) was detected in the self-collected saliva of 91.7% (11/12) of patients.[7] Through direct contact in the dentist's operation, both dental workers and patients are likely to become infectors and transmitters of COVID-19.[5,6]

The reactions and action plan of dental authorities globally varied from recommending dentists to stop their practices in California, USA; to declining the routine examinations in the UK. The dental council of India released advisory on 16th April 2020 stating that dentists ought to now sternly follow all modus operandi to decontaminate, disinfect and sterilize at the dental clinics as given, permitting to treat an utmost of only 3 or 4 patients in a day. The council also urges just emergency dental treatments in the near future, additionally impacting the fiscal plight of dentists.[8] A robust operational protocol in workplace would be an essential element of preparations for re-opening of dental services as per the guidelines of the regulatory authorities of which the oral healthcare practitioners must be aware off. Hence, this study was conducted to assess the knowledge and attitude of oral healthcare professional towards Novel Coronavirus (COVID-19) regarding preparedness of starting the dental practice after the completion of lockdown period.

MATERIALS AND METHODS:

A cross-sectional web-based questionnaire-based study was conducted to assess the knowledge and perceptions of oral healthcare professional towards Novel Coronavirus (COVID-19) regarding preparedness for starting the dental practice post lockdown. Institutional Ethical

Clearance was obtained prior to the commencement of the study (SDCH/IEC/2020/OUT/12). The reporting of the study is in accordance to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Pilot Study:

A pilot study was conducted, to check for the face and content validity of the developed questionnaire as well as to test its reliability and to derive the sample size. The questions were framed after thorough review of the literature and with the help of four experts the questions were reviewed for content validity. Cronbach's coefficient was found to be 0.78, which showed a good internal reliability of the questionnaire. The external reliability was established by test - retest method, among thirty dental practitioners who were not included in the main study.

Sample size derivation:

The sample size was determined by using single proportion formula ($n = [Z \alpha / 2]^2 p [1-p] / d^2$) at 95% confidence interval, where, $Z \alpha / 2 = 1.96$, p= 50% prevalence of knowledge of EBP from the pilot survey and d = 5% of marginal error was taken. By substituting the values in the formula, minimum sample size obtained was 379.

Designing of web-based questionnaire

A 25-item pre-validated, pre-tested, close-ended web-based questionnaire in English language was developed using World Health Organisation (WHO)[9], American Dental Association (ADA)[10], Environmental Protection Agency (EPA)[11], Centre for Disease Control (CDC)[12] and Guidelines for Dental Professionals in Covid-19 pandemic situation by Ministry of Health and Family Welfare, India[13] course materials on emerging respiratory viruses, including COVID-19. It designed using a template provided by the Google Forms (Google Inc., USA). Google Drive application was accessed through an existing Google account to design an online version of the questionnaires by creating a new Google Forms template. All the questions along with choices were

entered onto the Google Form template and were saved. The link to this questionnaire was mailed to all the members of the survey team. Only the principal investigator had access to the data and no personal details (e-mail address, phone number, name, etc.) of the surveyor were required. Each surveyor could access the link to the online questionnaire through a smartphone or laptops. Responses were sought from only those dentists who at least had completed their graduation in dentistry and a submission was considered only when the 'submit' button was clicked at the end of the questionnaire. All the questions were marked as compulsory in the survey forms so that there will be no missing or incomplete data at the time of analysis.

Using Google forms, the questionnaire was distributed by non-probability based self-selection[14] sampling technique which was a combination of convenience sampling (researchers themselves contacted dentists to participate in the study) and snowball sampling (the participating dentists were asked to forward the questionnaire to their colleagues) were used so that maximal participation could be ensured.[15] The questionnaire was distributed personally via the link https://forms.gle/TUUc9nN1yUZdxyZK9 through emails as well as posted on various social networking platforms such as WhatsApp, LinkedIn, Instagram and Facebook. The survey period was limited to a period of 1 month. The questionnaire covered the two sections related to OHCP's knowledge regarding COVID-19 and their preparedness for practicing dentistry post lockdown and was sent out twice: the second wave of questionnaires was sent a week after the first wave, as a reminder for filling the questionnaire.

The survey ensured confidentiality as no personal information on the participants' identity was required to be disclosed and was strictly voluntary as mentioned in the recruitment statement of the participant for the survey.

Scoring of the questionnaire:

Section A: Knowledge based questions

The 12 questions on knowledge were based on multiple choice answers. Each correct answer was awarded 1 mark while incorrect answer was awarded 0 marks. Scores were based on the number of correct answers given for the knowledge questions. The inference was drawn as: Poor: 0-3, Fair: 4-7 and Good: 8-12.

Section B: Attitude towards preparedness for practicing dentistry post lockdown

The 12 questions on Attitude were based on Likert scale. Strongly agree and agree was awarded 1 mark while uncertain, disagree and strongly disagree was awarded 0 mark for all attitude based questions except for 4 questions based on patient engagement reading materials kept in clinic, two-handed technique versus four-handed technique for controlling infection during dental procedures, method of removal of goggles or face shield post dental procedures and on pre-procedural inventory check in the section were reverse scored with strongly disagree and disagree having 1 mark and uncertain, agree and strongly agree having 0 mark. Scores were based on the number of answers indicating positive attitude of the practitioners. Those who scored more than 60% (≥ 6 correct answers out of 12) were considered as having positive attitude while score less than 60% (< 6 correct answers) corresponded to negative attitude.[16]

One question based on their preparedness towards handling patients in their dental clinics after the completion of lockdown period.

STATISTICAL ANALYSIS:

Statistical analysis was performed using IBM Statistical Package for Social Sciences (Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). The descriptive summary statistics included percentages, means and standard deviations. Z test for proportion was used to compare the proportion of correct and incorrect answers. A $p \leq 0.05$ was considered as significant for all statistical analyses.

RESULTS:

A total of 952 submissions were recorded and were included in the analysis. Majority of OHCPs had a degree of MDS (Master of Dental Surgery) (61%), followed by BDS (Bachelor of Dental Surgery) (39%). Sixty two percent of respondents were of age less than 40 years There were 43% participants who were both academicians and practitioners and an experience period of 2–5 years was mostly reported (32.5%) (Table 1).

Knowledge regarding COVID-19

Table 2 and figure 1 represents the responses obtained for knowledge items of questionnaire. Mixed responses were obtained regarding 12 knowledge items. More than 75% of the dental practitioners were well aware about cause, most common symptoms, transmission and host receptor used by COVID 19 to bind in human cell. Only 4.1% of the practitioners were aware about the 0-27 days is the range of the possible outliers in the intubation period of coronavirus. The definition of people with COVID-19 who can receive emergency dental care was answered correctly by 52.4% of participants only. More than 64% of the practitioners were unaware about specifications for gloves in PPE kit, respirators used when performing aerosol-generating procedures on COVID-19 patients and pre-procedural mouth rinse which are less effective against novel coronavirus.

Based on the pre described grading for knowledge score, only 29.2% had good knowledge regarding Coronavirus Disease 2019 whereas 63% and 7.8% showed fair and poor knowledge score respectively.

The overall mean knowledge score for the dental practitioners was 6.471±2.2. (Table 4)

Attitude of OHCPs towards preparedness for practicing dentistry post lockdown

Table 3 represents the responses obtained for attitude items. All the OHCPs responded to all 12 items on their attitude regarding COVID-19. Findings demonstrated highly positive attitude of dental practitioners towards preparedness for practicing dentistry post lockdown.

More than 95% of the dental practitioners, agreed towards adhering Standard Precautions guidelines post completion of lockdown period, educating dental hospital staff for COVID19 spread and identification of suspected COVID19 patient and tele screening and triage of patients before giving appointments. Almost, more than 85% of the OHCPs agreed that dentist should postpone elective procedures, surgeries, and non-urgent dental visits, COVID-19 may be spread while taking intraoral radiographs and handpieces and other intraoral devices that can be removed from the air and waterlines of dental units can be cleaned and heat-sterilized. A growing concern regarding shortages of PPE kits to manage the dental practice in near future was shown by 88% of the practitioners. Only, 17% and 20.7% of the practitioners agreed for removing goggles or face shield from the back by lifting head band or ear pieces after the completion of the dental procedure and four-handed technique is better over two-handed technique for controlling infection during dental procedures respectively. There was a highly statistically significant difference between the proportions of positive and negative attitude for each attitude-based question among the dental practitioners. Based on the pre described grading for attitude score, 900 (94.5%) participants showed a positive attitude towards preparedness for practicing dentistry post lockdown with an overall mean of 8.321±1.9 (Table 4)

Preparedness for handling patients in dental clinic after the completion of lockdown period Of the 952 dental practitioners, only 95(10%) were completely prepared for handling patients in dental clinic after the completion of lockdown period whereas, 459(48.2%) and 291(30.6%) were partially prepared and not prepared at all respectively. (Table 4)

Table 1: Sociodemographic characteristics of the participating OHCPs

Sr. No	Characteristic		n(%)
1.	Age	Less than 30 years	219(23)
		31-39 Years	371(39)
		40-49 years	257(27)
		More than 50 years	105(11)
2.	Highest qualification	MDS	581(61)
		BDS	371(39)
3.	Currently practicing as	an academician	267(28)
		a clinician	276(29)
		both	409(43)
4.	Years of practice	0–2	114(12)
		2–5	309(32.5)
		5–10	243(25.5)
		>10	162(17)
		currently not practicing	124(13)

Table 2: Responses to the knowledge-based questions by the participating OHCPs

Sr. No	Questions	Oral Healthcare Practitioners			
		Correct n (%)	Incorrect n (%)	*Z Value*	*p*-value
1.	Cause of COVID 19 disease	845(88.8)	107(11.2)	33.8262	< .00001*
2.	Host receptor used by COVID 19 to bind in human cell	761(79.9)	191(20.1)	26.1259	< .00001*
3.	Most common symptoms of COVID 19	764(80.3)	188(19.7)	26.4009	< .00001*
4.	Transmission of Novel Coronavirus from person to person is by	709 (74.5)	243(25.5)	21.3591	< .00001*
5.	Range of the possible outliers in the intubation period of coronavirus	39(4.1)	913(95.9)	-40.0597	< .00001*
6.	Definition of people with COVID-19 who have completed home isolation clearance can receive emergency dental care.	499 (52.4)	453(47.6)	-0.1836	0.85716
7.	Personal Protective Equipment (PPE)	540(56.7)	412(43.3)	5.8669	< .00001*
8.	Specifications for gloves in PPE kit	254 (26.7)	698(73.3)	-20.3507	< .00001*
9.	Respirators used when performing aerosol-generating procedures on COVID-19 patients	336(35.3)	616(64.7)	-12.8338	< .00001*
10.	Preprocedural mouthrinse less effective	343 (36.0)	609(64)	-12.1921	< .00001*

	against novel coronavirus				
11.	Surface disinfectants recommended according to Environmental Protection Agency (EPA)	613 (64.4)	339(35.6)	12.5588	< .00001*
12.	Color of bag used for disposal of biomedical waste generated from suspected case in the dental clinic	457(48.0)	495(52.0)	-1.7417	0.08186

*** *p*<0.0001- Highly statistically significant**

Table 3: Distribution of OHCPs according to their attitude towards preparedness for practicing dentistry post lockdown

Sr. No	Questions	Oral Healthcare practitioners			
		Agree n (%)	Disagree n (%)	*Z Value*	*p*-value
5.	Even after completion of lockdown period, every dentist should adhere to Standard Precautions guidelines	912 (95.8)	40 (4.2)	39.9681	< .00001
6.	Dental hospital staff be educated for COVID19 spread and identification of suspected COVID19 patient	930 (97.7)	22 (2.3)	20.4809	< .00001
7.	A tele screening and triage of patients be done before giving appointment	904 (95.0)	48(5.0)	39.2347	< .00001
8.	Magazines, books and other reading materials should not be kept in the dental clinic for patient engagement	395 (41.5)	557(58.5)	-7.4253	< .00001
9.	Dentist should postpone elective procedures, surgeries, and non-urgent dental visits	810(85.1)	142(14.9)	30.6177	< .00001
10.	Four-handed technique is better over two-handed technique for controlling infection during dental procedures	198(20.7)	754(79.3)	-25.4842	< .00001
11.	Anti-retraction functions of handpieces may provide additional protection against cross-contamination	649(68.2)	303(31.8)	15.8589	< .00001
12.	After the completion of the dental procedure always remove goggles or face shield from the back by lifting head band or ear pieces	162(17.0)	790(83)	-28.7843	< .00001
13.	COVID-19 may be spread while taking intraoral radiographs	838(88)	114(12)	33.1845	< .00001
14.	Handpieces and other intraoral devices that can be removed from the air and waterlines of dental units should be cleaned and heat-sterilized between patients	866(91.0)	86(9)	35.7512	< .00001
15.	Dentist should conduct an inventory of available PPE supplies before starting up with dental practice	424(44.5)	528(55.5)	-4.7668	< .00001
16.	PPE shortages are a growing concern to manage the dental practice in near future	838(88)	114(12)	33.1845	< .00001

*** *p*<0.0001- Highly statistically significant**

Table 4: Overall Knowledge, Attitude and Preparedness scores of the OHCPs regarding Coronavirus Disease 2019 (COVID-19)

Sr. No	Questions	Characteristic	Value
17.	Knowledge	Mean ±SD	6.471±2.2
		Good knowledge scores n(%)	278(29.2)
		Fair knowledge scores n(%)	600(63)
		Poor knowledge scores n(%)	74(7.8)
18.	Attitude	Mean ±SD	8.321±1.9
		Positive attitude score n(%)	900(94.5)
		Negative attitude score n(%)	52(5.5)
19.	Preparedness	Completely prepared n(%)	95(10)
		Partially prepared n(%)	459(48.2)
		Not prepared at all n(%)	291(30.6)
		Don't know n(%)	107(11.2)

SD – standard deviation

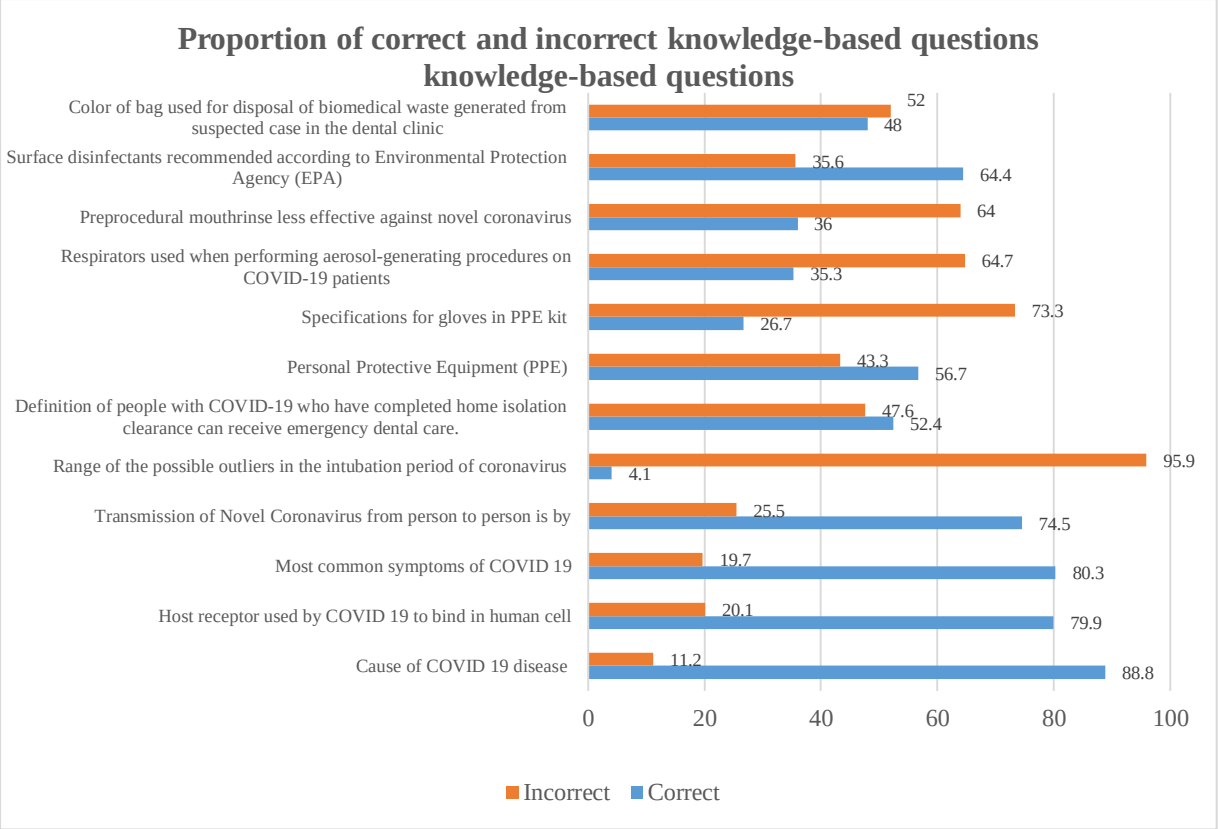

Figure 1: Knowledge of OHCPs regarding COVID-19.

DISCUSSION:

Dentists are among the highest risk categories for transmission and contraction of the coronavirus, with many routine dental procedures having the potential to transmit the virus through aerosols. Asymptomatic (carrier) patients as well as patients with an acute respiratory illness may present for dental treatment at outpatient dental settings.[17] As, there are many aspects of COVID-19 that are related to dental practice in addition to infection control, including prevention and treatment, this web-based study was conducted to understand the preparedness and knowledge of the dental practitioners to combat the outbreak of this pandemic disease.

According to Occupational Safety and Health Administration (OSHA), dental health care personnel (DHCP) are placed in very high exposure risk category as dentists work in close proximity to the patient's oral cavity.[18] Also, dental procedures involve the use of rotary instruments such as handpieces and scalers, which generate aerosols. Thus, a greater understanding of the structure of the virus, modes of transmission, clinical features, and testing methods is needed to prevent further spread of infection to the patients and OHCP.[19] Our study revealed that overall OHCP have a fair knowledge (n= 600, 63%) about COVID-19, but showed positive attitude (n=900, 94.5%) towards the prevention of COVID-19 transmission.

SARS-CoV-2 is the seventh member of the family of coronaviruses that infect humans by binding to Angiotensin converting enzyme 2 was answered correctly by more than 80% of the OHCP. Majority of OHCP were aware about the spread of COVID-19 by human-to-human transmission through droplet and direct contact and has fever, non-productive cough, myalgia, or fatigue as common symptoms at onset of illness. The incubation period for COVID-19 is of 2-14 days, but the possible outliers in the intubation period of coronavirus range from 0- 27 days, only 4.1% of the OHCP were aware of it. Thus, the standard infection control measures which are otherwise followed in daily clinical work will thus not be effective enough to prevent the spread of COVID-19, especially when patients are in the incubation period, are unaware they are infected, or choose to conceal their infection.[20]

The people with COVID-19 who have completed home isolation clearance and can receive emergency dental care are the ones for whom at least 3 days (72 hours) have passed since recovery (resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms), and at least 7 days have passed since symptoms first occurred. As well as for individuals with laboratory-confirmed COVID-19 who have not had any symptoms, at least 7 days have passed since the date of the first positive COVID-19 diagnostic test and have had no subsequent illness. This definition of COVID-19 who

have completed home isolation clearance was known to only 50% of the OHCPs.

Overall, there is evidence that the use of PPE does reduce rates of disease transmission and protects staff.[21] WHO has recommended that, personal protective equipment (PPE) including s gloves, gown, head cover, shoe cover, eye protection including goggles or a disposable/reusable face shield that covers the front and sides of the face, and a N954 or higher level respirator should be used by dental surgeon and dental assistant while treating patients[9], only 57% of the OHCPs were aware about this. Regarding the pre-procedural mouth rinse only, 36% of OHCPs were aware that pre-procedural mouth rinse with 0.5–1% hydrogen peroxide for its nonspecific virucidal activity against viruses or with 0.2% povidone-iodine is recommended as it might reduce the load of corona virus in saliva.[22]

Precautionary measures post-treatment are also very important in prevention of transmission of COVID-19, regarding which 64.4% of OHCPs were aware of. According to Environmental Protection Agency (EPA) and Centers for Disease Control and Prevention, s mopping the floor with 1% sodium hypochlorite and disinfecting waterlines with 0.01% sodium hypochlorite as well as use of quaternary ammonium compounds can help reduce the risk of cross infection.[23] Only 48% of the OHCPs were aware about the disposal of all biomedical waste pertaining to patient care in yellow colour bag from time to time through an authorized biomedical disposal agency.[24]

Our study revealed that overall OHCPs had a fair knowledge (n= 600, 63%) about Novel Coronavirus, which is in line with findings of Nemati M et al[25] who reported that 56.5% the nurses have sufficient knowledge regarding transmission, symptoms and treatment of COVID-19, whereas it is in contrast to the study conducted by Bhagavathula AS et al[26] who revealed that Health Care Workers have insufficient knowledge about COVID-19. Shi Y et al[27] and Kamate SK et al[15] reported that 89.51% healthcare workers and 92.7% of the dentist respectively, have claimed good knowledge while in another study by Giao et al[28], 88.4% participants reported sufficient knowledge regarding COVID-19.

The OHCPs overall showed a positive attitude towards preparedness for practicing dentistry post lockdown (900, 94.5%). Majority of the OHCPs agreed to follow proper protocols recommended by the relevant authorities to protect themselves and their patients against infections as well to update their and the assistant knowledge and skills regarding identification of suspected COVID19 patient. Telephone screening and triage of all patients is the need of dental care. Based on the patients' signs and symptoms, a decision can be made to determine whether the patient needs to be seen in the dental clinic.[19] Therefore, teledentistry can be of great assistance in the current pandemic situation as well as postponement of elective procedures was agreed upon by 95% and 85% of the OHCPs, respectively. Additional measures such as sterilization of handpieces and other intraoral devices that can be removed from waterlines, using anti-retraction valves, antiretraction handpieces, and retrograde aspiration to prevent cross infection was agreed by majority of the OHCPs.

A positive attitude towards COVID-19 among the HCWs was also reported by Giao et al[28] and Bhagavathula et al.[26] OCHPs good knowledge and practice in complying precautionary measures creates awareness among patients as well as gives an important message in society.[29] Even though there was sufficient knowledge and a positive attitude towards practicing dentistry post lockdown, the majority of the OHCPs were not prepared to start their practice which may be because of shortage of PPE kits, lack of availability of the equipments required for sterilization and disinfecting the clinic as well as the increasing number of COVID-19 patients.

There are certain limitations of our study. Since it was a questionnaire study, knowledge and attitude regarding COVID-19 among the respondents may or may not be predicted, reflecting the inherent limitation of the study. Secondly, due to the cross-sectional nature of the study and the employed sampling technique, the self-selection bias on the side of the respondents could have occurred. Another one being the social desirability bias. In order to eliminate it personal information of the participants was not asked and confidentiality was assured.

CONCLUSION:

Oral healthcare professionals need to understand that they can play a significant role in disrupting the transmission chain, thereby reducing the incidence of disease by simply postponing all non-emergency dental care for all patients as well as by preventing cross-contamination. In this study, it was found that the OHCPs had fair knowledge regarding COVID-19 but showed a positive attitude towards starting up the dental practice post lockdown period. Hence, they need to keep themselves updated with any new information regarding this disease and follow the CDC and WHO guidelines in their clinics.

REFERENCES:

1. Eurosurveillance Editorial Team. Note from the editors: World Health Organization declares novel coronavirus (2019-nCoV) sixth public health emergency of international concern. Euro Surveill. 2020;25(5):200131e.
2. CDC. Coronavirus Disease 2019 (COVID-19) - Transmission [Internet]. Centers for Disease Control and Prevention, 2020; 19. Available from: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covidspreads.html.
3. Brown JD. Antihypertensive drugs and risk of COVID-19? The Lancet. Respiratory Medicine 2020;8(5):e28.
4. World Health Organization. Novel coronavirus (COVID-19) situation. Available online: https://

https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd (Accessed on 8 April 2020).
5. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. J Am Dent Assoc 2004;135:429-37.
6. Raghunath N, Meenakshi S, Sreeshyla HS, Priyanka N. Aerosols in dental practice-A neglected infectious vector. Microbiology Research Journal International 2016;15:1-8.
7. To KK-W, Tsang OT-Y, Chik-Yan YC, Chan K-H, Wu T-C, Chan JMC, et al. Consistent detection of 2019 novel coronavirus in saliva. Clin Infect 2020;12.
8. Singh KT, Mishra G, Shukla AK, Behera S, Tiwari AK, Panigrahi S, et al. Preparedness among dental professionals towards COVID-19 in India. The Pan African Medical Journal 2020;36:108.
9. World Health Organization. Rational use of personal protective equipment for coronavirus disease (COVID-19): interim guidance, 27 February 2020. World Health Organization; 2020.
10. American Dental Association. ADA Interim Guidance for Minimizing Risk of COVID-19 Transmission. Last updated 2020-04-01.
11. Environmental Protection Agency. https://www.epa.gov/pesticide-registration/list-n-disinfectantsuse-against-sars-cov-2. Published 2020.
12. Centers for Disease Control. https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/hcpreturn-work.html. Published 2020.
13. Guidelines for Dental Professionals in Covid-19 pandemic situation. https://static.investindia.gov.in/s3fs-public/2020-05/DentalAdvisoryF.pdf Issued on 19/05/2020
14. Andrews D, Nonnecke, B, Preece J. Conducting Research on the Internet: Online Survey Design, Development and Implementation Guidelines. International Journal of Human-Computer Interaction 2003;16:185-210.
15. Kamate SK, Sharma S, Thakar S, Srivastava D, Sengupta K, Hadi AJ, et al. Assessing Knowledge, Attitudes and Practices of dental practitioners regarding the COVID-19 pandemic: A multinational study. Dental and Medical Problems 2020;57(1):11-7.
16. Nickell GS. The helping attitude scale. In106th Annual Convention of the American Psychological Association at San Francisco 1998 Aug (pp. 1-10).
17. Dar Odeh N, Babkair H, Abu-Hammad S, Borzangy S, Abu-Hammad A, Abu-Hammad O. COVID-19: Present and Future Challenges for Dental Practice. International Journal of Environmental Research and Public Health 2020;17(9):3151.
18. Centers for Disease Control and Prevention, Interim Infection Prevention and Control Guidance for Dental Settings during the COVID-19 Response, Centers for Disease Control and Prevention, Atlanta, GA, USA, 2019, https://www.cdc.gov/ coronavirus/2019-ncov/hcp/dental-settings.html.)
19. Bhanushali P, Katge F, Deshpande S, Chimata VK, Shetty S, Pradhan D. COVID-19: Changing Trends and Its Impact on Future of Dentistry. International Journal of Dentistry. 2020;29:2020.
20. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. Journal of Dental Research 2020;99(5):481-7.
21. Cook TM. Personal protective equipment during the coronavirus disease (COVID) 2019 pandemic–a narrative review. Anaesthesia 2020 Jan 1.
22. Ather A, Patel B, Ruparel NB, Diogenes A, Hargreaves KM. Coronavirus disease 19 (COVID-19): implications for clinical dental care. Journal of endodontics 2020;46(5):584-595.
23. Centers for Disease Control and Prevention, Cleaning and Disinfection for Community Facilities, Centers for Disease Control and Prevention, Atlanta, GA, USA, 2020, International Journal of Dentistry 5 https://www.cdc.gov/coronavirus/2019-ncov/community/ organizations/cleaning-disinfection.html.)
24. Dental Council of India, Covid-19 Guidelines for Dental Colleges, Dental Students and Dental Professionals by Dental Council of India, Dental Council of India, New Delhi, India, 2020, http://dciindia.gov.in/Admin/NewsArchives/DCI/Guidelines/on/COVID-19.pdf.
25. Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Archives of Clinical Infectious Diseases 2020;15(COVID-19)
26. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Novel coronavirus (COVID-19) knowledge and perceptions: a survey on healthcare workers. MedRxiv 2020(Pre-print). doi: https://doi.org/10.1101/2020.03.09.20033381
27. Shi Y, Wang J, Yang Y, Wang Z, Wang G, Hashimoto K, et al. Knowledge and attitudes of medical staff in Chinese psychiatric hospitals regarding COVID-19. Brain, Behavior, & Immunity-Health 2020:100064.
28. Giao H, Thi N, Han N, Khanh T Van, Ngan VK, Tam V Van, et al. Knowledge and attitude toward COVID-19 among healthcare workers at Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. Asian Pac J Trop Med 2020;13:1–6.
29. Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z, et al. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. Journal of Hospital Infection. 2020;105(3):419-23.