

eISSN:2320-3137 www.earthjournals.in

Research Article

A CROSS-SECTIONAL STUDY ON AWARENESS AND KNOWLEDGE REGARDING COVID 19 SPREAD, APPROPRIATE PROTOCOL FOR PREVENTION AND FUTURE PREPAREDNESS AMONG DENTAL HEALTH CARE WORKERS

Rutuj Waghmare, Ali Khan, Shobha Joshi, Reena Rani, Darshit Jain, Mantasha Khan, Abhishek Joshi, Vijay Waghmare

Dr. Rutuj Waghmare, Post-graduate student Department of Community Medicine, Datta Meghe Institute of Medical Sciences Sawangi (M), Wardha, Maharashtra, India.

Dr. Ali Khan, Post-graduate student, Department of Pedodontics and Preventive dentistry, Peoples Dental Academy, Bhopal, Madhya Pradesh, India

Shobha Joshi , Post-graduate student Department of Community Medicine, Datta Meghe Institute of Medical Sciences Sawangi (M), Wardha, Maharashtra, India.

Dr. Reena Rani, Post-graduate student, Department of Pedodontics and Preventive dentistry, Swami Devi Dayal Hospital and Dental College, Panchkula, Haryana, India

Dr. Darshit Jain , Post-graduate student, Department of Conservative dentistry and endodontics, Pacific dental college and hospital, Udaipur, Rajasthan, India

Mantasha Khan, Under-graduate student KLE Vishwanath Katti Institute of Dental Science, Belagavi, Karnataka, India.

Abhishek Joshi (MBA), PG student, Sinhgad Institute of Management and ComputerApplication (SIMCA), Pune, Maharashtra, India.

Vijay Waghmare (MMS), PG student, MES Pillai Institute of Science and Research, New Panvel, New Mumbai, Maharashtra, India.

Corresponding author: Miss. Shobha Joshi. Department of Community Medicine Jawaharlal Nehru Medical College and Hospital Datta Meghe Institute of Medical Sciences Sawangi (M), Wardha, Maharashtra, India

Publication history: Received on 02/05/2020, Accepted on0 6/05/2020, Published online 08/05/2020

Volume 9, Issue 1, 2020



eISSN:2320-3137

ABSTRACT:

Introduction- The risk of cross-infection between dental practitioners and patients may be high due to the features of the dental environments. Dental practices which are potentially affected by COVID-19 in or near areas should strictly follow sterilization or disinfection protocols, as this is seen as the only way to curb the spread of the infection. Hence, knowledge of these protocols to the dental professionals is of utmost necessity during this pandemic time so this study was undertaken to assess awareness and knowledge regarding COVID 19 spread, appropriate protocol for prevention and future preparedness among dental health care workers. Material and Method- It was a cross -sectional questionnaire based study carried out among the dental professional by using 5-point likert scale to record the responses of study participants. The sampling was done by complete enumeration method and a total of 173 dental professional were includes in this study. Results-About 72.8 % of the dental professional were aware about the fact that COVID -19 spreads through direct transmission, contact transmission and aerosols. 43.9% of them were agreed on the fact that COVID -19 can spread only by the secretion of the infected patients, Also most of them were strongly agreed on the fact that mask should be changed in every 8 hours (42.8) and Washing hands or using alcohol based sanitizer after and before screening should be recommended (69.4%). Conclusion- most of the study participants were aware for future preparedness regarding COVID 19 spread and them will ready to take necessary preventive measures for the same.

Keyword- COVID 19, Dental professional, appropriate protocol

INTRODUCTION

At the end of 2019, a novel coronavirus, also known as COVID-19, was reported as the origin of a cluster of cases of pneumonia that affected several citizens in Wuhan, a town in China's Hubei province, believed to be the source of this novel virus.¹ COVID-19 spread quickly and triggered an epidemic in China, which then became a global health emergency. Although protection measures and isolations were implemented for prevention, the epidemic expanded and became pandemic.² India prepares for the COVID-19 pandemic; frontline healthcare staff are particularly susceptible to this outbreak. The virus triggering COVID -19 was originally referred to as 2019-nCoV and was subsequently referred to by the International Committee for Virus Taxonomy (ICTV) as coronavirus 2 syndrome (SARS-CoV-2).³ It is a modern strain that was identified in 2019 and was not commonly present in humans. Extreme acute respiratory syndrome-coronavirus (SARS-CoV) and respiratory syndrome-coronavirus (MERS-CoV) in the Middle East have historically been reported to impact humans.⁴ Healthcare staff are at the greatest risk of transmitting infection. The extremely infectious SARS-CoV-2 virus is an external healthcare threat aside from the strain of longer work hours, physical and psychological discomfort, burnout and exhaustion.⁵ In that one of the health care workers was dental fraternity. Dental fraternity is well aware of the airborne infections caused due to aerosols since most of the procedures routinely use air rotors. During dental procedures, a layer of particulate matter is clearly visible which could possibly hold infectious agents. It mostly consists of material that originates from either treatment site or dental unit waterlines (DUWLs) or both. It seems the quickly circulating virus is more infectious than SARS and respiratory syndrome in the Middle East.⁶ A possible route of communication between

Volume 9, Issue 1, 2020



Barthjournals Publisher

eISSN:2320-3137

humans is by airborne droplets or interaction with an infected individual or polluted object. Furthermore, other routes of transmission like blood, saliva and other bodily fluid have been investigated but no such findings have been shown to deny the transmission through other means. Such transmission routes raise the question about a related transmission route for COVID-19 in the dental context.⁷ The risk of cross-infection between dental practitioners and patients may be high due to the features of the dental environments. Dental practices which are potentially affected by COVID-19 in or near areas should strictly follow sterilization or disinfection protocols, as this is seen as the only way to curb the spread of the infection. Hence, knowledge of these protocols to the dental professionals is of utmost necessity during this pandemic time. As the report of newspaper i.e. New York time suggests that Dental professionals are at the greatest risk for Coronavirus, this study was undertaken to assess awareness and knowledge regarding COVID 19 spread, appropriate protocol for prevention and future preparedness among dental health care workers.

METHODOLOGY-

It was a cross -sectional questionnaire based study carried out among the dental professional to assess the awareness and knowledge regarding COVID 19 spread, appropriate protocol for prevention and future preparedness among dental health care workers. Questionnaire consist of 2 sections- Section A and Section B. section A consist of Demographic details of the study participants e.g. Name, Age, Sex and educational qualification, Section B consist of total 24 questions for the assessment of the awareness and knowledge regarding COVID- 19 spread, appropriate protocol for prevention and future preparedness among dental health care workers. We uses 5 point likert scale to record the responses of study participants. Questionnaire piloting was done on the 10 general practitioner of Wardha districts and then questioner used for assessment of the awareness and knowledge regarding COVID- 19 spread, appropriate protocol for prevention and future preparedness among dental health care workers. The sampling was done by complete enumeration method and a total of 173 dental professional of Vidarbha region were includes in this study. Approximately 10-15 minute were given to each participants for the completion of questionnaire. Informed consent were taken prior to the data collection. Study include the dental professional who were willing to take part in the study, incompletely filled questionnaire were excluded for the study. The data collected from the questionnaire was entered on Ms Excel (2007 version developed by Microsoft) and was deployed on SPSS version 21 to carry out statistical analysis, descriptive statistics was used in the study.



eISSN:2320-3137

RESULT-

Table 1. Distribution of study participants -

Variables		n	Percentage
Male		64	37.0
Sex	Female	109	63.0
A go	Below 30years	105	60.69
Age	Above 30 years	68	39.30
Education	General Practitioner (BDS)	65	37.6
	Post Graduate Practitioner(MDS)		15.0
	P.G student	82	47.4

Table 1 shows that's most of the study participants were females (63%) followed by males (37.0), about 60.69% of the study participants were aged below 30 years of age and most of them are the PG students (47.4%) followed by the General Practitioner (BDS) were included in the study.

Table 2. Assessment of awa	reness and knowledge regard	ling COVID 19 spread amo	ong
dental professionals.			

Variables	Response	n	Percentage
COVID -19 spreads through direct transmission, contact transmission	Strongly disagree	8	4.6
	Disagree	0	0
	Neither agree nor disagree	4	2.3
and aerosols.	Agree	35	20.2
	Strongly agree.	126	72.8
	Strongly disagree	4	2.3
COVID -19 infections can spread	Disagree	35	20.2
only by the secretion of the infected	Neither agree nor disagree	12	6.9
patients	Agree	76	43.9
	Strongly agree.	46	26.6
N-95, N-100, FFP-2 are the standard mask should be used by dental practitioners.	Strongly disagree	8	4.6
	Disagree	4	2.3
	Neither agree nor disagree	0	0
	Agree	57	32.9
	Strongly agree.	104	60.1

Volume 9, Issue 1, 2020



Barthjournals Publisher

eissn:2320-3137

www.carthjournals.in

Emergency severity assessment chart is necessary followed	Strongly disagree	0	0
	Disagree	4	2.3
	Neither agree nor disagree	0	0
during dental treatment.	Agree	75	43.4
	Strongly agree.	94	54.3
Children, geriatric population and people with systemic disease are more likely to affect by COVID -19, their special care should be taken during dental treatment.	Strongly disagree	6	3.5
	Disagree	4	2.3
	Neither agree nor disagree	4	2.3
	Agree	49	28.3
	Strongly agree.	110	63.6

About 72.8 % of the dental professional were aware about the fact that COVID -19 spreads through direct transmission, contact transmission and aerosols. 43.9% of them were agreed on the fact that COVID -19 can spread only by the secretion of the infected patients, most of the study participants (60.1%) were agreed on the fact that N-95, N-100, FFP-2 are the standard mask should be used by dental practitioners to reduce the incidences of infection. This study showed that 63.6% study participants were aware about the fact that Children, geriatric population and people with systemic disease are more likely to affect by COVID -19, their special care should be taken during dental treatment.

 Table 3. Assessment of appropriate protocol for prevention regarding COVID 19

 spread among dental professionals.

Variables	Response	n	Percentage
Dentist should follow the	Strongly disagree	0	0
	Disagree	0	0
precaution for treating each and	Neither agree nor disagree	0	0
every patient.	Agree	75	43.4
	Strongly agree.	98	56.6
	Strongly disagree	4	2.3
Cholrhexidine is effective	Disagree	55	31.8
against COVID 19	Neither agree nor disagree	48	27.7
	Agree	58	33.5
	Strongly agree.	8	4.6
Isoproply alcohol, 1% sodium	Strongly disagree	4	2.3
hypochloride or bleaching powder	Disagree	8	4.6
is effective disinfectant against	Neither agree nor disagree	26	15.0

Volume 9, Issue 1, 2020



Barthjournals Publisher

eISSN:2320-3137

www.earthjournals.in

COVID 19.	Agree	87	50.3
	Strongly agree.	48	27.7
	Strongly disagree	6	3.5
Disinfectant is necessary	Disagree	4	2.3
patient had come in	Neither agree nor disagree	4	2.3
contact in the clinic.	Agree	53	30.6
	Strongly agree.	106	61.3
	Strongly disagree	0	0
A mask should be	Disagree	0	0
changed in every 8 hours.	Neither agree nor disagree	12	6.9
	Agree	87	50.3
	Strongly agree.	74	42.8
	Strongly disagree	6	3.5
Washing hands or using alcohol	Disagree	0	0
based sanitizer after and before screening should be recommended.	Neither agree nor disagree	0	0
	Agree	47	27.2
	Strongly agree.	120	69.4
Dental health care personnel should change their scrubs	Strongly disagree	0	0
before going to home.	Disagree	0	0
	Neither agree nor disagree	0	0
	Agree	71	41.0
	Strongly agree.	102	59.0

Table 3 shows when it comes to assessment of appropriate protocol for prevention regarding COVID 19 spread among dental professionals about 33.5% of dentist agreed that Cholrhexidine is effective against COVID 19 while 31.8% were disagreed, Most of the dental professional under the study were strongly agreed on the part that Disinfectant is necessary in all the area where the patient had come in contact in the clinic. Also most of them were strongly agreed on the fact that mask should be changed in every 8 hours (42.8) and Washing hands or using alcohol based sanitizer after and before screening should be recommended (69.4%).



Barthjournals Publisher

eISSN:2320-3137

www.carthjournak.in

Table 4. Assessment of future preparedness among dental health care workers regarding COVID 19 spread.

Variables	Response	n	Percentage
Do you follow the WHO guidelines	Strongly disagree	0	0
	Disagree	0	0
on hand hygiene, whether it is	Neither agree nor disagree	8	4.6
	Agree	57	32.9
important			
measure to prevent the risk	Strongly agree.	108	62.4
Surfaces such as door door handles	Strongly disagrap	6	2.5
Surfaces such as door, door handles,	Disagree	0	3.3
nationts waiting area, shairs, tables	Disagree	4	2.3
patients waiting area, chairs, tables,	Neither agree nor disagree	0	
dental chair should be disinfectant	Agree	4/	21.2
frequently.	Strongly agree.	116	67.1
	Strongly disagree	0	0
Whether 70% alcohol is best method to	Disagree	0	0
	Neither agree nor disagree	34	19.7
sanitize the metallic objects.	Agree	83	48.0
	Strongly agree.	56	32.4
Aersol generating procedure,	Strongly disagree	10	5.8
	Disagree	4	2.3
minor oral surgery procedure	Neither agree nor disagree	23	13.3
	Agree	78	45.1
should be done as the last appointment of the day.	Strongly agree.	58	33.5
Distance of 1 feet between	Strongly disagree	0	0
	Disagree	4	2.3
two healthy people and 6 feet	Neither agree nor disagree	4	2.3
	Agree	71	41.0
distance from the sick persons is mandatory.	Strongly agree.	94	54.3
	Strongly disagree	8	4.6
Pre and post procedure	Disagree	12	69
	Neither agree nor disagree	47	27.2

Volume 9, Issue 1, 2020



Barthjournals Publisher

eISSN:2320-3137

www.earthjournals.in

mouth rinse such as 1% hydrogen	Agree	64	37.0
peroxide or 0.2% povidone iodine is effective against COVID 19.	Strongly agree.	42	24.3
Dentist and assistant should	Strongly disagree	0	0
check up for COVID 19 test	Disagree	8	4.6
every week.	Neither agree nor disagree	16	9.2
	Agree	87	50.3
	Strongly agree.	62	35.8
	Strongly disagree	6	3.5
	Disagree	8	4.6
Each and every patient should be	Neither agree nor disagree	18	10.4
	Agree	75	43.4
the treatment.	Strongly agree.	66	38.2
Whether the dentist should minimize	Strongly disagree	0	0
	Disagree	19	11.0
the use of 3-in-1 (3 way)	Neither agree nor disagree	30	17.3
	Agree	90	52.0
syringe during the procedure.	Strongly agree.	34	19.7
IOPA should be replaced with	Strongly disagree	4	2.3
-	Disagree	22	12.7
OPG/CBCT.	Neither agree nor disagree	35	20.2
	Agree	66	38.2
	Strongly agree.	46	26.6
Whether airotor should be replace	Strongly disagree	0	0
-	Disagree	26	15.0
with micro-motor in order to	Neither agree nor disagree	44	25.4
	Agree	65	37.6
reduce aerosol production	Strongly agree.	38	22.0
Dentist must use PPE kit for	Strongly disagree	12	6.9
	Disagree	14	8.1
every patient	Neither agree nor disagree	30	17.3
	Agree	73	42.2
	Strongly agree.	44	25.4

INTERNATIONAL JOURNAL OF MEDICAL AND APPLIED SCIENCES CISSN:2320-3137 Barthjournals Publisher www.carthjournals.in

Table 4 shows the Assessment of future preparedness among dental health care workers regarding COVID 19 spread. Around 62.4% study participants were strongly agreed on the part that they will the WHO guidelines on hand hygiene, whether it is important measure to prevent the risk of infection and also the Surfaces such as door, door handles, patients waiting area, chairs, tables, dental chair, should be disinfectant frequently(67.1%).41.0 % and 54.3 % of the them were agreed and strongly agreed on the fact that Distance of 1 feet between two healthy people and 6 feet distance from the sick persons is mandatory. Same result were found in case of use PPE kit for every patient around 8.1 % were disagreed on this fact while most of them i.e. 42.2 % agreed that dentist must uses PPE kit for every patients.

DISCUSSION-

The dental clinic and hospital has much more possibility of transmitting and acquiring the infection to the staff or the patients, thus dental team are at much riskier environment for the spread of the infection.⁸ The patients with the COVID-19 infections are not supposed to take any type of dental treatment till the time their test for COVID-19 gets negative, by that time any contact with them should be avoided.^{9, 10} But the asymptomatic patients of the COVID-19 are more threat to the dental team. Thus the dental health care professional and their team should have high level of knowledge, awareness and should well prepare to deal, control and to manage the spread of the infections.¹¹ This study provides an insight on the level of awareness, knowledge, perception and attitude of the dentist on infection control during the out- break of COVID-19 pandemic infections. Among the following 43.9% dentist admit that COVID-19 infection spread through the secretion of the infected patients. Out of the following, 63.6% conceived that the geriatric, children and patients with the systemic disease are more prone to COVID-19 infection, 63.6% of the dentist strongly agreed that special care should be taken for such patients. However, 60% of the dentist suggest that N-95, N-100, FFP-2 mask are necessary for the dental health care professional and the assistant during the dental treatment. There is no evidence based definite treatment and management of COVID-19 infection.⁹ The approach is to restrict the source of infection, curtailed the risk of transmission, early diagnosis, isolation and adjuvant treatment therapy based on the symptoms. More than half (69.4%) of the dentist proposed that sanitizing hands by using alcohol based sanitizer before and later screening the patients would help minimize the spread of infections. All most all the professional agreed that disinfectant is mandatory in all the area where the patients had come in contact. 87 % of the dentist suggest that the gloves and masks should be change regularly in order to forbid the risk of transmission of the infection. Although studies have shown that human coronavirus like SARS-CoV&MERS-CoV have limited capacity to live on dry surface, it is been also proved that they can remain viable on a surface for a few days, specially those which are suspended in human secretion. ^{10, 12} During, out-break of pandemic COVID-19 infections, the dentist and their team should evaluate the risk of transmission through, each patient should be screened for COVID-19 test before the treatment procedure, (43.4%) had agreed to this. Nearly 42.2% agreed that PPE kit is must for every patients during the dental treatment procedure. Patients should be asked for detail history i.e. medical history, travel history, whether patients is having flu like symptoms or fever, whether the patient had come in contact with the COVID-19 patients, in such circumstances the patients must be send to the designated COVID hospital or patient must be quarantine for at least 14 days.¹²By that

Volume 9, Issue 1, 2020

INTERNATIONAL JOURNAL OF MEDICAL AND APPLIED SCIENCES CISSN:2320-3137 Barthjournals Publisher www.earthjournals.in

time all the treatment procedure should be suspended. The dentist should take strict precaution to avoid or to minimize the aerosol as much as possible in the operating area, for this 78% of the dentist had agreed. About 98% professional strongly agreed that the dentist must follow the universal precaution and 54.3% professional agreed that they must have emergency assessment kit during the treatment procedure and 62.4% dentist strongly that they follow WHO guidelines for the hand hygiene, which is an important method to prevent the risk of infection.

CONCLUSION

Within the limitation of this cross sectional study, it can be concluded that majority of dentists surveyed agreed to the terms that during this pandemic outbreak of COVID-19, strict disinfection sterilization and protocols will have to be followed during dental procedures to be done, if any. Also, screening of all the personals in the dental settings is necessary to avoid cross transmission of the disease, which, can turn fatal most of the study participants were aware for future preparedness regarding COVID 19 spread and them will ready to take necessary preventive measures for the same.

REFERENCES

- 1. Tan W, Zhao X, Ma X, Wang W, Niu P, Xu W, et al. A novel coronavirus genome identified in a cluster of pneumonia cases–Wuhan, China 2019–2020. China CDC Weekly. 2020;2(4):61-2.
- 2. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptivestudy.TheLancet.2020;395(10223):507-13.
- Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Di Napoli R: Features, Evaluation and Treatment Coronavirus (COVID-19). StatPearls Publishing, Treasure Island, FL; 2020.
- 4. WHO Director-General's opening remarks at the media briefing on COVID-19 11 March 2020. (2020). Accessed: Mar 19, 2020: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarksat-the-media-briefing-on-covid-19---11-....
- 5. Langade D, Modi PD, Sidhwa YF, et al.: Burnout syndrome among medical practitioners across India: a questionnaire-based survey. Cureus. 2016, 8(9):e771. Accessed: March 3, 2020: 10.7759/cureus.771
- Secon H. Nearly 3,400 Chinese healthcare workers have gotten the coronavirus, and 13 have died. Business Insider. 2020 Mar 04; <u>https://www.businessinsider.com/healthcare-workers-getting-coronavirus-500-infected-2020-2</u>

INTERNATIONAL JOURNAL OF MEDICAL AND APPLIED SCIENCES eISSN:2320-3137 Barthjournals Publisher www.carthjournals.in

- Zemouri C, de Soet H, Crielaard W, Laheij A. A scoping review on bio-aerosols in healthcare and the dental environment. PLoS One. 2017;12(5):e0178007. doi: 10.1371/journal.pone.0178007. <u>http://dx.plos.org/10.1371/journal.pone.0178007.</u> 8
- Khader Y, Al Nsour M, Al-Batayneh OB, Saadeh R, Bashier H, Alfaqih M, et al. Dentists' Awareness, Perception, and Attitude Regarding COVID-19 and Infection Control: Cross-Sectional Study Among Jordanian Dentists. JMIR Public Health Surveill [Internet]. 2020 Apr 9 [cited 2020 May 2];6(2).
- 9. World Health Organization. 2020. Mar 13, Clinical management of severe acute respiratory infection when COVID-19 is suspected https://tinyurl.com/s23yv4p.
- 10. Otter JA, Yezli S, Salkeld JAG, et al., 2013. Evidence that contaminated surfaces contribute to the transmission of hospital pathogens and an overview of strategies to address contaminated surfaces in hospital settings. Am J Infect Control, 41(5):S6-S11.
- 11. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. J Dent Res. 2020 Mar 12;:22034520914246. doi: 10.1177/0022034520914246.
- 12. Kramer A, Schwebke I, Kampf G, 2006. How long do nosocomial pathogens persist on inanimate surfaces? A systematic review. BMC Infect Dis, 6:130.

Paper cited as: Rutuj Waghmare, Ali Khan, Shobha Joshi, Reena Rani, Darshit Jain, Mantasha Khan, Abhishek Joshi, Vijay Waghmare. A CROSS-SECTIONAL STUDY ON AWARENESS AND KNOWLEDGE REGARDING COVID 19 SPREAD, APPROPRIATE PROTOCOL FOR PREVENTION AND FUTURE PREPAREDNESS AMONG DENTAL HEALTH CARE WORKERS. International Journal of Medical and Applied Sciences. 2020; 9(1): 18-28