



PRACTICES AND PERCEPTIONS OF MEDICAL AND DENTAL PROFESSIONALS AGAINST THE PREVENTION OF NOVEL CORONA VIRUS / COVID-19 IN INDIA- A COMPARATIVE QUESTIONNAIRE STUDY

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ARTICLE INFO

Article History:

Received 12th September, 2020

Received in revised form 23rd

October, 2020

Accepted 7th November, 2020

Published online 28th December, 2020

Key words:

COVID-19, Dental professionals, Medical professionals, Prevention and perceptions.

ABSTRACT

Introduction: COVID-19 is an unprecedented pandemic originated in China, currently impacting India in a very unprecedented manner. The challenge is to take precautions and preventive measures in order to control the spread amongst. Thus thorough knowledge of preventive precautions is important among medical and dental professionals. Therefore, this study was conducted to evaluate by means of a questionnaire, the practices and perceptions of medical and dental professional in prevention of Covid-19 in India.

Aim: Aim of this study was to assess practices and perceptions of Indian medical professionals and dentists on prevention of COVID-19.

Materials And Methods: An online Questionnaire based survey was conducted from 21-10-2020 to 14-11-2020. All the questions check the knowledge of preventive practice measures of medical and dental professionals. A total of 252 samples were collected comprising of 126 medical professionals and 126 dental professionals.

Results: Medical professionals (39.7%) prefer direct examination over telecommunication, whereas dental professionals (61.1%) prefer telecommunication over direct examination. The PPE will be used to all patients by dental professionals (70.6%), compared with the medical professionals (58%). Dental professionals (87.3%) schedule single patient appointment while less number of medical professionals (50%) prefer the single patient appointment. Dental professionals (81%) maintain social distancing while communicating with patient whereas number of medical professionals (67.1%) who follow this is comparatively less. Medical professionals (90.5%) treat more inpatients than dental professionals (11.1%), and also medical professionals (72.2%) treat more covid-19 patients than dental professionals (23.8%). COVID -19 patients visit medical professionals (90.5%) frequently than dental professionals (11.1%). The daily patient exposure of medical professionals (88.1%) is more compared to dental professionals (31.7%).

Conclusion: Within the limitations of this study, the practice and perception of medical and dental professionals on prevention of COVID-19 found to be satisfactory. The preventive precautions are taken by both the dental and medical professionals, but the number of patients which dental professionals get exposed to is less compared to medical professionals which makes the dental professionals less susceptible to COVID-19 infection.

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INTRODUCTION

Novel corona-virus SARS- CoV-2 (Severe Acute Respiratory Syndrome- Corona Virus -2) pandemic has affected whole worldwide⁽¹⁾. The novel coronavirus was first found in Wuhan provinces of the China, in month of December 2019 in most of the patients presenting with breathing disease- pneumonia which is of unknown origin⁽²⁾. In India, COVID-19 infection was first reported on 30th of January, 2020⁽³⁾. It has been considered as health emergency which is concerned internationally by the WHO on 29th April 2020⁽⁴⁾.

Organizations such as the Centres for Disease Control and Prevention (CDC) and WHO has developed several preparedness and the prevention checklists regarding the containment of the spread of COVID-19, which has to be used by public and general healthcare professionals^(1,28). COVID-19 pandemic by far has affected a large number of health care professionals around the world⁽⁵⁾.

Since the dental professional works in close proximity to body fluids such as saliva and blood which is present in the oral cavity; thus they are at high risk to getting infected⁽⁵⁾. Therefore for the prevention, the dental treatments for patients with COVID-19 infection or if suspected to be infected by the virus has to suggest to postpone treatment needs, except in

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case of urgent treatments; nevertheless, patients who are not diagnosed without or with very mild symptoms can be considered for dental treatment ⁽¹⁾.

The main routes for transmission of COVID -19 are by - direct contact and droplet transmission ^(1,2,6). Aerosol generated by the equipments used are also a possible route of transmission when there is an exposure to high concentrations of the aerosols in a closed space/enviornment⁽⁶⁾. The dental treatments which include scaling, crown preparation are performed routinely which include the generation of aerosols, which then poses a potential risk to the dental professional and the patients ⁽⁶⁾.

Transmission of SARS-CoV-2, the virus which causes Covid-19, can occur through the direct, indirect, or involving close contact with the infected people by infected secretions such as saliva and respiratory secretions or through the respiratory droplets, which have size more than 5-10 µm in diameter ⁽⁷⁾.

The guidelines which are recommended/advised and the use of many new protective measures and the equipments for a safe dental practice during the time of COVID-19 pandemic. These recommended measures are those which include the use of N95/ FFP2/similar masks, PPE, HEPA filter, UV Light, Fogger, etc. which were not earlier used in standard dental practice ⁽⁸⁾. This study aims to assess the practices and perceptions of medical and dental professionals of INDIA against the prevention of novel corona virus / COVID-19.

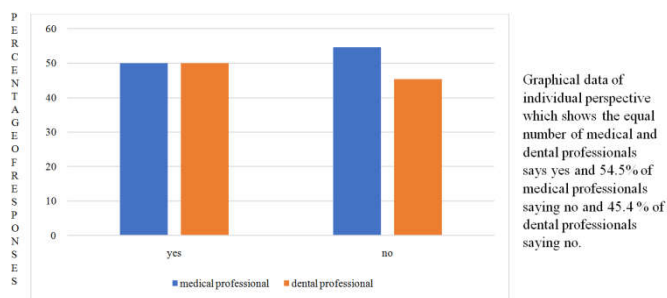
MATERIALS AND METHODS

The study is a questionnaire-based comparative cross sectional survey which was conducted among the medical and the dental professionals in India. A 16-item questionnaire was incorporated in this study to assess the practices and perceptions by medical and dental professionals in India. The questionnaire was prepared in language of English and it was open ended and was self-administered. This study was ethically approved by Ethical committee conducted in KVG dental college, Kurunjibag Sullia, Dakshina Kannada. The questionnaire was circulated as google forms and posted in various social dental and medical groups. A total of 252 responses were included in the study.

RESULTS

The important data regarding the practice taken by the dental professionals and medical professionals is illustrated in the form a table.

Medical professionals (39.7%) prefer direct examination over telecommunication, whereas dental professionals (61.1%) prefer telecommunication over direct examination. The PPE will be used to all patients by dental professionals (70.6%), compared with the medical professionals (58%). Dental professionals (87.3%) schedule single patient appointment while less number of medical professionals (50%) prefer the single patient appointment. Dental professionals (81%) maintain social distancing while communicating with patient whereas number of medical professionals (67.1%) who follow this is comparatively less. Medical professionals (90.5%) treat more inpatients than dental professionals (11.1%), and also medical professionals (72.2%) treat more covid-19 patients than dental professionals (23.8%). COVID -19 patients visit medical professionals (90.5%) frequently than dental professionals (11.1%). The daily patient exposure of medical professionals (88.1%) is more compared to dental professionals (31.7%).

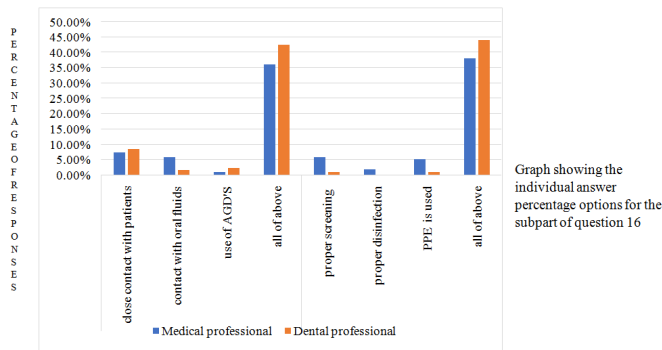


The medical professionals (126) and dental professionals (126) gave a response of 120 (47.6%) yes and 132 (52.3%) no for the attitude based perspective question, dentists are more prone to Covid-19 depicts that equal number of - 50% of dental and medical professionals says yes, whereas 54.54% of medical professionals no and 45.45%of dental professionals says no.

Questions	Number of responses, %			
	Medical professionals (126, 50%)		Dental professionals (126, 50%)	
	YES	NO	YES	NO
1. Do You Have Initial Temperature Checking (Infrared Thermometers)Facility In Your Clinic or Hospital To Initially Screen The Patient	114 (90.5%)	12 (9.5%)	116 (92.1%)	10 (7.9%)
2. Do You Prefer Telecommunication Over Direct Examination of The Patient	50 (39.7%)	76 (60.3%)	77 (61.1%)	49 (38.9%)
3. Do You Take Thorough Medical History And Travel History of The Patient	90 (71.4%)	36 (28.6%)	113 (89.7%)	13 (10.3%)
4. Is The Waiting Area Properly Ventilated And Proper Instructions of Wearing The Masks And Sanitisation Are Posted There For Patient Information	110 (87.3%)	16 (12.7%)	119 (94.4%)	7 (5.6%)
5. Do you advice the patient to use the sanitiser or washing of hands using soap before entering the operative/ examination field.	111 (88.1%)	15 (11.9%)	123 (97.6%)	3 (2.4%)
6. Do you use personal protective equipment/ ppe for all the patients.	73 (58%)	53 (42%)	89 (70.6%)	37 (29.4%)
7. Do You Schedule Single Patient Appointment At A Time To Prevent The Over Crowding	63 (50%)	63 (50%)	110 (87.3%)	16 (12.7%)
8. Do You Maintain Social Distancing While Communicating With The Patient	85 (67.5%)	41 (32.5%)	102 (81%)	24 (19%)
9. Do You Instruct The Assistants In The Clinic To Follow The Proper Protocol	118 (93.6%)	8 (6.4%)	122 (96.8%)	4 (3.2%)
10. Do You Perform Emergency Procedures For Symptomatic Patients With Proper Ppe Kit	90 (71.4%)	36 (28.6%)	113 (89.7%)	13 (10.3%)
11. Do You Fumigate The Operative/ Examination Area After The Procedure/ Screening Is Done	86 (68.2%)	40 (31.8%)	88 (69.8%)	38 (30.2%)
12. Are You Treating Any Inpatient Cases In Your Clinic Or Hospital	108 (85.7%)	18 (14.3%)	26 (20.6%)	100 (79.4%)
13. Do Covid Positive Patients Visit Your Clinic Or Hospital Frequently	114 (90.5%)	12 (9.5%)	14 (11.1%)	112 (88.9%)
14. Have You Treated Any Covid Positive Patients	91 (72.2%)	35 (27.8%)	30 (23.8%)	96 (76.2%)
15. Do You Get Exposed To More Than 10 Patients A Day	111 (88.1%)	15 (11.9%)	40 (31.7%)	86 (68.3%)

Table showing individual responses

Response number	Medical Professionals				Dental Professionals			
	1	2	3	4	1	2	3	4
Who selected yes	9 (7.2%)	7 (5.8%)	1 (0.8%)	43 (36%)	7 (5.8%)	2 (1.7%)	6 (5%)	45 (38%)
Who selected no	11 (8.3%)	2 (1.5%)	3 (2.3%)	56 (42.4%)	1 (0.8%)	0 (0.8%)	1 (0.8%)	58 (44%)



DISCUSSION

This present survey collects the data on practices and perceptions of dental and medical professionals in the prevention of novel corona virus/ Covid-19. Most of the medical professionals (90.5%) and dental professionals (92.1%) prefers temperature check, possibly with a contact-free forehead infrared thermometer². Telemedicine sources, like the video chats, which can be used by the healthcare staff when there is no need of direct patient contact²⁴.

Triage all patients online or by the phone to assess the real need of face-to-face appointments, use of remote consultations are advised⁹- This reduces the risk of transmission as there is no face to face contact with the patient. Most of the dental professionals (61.9%) prefer telecommunication over direct treatment, whereas only 39.7% of medical professionals prefer tele communication. Patients should be asked whether any contact with infected people has occurred or whether they travelled to highly epidemic areas by a thorough history², which will be helpful in assessing this and is practised by 89.7% dental professionals and 71.4% medical professionals. Regular disinfection of the ventilatory system and frequent opening of the windows is ensured in working setups^{2,6}, also by posting proper guide at the entrance of waiting room⁶, thus most of the medical (87.3%) and dental professionals (94.4%) provides a well ventilated area. Hand disinfection and sanitisation is suggested for all patients and has a role in reducing the spread of SARS-CoV-2 - according to Meng *et al.* 2020; Peng *et al.* 2020²; thus most of the medical (88.1%) and dental professionals (97.6%), prefer hand wash techniques or sanitising of patients prior to the procedure.

The spread of SARS-CoV-2 mostly occurs by droplets in air. According to Li and Meng 2020; Meng *et al.* 2020; Peng *et al.* 2020 the use of PPE, which includes gloves, masks, an outerwear, surgical glasses, and the shields, are strongly recommended to protect eye, oral, and nasal mucosa², PPE forms an effective barrier against most hazards of aerosols which are generated from the AGD's used in operative field^{6,28}, which advises use of PPE all the procedures which is done by 70.6% of dental professionals and 58% of medical

professionals and the number of dental professionals and medical professionals using PPE for emergency treatment are 89.7% and 71.4%. The emergencies in dentistry, which are - fracture of oral and facial structures and space infection in facial regions that requires surgery and cannot be controlled with medications. Treatment of COVID-19 patients advice the dentist to follow and be updated with the recent guidelines which are mentioned by the Disease Control and Prevention centre and WHO¹⁰⁻¹³. Nearly 89.7% of the respondents were willing to provide emergency treatment to patients who has symptoms of COVID-19. According to the study conducted by Khader *et al* in which 82.6% of the dentists preferred to avoid treating a suspected COVID-19 patient as the majority of these patients will have no or mild symptoms during the incubation periods but can be very effective in transmitting the disease¹⁴. Prior to any procedure, all dental personnel who perform or assists the procedure should follow hand hygiene, as recommended by WHO^{7,15,16}, and also the staffs who have incharge of cleaning and disinfection of field should have appropriate PPE to be worn⁷, thus majority of the dental professionals (96.8%) give instructions to the assistants to follow a protocol which is also followed by medical professionals (93.6%).

Social distancing has become the new normal in world³. Authorities strongly advice to maintain a minimum of 6 feet distance from others in order to avoid contact with the droplets which are infected and has airborne spread^{3,17}. Social distancing has to be practised to avoid spread of Covid-19 as its transmission occurs by droplets when the person has close contact (within one and a half meters) with a patient having symptoms of respiratory tract like coughing or sneezing and thus more risk of exposure⁶, 81% percentage of dental professionals and while 67.5% of medical professionals follow the social distancing due to constraints. Social distancing to be followed at facilities providing treatment is plays important role in prevention of spread of the infection¹⁸.

According to study by Kannuchamy *et al*, for study of Preventive measure among the healthcare professionals, advises frequent fumigation of the working field¹⁸, which is being followed by both dental professionals (69.8%) and medical professionals (68.2%).

The health care workers in hospitals are exposed to a much higher density of the virus¹⁹. Doctors perceive a greater risk to self owing to their exposure to the patients^{20,21}. The risk for doctors might be due to their greater exposure to the respiratory secretions of patients²². Thus the professionals who works in health care sector are prone for covid-19, the greater exposure of the medical professionals (88.1%) compared to that of dental professionals (31.7%) owes for the reason that they are more effected, and other reason for this is medical professionals (72.2%) treat more Covid-19 than dental professionals which again increases the risk of exposure. Also, the frequent visit of Covid-19 patients increases the risk of exposure amongst medical professionals (90.5%), compared to dental professionals (11.1%).

Avoid overcrowding in hospital²³, in order to prevent spread amongst the patients. Most of the dental professionals (87.3%) schedule single patient compared to medical professionals (50%). Hospital authorities should decrease the hospital's in-patient population to a lower extent. Also only one visitor for a

patient should only be allowed; visitor limitations, due the fact that spread amongst community of the infection is one of the main factor of this pandemic²⁵, knowing this medical professionals (85.7%) treat more in-patients than dental professionals (20.6%) which again increases the chance of getting exposed to covid-19.

The individual perspective of medical professional and dental professional for that dentists are prone for covid-19 infection are of out of 126 medical professionals, 60 (47.6%) says yes and whereas 72 (57.1%) says no and out of 126 dental professionals equal number of people, that is 60 (47.6%) says yes and no, it can be because of biologic risk of COVID-19 inhalation spread is extremely high while performing dental treatments due to the use of hand-piece under irrigation².

In view with individual responses both medical (43%) and dental (45%) professionals say yes the dentists are more affected is due to close proximity with the patient. The spread of SARS-CoV-2, virus responsible for Covid-19, which occur by indirect or direct exposure also having close contact with infected people⁷, dentists often gets exposed to oral fluids. According to study by, Wang *et al* in 2004 it was found that oral cavity of the SARS patients found larger amount of SARS-CoV RNA in the salivary secretions which is ((7.08×10^3) to (6.38×10^8) copies/mL), which is suggestive of the possibility of COVID spread through droplets⁶ and also the presence of virus in oral fluids, makes the dentist extremely vulnerable to contract the disease^{5,26}, and use of aerosol generating devices - Grenier, 1995; Jones and Brosseau, 2015 say that aerosols produced contain bacteria, fungi, and viruses, and they have a potential to float in air for a significant amount of time and which may be inhaled by the dentists or other patients⁶.

Majority of the dental (58%) and medical professionals says (56%) that dentists are not affected is because of following proper screening protocol. Screen patients before their appointments either by virtual/remote technology or telephone⁷ which is recommended by WHO, proper disinfection protocol - as recommended by WHO: it should be practised to clean and disinfect the entire working area in one cycle after every procedures/patient as said by SOP (Standard operating procedures) in the situation of covid-19^{7,27,28}, followed by proper use of PPE- and PPE forms an effective barrier against the aerosols which are generated from the working field⁶.

CONCLUSION

It is very much important to know the right preventive and precautionary steps has to be taken at this time of pandemic. Within in the constraints of this study- practice and perception of the medical and dental personnel/professionals for safeguarding against Covid-19 is satisfactory. The prevention and precaution measures are taken by the dental and medical professionals/ personnel, but number of cases/people (patients) the dental professionals get exposed to is less compared with medical professionals, which suggests, dental professionals are less affected by Covid-19. Thus, the medical professionals has to limit the amount of number of patients they treat per day and has to take proper safety precautions.

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How to cite this article:

Krishna Prasada L *et al* (2020) 'Practices And Perceptions of Medical And Dental Professionals Against The Prevention of Novel Corona Virus / Covid-19 In India- A Comparative Questionnaire Study', *International Journal of Current Advanced Research*, 09(12), pp. 23437-23441. DOI: <http://dx.doi.org/10.24327/ijcar.2020.23441.4641>
