Research Article

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Impact of Covid-19 Pandemic on Orthodontic Practice in India: A Qualitative Study

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ABSTRACT

Background: The purpose of our research was to assess the impact of COVID- 19 pandemic on orthodontic practices according to perceptions of practicing orthodontists.

Materials and Methods: A questionnaire was circulated amongst 16 orthodontists where the questions were based upon the measures that orthodontists are taking to curb the spread of COVID-19 in clinical settings as well as easing patient anxiety and in turn increasing their compliance to the treatments.

Results: We observed most of the orthodontists (89%) are facing problems while running their dental clinics in this pandemic outbreak. Around 65% orthodontists felt that existing patient compliance to the treatment appointments has decreased, which has led to increased incidence of relapse in the on-going treatments.

Conclusion: Given the high transmissibility of COVID-19, controlling aerosol and human-to-human contact while limiting treatment to emergency patients only is advised during the outbreak. It is the responsibility of the orthodontic team to ensure safety and stop cross contamination within the clinical facility.

Keywords: COVID-19, patient anxiety, aerosol spread, orthodontics.

INTRODUCTION

The COVID-19 is a viral infection caused by the novel coronavirus; interpersonal transmission occurs mainly via respiratory droplets and contact transmission, in addition to these characteristics, asymptomatic subjects and patients in the incubation period are also carriers of the novel coronavirus.[1] A recent study showed that coronavirus (previously known as SARS-CoV-2) aerosol transmission is plausible, since the virus can remain viable and infectious in aerosols for hours and on surfaces up to days.[2] Besides that, aerosols from infected people may pose an inhalation threat even at considerable distances and in enclosed spaces, particularly if there is poor ventilation.[3] In many countries, recommendations of the national councils of dentistry are to interrupt elective dental treatments and only emergency or urgency cares are allowed. In other places, social distancing is recommended but dental offices are still able to remain open, with usual dental care, providing the necessary biosafety measures, according to the recommendations of the national dental associations. However, many patients are not aware whether or not to attend their appointments with

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the orthodontist.[4] Orthodontists may see dozens of patients in a single day. This fact makes strict infection control measures with the highly transmissible SARS-CoV-2 an area of concern. Children comprise the vast majority of orthodontic patients. Studies have reported asymptomatic children infected with COVID-19. The incubation period of this disease is 14 days up to 24 days. The virus is still highly contagious during this latency period. This finding rings the alarm bell of a potential hazard: treating asymptomatic patients and spreading infection within the orthodontic clinic. Furthermore, aerosol generation—a routine occurrence in the orthodontic clinic—is a confirmed route of infection transmission. Thus, to face this highly contagious infection, it is important to re-evaluate infection control measures within the orthodontic practice.[5] Although most archwires are packaged and sealed individually, some orthodontists have recycled and reused wires.[6] This is a huge risk of cross contamination if wires are not thoroughly sterilized. In addition, reusing tried-in orthodontic bands, orthodontic brackets, elastomeric chains, tungsten carbide debonding burs, miniscrews, orthodontic markers, and photographic retractors without proper sterilization and disinfection are tremendous potential hazards.[7] Orthodontic instruments that come in direct contact with patients' saliva and blood, including band seaters, band removers, scalers, and ligature directors are considered contamination dangers as well.[8] Improper handling and disinfection of such instruments and supplies would compromise infection control measures within the orthodontic practice. Using a high-speed handpiece or ultrasonic scaler during dental cleaning at bonding, bracket repositioning, and debonding visits produces aerosol and splatter in the operatory vicinity. This aerosol could be contaminated with patient's blood, saliva, or high concentrations of infectious microbes exceeding those produced by coughing or sneezing.[9] Moreover, aerosol containing microbes was found to reach as far as 2 m from the patient's mouth, with the highest concentrations reported the furthest away from the patient.[10] This finding means microbes could contaminate surfaces throughout the operatory. A study performed using a fluorescent dye with a high-speed handpiece found that the fluorescence dye reached more than 2 ft from the dental chair. The dye was even found in the noses of the operator and assistant, having penetrated their facial protective gear.[11] Another study reported traces of aerosol were found on operators' scrub jacket sleeves and chest area.[12] The aerosol could contaminate the dental unit waterline, resulting in the spread of infection.[13] Aerosols containing germs of 0.5-10 mm or less can remain airborne longer, increasing the risk of being inhaled and entering deeper areas of the lung, posing a potential infectious hazard.[14] This collectively presents an alarming threat with the highly contagious COVID-19.

Aim of the study

The purpose of our research was to assess the impact of COVID- 19 pandemic on orthodontic practices according to perceptions of practicing orthodontists. We intend to analyze the various precautionary measures needed for appointments and patient anxiety related to continuing orthodontic treatments from orthodontist's perspective.

MATERIALS AND METHODS

A questionnaire containing 8 questions; (Table 1) was circulated amongst 16 orthodontists; who had resumed their clinical practice after lockdown due to COVID-19 pandemic. Survey questionnaire was emailed to the participants. The questions were in English language and in an open -ended format. The responses from the participants were recorded in an MS excel spreadsheet and were subjected to descriptive statistical measures using latest SPSS. The survey questions were based upon the measures that orthodontists are taking to curb the spread of COVID-19 in clinical settings as well as easing patient anxiety and in turn increasing their compliance to the treatments. Another important factor that was considered the problems orthodontists were facing in planning their treatment strategies.

RESULTS

In our study, we observed most of the orthodontists (89%) are facing problems while running their dental clinics in this pandemic outbreak. Around 65% orthodontists felt that existing patient compliance to the treatment appointments has decreased, which has led to increased incidence of relapse in the on-going treatments. 51% of the

survey participants are only carrying emergency procedures like- management of protruding arch wires, loose brackets and bands, increased gingival swelling etc. however, only 34% are trying their hands-on virtual consultations with the help of telephonic calls, video calls as well as internet chats.(Table 2) Due to the pandemic and less incoming patients in the clinics has led to increased financial constraints on the orthodontists (56%). 92% of all the survey participants are trying to reassure the patients, of proper sanitation measures, screening in their clinics; so that patient can adhere to their orthodontic appointments.

Table 1: Questionnaire utilized in the study.

S. No.	Questions
1	Are you facing troubles due to COVID-19 situation in your dental practice?
2	Has the patient compliance to the appointments and treatments changed?
3	Has the new patient output decreased in your clinical settings?
4	Are you aware of the precautionary measures used in orthodontic clinical setting to avoid COVID-19?
5	Due to pandemic situation, how has the financial situation changed for you?
6	How are you trying to increase patient compliance in this pandemic period?
7	Are you trying virtual consultations?
8	Are you carrying out only emergency treatment in clinical settings?

Table 2: Data recorded in the present study.

Question No.	Responses	Reasons & Remarks
1	89%	Faced troubles due to COVID-19
2	65%	Patient compliance decreased
3	82%	Decrease in new patient output
4	78%	Are familiar with precautionary measures
5	56%	Have experienced increased financial constraint
6	92%	Tried to increase the patient compliance by reassuring, including cutting off the costs of the treatment
7	34%	Are trying virtual consultations
8	51%	Are only carrying emergency orthodontic procedures

DISCUSSION

In general, orthodontic emergencies can arise from the following scenarios: Loose intraoral fixed appliances, either fully retrievable by the patient or parent or partially loose requiring orthodontic intervention; fixed intra-oral appliance impinging on the palate or gingival tissue; broken, ill-fitting, or missing removable appliances, aligners or retainers; a missing or broken bracket; pcky wire; and broken or loose-ended fixed retainer. In addition, there are many scenarios for which an orthodontist may not be able to leave a patient unattended for a period greater than 10-12 weeks. Examples include patients with a reverse-curve NiTi wire or patients having treatment to retrieve an impacted tooth.[15] Upon returning to clinic, dental professionals worldwide, including orthodontic faculty and residents, face the risk of a decreased patient population as a result of the economic tribulations, this pandemic has caused. Over 16 million individuals and counting have filed for unemployment due to the pandemic.[16] The decline in employment, and the prevailing fear of acquiring SARS-CoV-2 may translate to a decrease in patients willing to receive elective dental treatment. The recommended precautions given by the Indian Orthodontic Society (IOS) are similar to the guidelines of other countries. The IOS stressed the assessment of chair operatories, making sure that they are a minimum of 6 feet away. They also recommend that if an employee or patient reports a fever, they should not come in for at least 24 h after being fever free with no fever-reducing medications.[17] This varies from the US recommendation of 3 days by the ADA. There should also be a daily screening log for employees to log temperature and symptoms.[18] The American Association of Orthodontists also listed recommendations. Emergency situations must first be assessed by phone or video calls to triage patients.[19] Orthodontic practices typically have a pool of pediatric patients; considering that the pediatric population can be asymptomatic carriers of the virus, a key factor determining the ability to reopen should be the availability of personal protective equipment and access to acquiring more. It is recommended to order PPE for a 2-week period or longer as delivery times have been extended. Upon reopening, clinics should restart equipment, perform spore test sterilizer, test ultrasonic and

instrument washer, shock waterlines, and train employees on proper PPE guidelines. [20] In our study, we noticed that orthodontists are worried related to less patient compliance to the treatment appointments as well as extra sanitation measures which are needed to combat the spread of COVID-19 spread. Less compliance has led to relapse of treatments of their patients, which is concerning. Some of them are also trying virtual consultations, however it is still in initial stages and it will be difficult to match up with the less turn up of patients to the dental clinics.

CONCLUSION

SARS-CoV-2 is the first highly contagious pandemic infection of this millennium. Although cross-contamination within any dental setting has not been reported, dentists in all disciplines, including orthodontists, need to be constantly aware of the emerging infectious threats and informed of updates in infection control guidelines.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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