

Precautions Taken By The Practitioners In Their Workplace During And After Covid 19 Pandemic – A Questionnaire Study

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Abstract:

Aim: The aim of this questionnaire study was to evaluate the various level of precautions taken by clinicians in their workplace before and after COVID 19 across the country to provide a safe environment for the clinician, patient, orthodontic consultants and supporting staffs.

Materials and method: A questionnaire was sent to various clinicians across the country via google forms and 540 responses were recorded. The questionnaire contained 25 questions in three sections and included various methods utilised and also how much it is important as a health care worker to follow the duty as to encourage vaccination to further stay safe from the pandemic.

Results: The results obtained from the study was that about 75% of the clinicians feel that teledentistry should be practised. 96% agreed that patients should be educated the differences between mandatory and passive emergencies. 100% of the clinicians agreed that they encourage the patients to get properly vaccinated.

Conclusion: The study concluded that even that after the lockdown has been lifted clinicians are keen to keep up with the safety measures and protocols to ensure the safety of both the practitioners and also the patients.

Clinical significance: Clinically, it is essential to maintain the precautionary measures from the efforts of both the patient and the practitioner. So, this study helps in understanding the perspective from the clinician's view of whatever and however changes has been made to provide a proper patient care.

Keywords: COVID 19, Pandemic, Orthodontics, Precautions, Teledentistry. Vaccination.

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I. Introduction:

Dentistry, including orthodontics, requires proximity to patients while performing operatory procedures. This, makes the dental healthcare workers at a high risk of acquiring infectious diseases¹. But the COVID 19 protocols stated and demanded the rule of social distancing, avoiding person to person contact and maintain the safe distance of 1 – 2 m between the individuals². This recommendation cannot be optimized in the orthodontic clinic in day to day practise, for the nature of orthodontic operation, requires both the orthodontist and the dental assistant in the near close proximity thereby, placing them at a high risk of acquiring the infection. Orthodontists comes in contact with more than dozens of patients per day. This fact makes strict

infection control measures with the highly transmissible SARS-CoV-2 a major concern. Among the patients, Children comprise the vast majority. Studies have also reported that asymptomatic children are also infected with COVID-19^{3,4,5}. The incubation period is between 2 weeks and can extend till 3 weeks too^{6,7}. The virus is very contagious even during the latency period⁷. This finding creates an alarm of a very potential hazard: treating asymptomatic patients and the spread of the infection within an orthodontic clinic. Furthermore, aerosol generation—a routine occurrence in the orthodontic clinic—is also a confirmed route of infection transmission³. With all these, the aim of this questionnaire study was to evaluate the various level of precautions taken by clinicians in their workplace before and after COVID 19 across the country to provide a safe environment for the clinician, patient, orthodontic consultants and supporting staffs.

II. Materials and methods:

The study was conducted with the main objective to bring in to knowledge about the various precautionary measures taken by clinicians across the country. The study was approved by the Institutional Ethical Committee (IEC) of Mansarovar Dental college, Hospital and Research Centre, Bhopal, Madhya Pradesh. A questionnaire was prepared, in which most of the aspects regarding to precautionary measures were included along with the need for vaccination, the awareness to be created for it and the changes being followed even in the aftermath. The questionnaire was made on google forms and was sent to various clinicians across the country. The options given were either a simple Yes or No. Data was collected through google forms and the statistical analysis for the same is done for the same. The final results were obtained. Data management was performed by using a simple bar chart with percentage levels.

Questionnaire:

1. Should patients answer a triage questionnaire before beginning the treatment in relation to their past health conditions and travel history to ensure safety of both the clinician and patient? (Yes/No)
2. Should Povidone iodine/ Chlorhexidine mouthwash have made mandatory to the patient before treatment even in the aftermath of COVID 19? (Yes/No)
3. Do you wear PPE kit before treating any patients regardless of the treatment procedure? (Yes/No)
4. Do you disinfect every working surface after each patient? (Yes/No)
5. Do you use UV radiation for disinfecting your workspace both during and after COVID 19 lockdown? (Yes/No)
6. Do you do procedures involving aerosol generation? (Yes/No)
7. Should Tele orthodontics / Tele dentist via social media be encouraged to avoid the risk of travelling? (Yes/No)
8. Were patients worried about their treatment getting delayed because of the pandemic? (Yes/ No)
9. Should patients be educated enough on regular basis so that they don't panic because of them missing their monthly appointments? (Yes/ No)
10. The patients should be able to understand the importance and responsibility of maintaining proper oral hygiene during this critical period? (Yes/No)
11. Do you think orthodontic patients are at a greater risk for mucormycosis? (Yes/No)
12. Should patients be educated the difference between mandatory emergencies and passive emergencies? (Yes/No)
13. Should the patients be encouraged to send images of the stated emergencies to get an idea of what treatment should be done (Yes/ No)
14. Patients should be encouraged to visit the clinician in case of mandatory emergencies like bleeding gums caused due to orthodontic aids (Yes/ No)
15. If the patients are visiting, should they be given complete guarantee that the workplace and the instruments are properly disinfected, sterilized and their safety is considered (Yes/ No)
16. Have you been vaccinated? (Yes/ No)
17. Do you still practise all the safety measures? (Yes/No)
18. Have you been affected by COVID 19? (Yes/ No)
19. Do you encourage your patients to get vaccinated? (Yes/ No)
20. Do you treat patient affected by COVID 19? (Yes/ No)

III. Results:

Table 1 gives the detailed responses and their percentage level as obtained from the clinicians across the country. With the scare still in play and new variants arising every single day, the following results of the study provided an insight from the clinician’s perspective

S. No	Yes	No
1	98.1	1.9
2	87	13
3	74.1	25.9
4	96.3	3.7
5	46.3	53.7
6	88.9	11.1
7	75.9	24.1
8	68.5	31.5
9	96.3	3.7
10	98.1	1.9
11	22.2	77.8
12	96.3	3.4
13	90.7	9.3
14	87	13
15	92.6	7.4
16	98.1	1.9
17	74.1	24.1
18	22.2	77.8
19	100	0.0
20	53.7	46.3

Table 1: Results obtained from clinicians across the country

IV. Clinical significance:

In this study, 87% of clinicians have said that it is mandatory to practise mouthwashes in clinical practise before any sort of clinical procedure during and also should be made a routine for precautionary measures. Chlorhexidine (CHX) is a broad-spectrum antiseptic that acts against both Gram-positive and Gram-negative bacteria; aerobes, facultative anaerobes, and fungus by increasing the permeability of the bacterial cell wall, causing its lysis^{8,9}. Yoon et al¹⁰ found SARS-CoV-2 suppression for two hours after using 15 ml 0.12% CHX, suggesting that the usage of it in the recommended amount would be favourable for the control of COVID-19 transmission. On the other hand, Povidone-iodine (PVP-I) is a water-soluble iodine complex that is being used routinely as a pre- surgical skin antiseptic and also as a mouthwash¹¹. Recent investigations have suggested that 0.23% PVP-I mouthwash for at least 15 seconds before any oral procedures may reduce salivary viral load¹², indicating its use in COVID-19- positive patients^{13,14}.

The UV devices which are available in today’s market doesn’t provide the consumers with proper safety protocols and measures for the amateur users. Owing to this reason, the UV disinfection is not widely used among people. This study also proves the same with only 46.3% clinicians using UV radiation to disinfect their work place. The UV disinfection mechanism is absorption-based. It is ruled by the susceptibility of microbe genetic material to the UV wavelength. This susceptibility rate varies in different ranges among different species of microbes¹⁵. The UV susceptibility governing specifications are not only limited to the RNA or DNA structure. The virus also contains proteins - Spike proteins in the CoV family, which are necessary for binding of the virus to receptors on host cell and also for infecting the cell¹⁶. The UV inactivation rate constant for CoV was reported as 1.49 cm² mJ⁻¹.^{17,18}

With 88.9% practitioners doing aerosol generation procedures all the necessary preventive measures and safety protocols should be followed for self-prevention and also to control the further spread. Many dental procedures are performed using a variety of high-speed dental turbines, laser or electrosurgery units, air polishers, micro-motor hand pieces, ultrasonic scalers, and air/water syringes can generate bioaerosols and they have the tendency to splatter around^{19,20}. Dental professionals using aerosolization to treat patients are at an extremely dangerous risk²¹. Viability of COVID-19 in various places is up to 72 hours after application to plastic and stainless-steel surfaces, up to 24 hours on cardboard surfaces, up to 9 hours on copper surfaces, and up to 3 hours in suspended aerosols²². It is crucial for clinicians to redefine their preventive strategies to prevent spread of COVID-19 infection by focusing on social distancing, personal hygiene, various protective equipment, and utmost care and absolute disinfection during aerosol-generating dental procedures.

With the protocols to be followed, patients should also be encouraged to take complete advantage of the technology available. This leads to teledentistry which could be followed for consultation purposes. To help with the monthly appointments and also to further educate the patients regarding oral hygiene maintenance, appliance maintenance. 75.9% clinicians have preferred

teleorthodontics to be able to provide treatment for the patient during these difficult times rather than preferring the patients to travel to and fro.

Mucormycosis is a life-threatening fungal infection affecting immunocompromised and diabetes patients. With these etiological factors along with the history of COVID 19, 77.8% clinicians responded that orthodontic patients are not more prone to mucormycosis. But maintenance of oral hygiene with proper brushing technique and mouth washes utilisation is mandatory to prevent any undesirable outcomes during the course of orthodontic treatment.

Even after the lockdown has been lifted, the protocols for safe practise in still in place and the understanding of the patients have also changed along with that. The routine screening and awareness are necessary even today for precautionary reasons in the clinical practise.

India has achieved more than 100 crore vaccination. Owing to this, public health care providers are responsible for creating even more awareness and knowledge regarding the importance of getting vaccinated. 100% clinicians responded and support that their patients should get completely vaccinated.

V. Conclusion:

COVID 19 spread control is in the hands of both patients and clinicians. Even today, new cases are getting reported around the World. Without the knowledge about complete extent of the disease, it is always better to control the spread instead of treatment options. The patients and the general public were educated to maintain and follow personal hygiene. The clinicians are responsible for providing a proper disinfected area for the patients undergoing treatment. This will help to reduce the further spread of the disease. With new variants getting reported everyday and further safety protocols for the COVID survivors, we are still in the active stage of spread of the disease. Thereby, with mass communication it could be made possible along with taking advantage of the technologies available at this current period of time for patient education to maintain the necessary prevention protocols.

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