

# Teleorthodontics in Covid Era: Continuing Treatment through Remote Monitoring

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**Abstract:-** The world has been in a formidable circumstance due to Covid 2019 and because of its severity to spread, a shift from conventional dental practice to a more up to date technique is required in the dental work environment or institution. Teleorthodontics is being practiced in this pandemic period for the diagnosis and to carefully guide the patients. Subsequently, an endeavor has been made to investigate the information, attitude, and awareness with orthodontists in regards to the utilization of teleorthodontics during COVID-19.

**Materials and methods:** A review was done on around 100 orthodontic experts. survey consisted of 11 questions that was managed through online platform. The data accumulated was collected and investigated and the Chi-square test was used for the assessment of frequencies.

**Results:** It was seen that 95% of orthodontic experts had information in regards to teleorthodontics and an positive outlook toward teleorthodontics was shown by more youthful age group professionals. Around 92.3% accepted that teleorthodontics can save dental specialists' time and 86% answered that the new innovation can be useful in decreasing the expense of treatment for patients.

**Conclusion:** The information, awareness, and perspectives were found to be satisfactory among orthodontic experts. More youthful professionals had a more uplifting perspective toward teleorthodontics, and there was a general positive outlook for utilizing teleorthodontics as a temporary option for direct understanding contact in COVID-19 pandemic time.

## I. INTRODUCTION

In 2019, pandemic hit the world. A new type of virus - Covid-19 infection is of great concern as large number of vulnerable population having disturbed immunity and associated comorbidities is affected due to its high contagiousity and morbidity. It is communicated through oral or nasal through sneeze or cough . Preventive cleanliness measures, for example, social distancing, quarantine, and seclusion have been continued to break the chain of Coronavirus infection and cutoff its dissemination in many nations. Dental clinics are at a higher risk of generating aerosols and care should be taken to prevent the further transmission of covid-19 infection. In the midst of the COVID-19 emergency, dental offices suspended all deferrable procedures in order to reduce the spread of the pathogen, but what will happen in the future?

Ongoing treatment like orthodontic treatment can't be postponed and require regular appointments. Without a

doubt, consistent checking by the orthodontist is an absolute requirement in orthodontic treatment to assess the efficiency of treatment. Taking into account the current situation new strategy for treatment ought to be considered by orthodontists for treatment of patients.

The World Health Organization (WHO) defines telemedicine as the use of telecommunications and virtual technologies to provide healthcare outside of traditional healthcare facilities.<sup>1</sup>Secure communication of clinical data, notes, sounds, pictures, or some other type of information essential are customary to prevent or to analyze pathologies, and in this manner, to treat and to screen patients should be possible with teleorthodontics.<sup>2,3</sup> Tele-orthodontics is a way to help general dentists to correctly evaluate the orthodontic needs, devise a diagnosis and plan the orthodontic treatment. Tele-orthodontics can be useful to the orthodontists themselves, allowing to follow patients who cannot leave home, but can continue their treatment and receive follow-up, encouragement to stick to the plan, maintain proper oral hygiene, and anything else needed without the direct in-office intervention of the clinician.

During the COVID-19 emergency it became evident that that we can't stop following-up orthodontic patients, therefore protection against and prevention of viral infections made the use of teleorthodontics an attractive solution, although it is not applicable in every case and for long periods of time. With the help of teleorthodontics geographical barrier can be removed and services to inaccessible or remote areas can be provided. Teleorthodontics can provide services to more people.<sup>4</sup> With telorthodontics it is possible to reduce unnecessary in office visits without jeopardizing with treatment.<sup>5,6,7</sup>

Although telorthodontics is far from new it hasn't been fully explored .There are not many articles on teleorthodontics, hence, through this article knowledge and awareness of orthodontists towards teleorthodontics is analysed during covid 19.

## II. OBJECTIVE

To evaluate the knowledge, awareness, and attitudes of orthodontic practitioners on teleorthodontics in COVID era.

## III. DESIGN AND METHODOLOGY

It is a cross sectional survey comprising of 15 inquiries to evaluate the information, perspective and mindfulness among bthe orthodontic experts. An internet based poll was made and sent through web to practicing orthodontists and clinicians.

#### IV. DATA COLLECTION AND STATISTICAL ANALYSIS

100 orthodontists were included in the study .the questionnaire was disseminated online .the poll contained two sections which included socio- demographic data and second part of inquiries to evaluate the information , mindfulness and perspective of clinical experts and post graduates on utilizing teleorthodonticsa in COVID pandemic time. The Information was recorded and examined regarding frequency (yes/no) and chi square test was utilized for statistical analysis.

##### A. Questionnaire:

Sociodemographic details : Name , Age/ Sex, Name Of The Institution , Designation

- Are you aware of teleorthodontics?
- How do you know about it?
- According to you can teleorthodontics be used for consultations?
- Can teleorthodontics be used to manage medical emergencies?
- What all orthodontic emergencies can be managed by teleorthodontics?
- Is teleorthodontics useful in reducing costs for orthodontic practice during COVID -19?
- According to you can teleorthodontics save time for the orthodontist during COVID-19?
- Do you think that teleorthodontics can reduce transmission of infection in COVID-19 era?
- Do you think teleorthodontics is as efficient as conventional orthodontic practice?
- According to you , can teleorthodontics increase the accessibility in rural areas ?
- Are you willing to practice teleorthodontics in future?

#### V. RESULTS

100 orthodontists in toto took part in the survey of which 55.3 % people were upto 35 years of age, 25.9 % were aged 45 years and 18.8% people were aged 45 years above. 59 females and 41 males took part in the study. Majority of the participants were pursuing post-graduation and others were into clinical practice.

95% knew of teleorthodontics while 76% opined that teleorthodontics can be used for orthodontic consultation and diagnosis. 61% participants were of the opinion that teleorthodontics can manage emergency situations. 86% believed that teleorthodontics can reduce the cost and 92.3% believed it saved time of an orthodontist. However, 63% people considered teleorthodontics as efficient as the conventional practice. Everyone opined that the transmission of virus can be reduced with the use of teleorthodontics in day to day practice .67% were of the opinion that teleorthodontics can be of help in rural or inaccessible areas. 74% patients were ready to practice teleorthodontics in future. There was critical connection between this question and the age group  $P < 0.002$ .

#### VI. DISCUSSION

This study was conducted on 100 orthodontists to assess the knowledge and awareness about teleorthodontics .95% of the participants had awareness of teleorthodontics. A related study was conducted by pradhan *et al.*<sup>8</sup> on postgraduate students showcased 96.1% and Pradeep George *et al* on practicing orthodontists displayed 93.3% participants who were aware of teleorthodontics.<sup>3</sup>

Seventy four participants perceived this method in a positive way. In addition, 86% respondents accepted that teleorthodontics helps in decreasing expenses for the dental practices. A review done in Bristol<sup>9,10</sup> featured that there is a huge decrease in travel costs for dental treatment with the utilization of teleorthodontics. Even while comparing the average time spent by patients in the office or online, online checkups were more time saving and therefore more appealing economically to both practitioner and patient.<sup>11</sup> Periodic visits are not required when patient can be instructed to perform certain things by themselves, for e.g. clipping the wire that irritating the buccal mucosa . In this way an orthodontist can avoid unnecessary patient appointments and reduce the further spread of infection 72% percent of the members felt that teleorthodontics can be utilized to teach patient to replace removable parts (elastics) in fixed orthodontic treatment and 53.46% accepted that teleorthodontics can be utilized to carefully guide assist them with fixing a damaged orthodontic appliance.

There was a statistically significant association between attitude with the age of the participants. Positive attitude was seen in the practitioners of younger age group and in those who were working in teaching institutions. This may be due to an increased usage of electronic gadgets by younger practitioners. This is in association with similar studies done by cooper *et al*<sup>12</sup> and George *et al*<sup>3</sup>.

Although there are certain merits of teleorthodontics , there are certain demerits too . Poor network services and wireless signal coverage are barriers to tele-medicine. Data collection, storage and security can be a tedious procedure. The decrease in the time spent visiting the patient in person might break down the patient-specialist relationship.

#### VII. CONCLUSION

The knowledge, awareness, and attitudes were discovered to be acceptable among the Orthodontic practitioners had acceptable knowledge and were aware about teleorthodontics. Younger practitioners had more positive outlook toward teleorthodontics, and teleorthodontics as a temporary alternate can be used to avoid direct patient contact in COVID-19 pandemic time.

**REFERENCES**

- [1.] Phelan, A.L.; Katz, R.; Gostin, L.O. The Novel Coronavirus Originating in Wuhan, China: Challenges for Global Health Governance. *JAMA J. Am. Med. Assoc.* 2020, 323, 709–710.
- [2.] Mihailovic B, Miladinovic M, Vujicic B. Telemedicine in dentistry (teleorthodontics). In: Grasczew G, Roelofs TA, editors. *Advances in Telemedicine: Applications in Various Medical Disciplines and Geographical Areas 2011*. Rijeka (Croatia): InTech; 2011. p. 215-30.
- [3.] George PP, Edathotty TT, Gopikrishnan S, Prasanth P S, Mathew S, Mohammed Ameen A A. Knowledge, awareness, and attitude among practicing orthodontist on teleorthodontics during COVID pandemic in Kerala: A cross-sectional survey. *J Pharm BioallSci* 2021;13, Suppl S1:846-50.
- [4.] Khan SA, Omar H. Teleorthodontics in practice: literature review. *Telemed J E Health* 2013;19:565-567.
- [5.] Kravitz ND, Burris B, Butler D, Dabney CW. Teleorthodontics, do-it-yourself orthodontics, and remote treatment monitoring. *J clinOrthod* 2016;50:718-726.
- [6.] Berndt J, Leone P, King G. Using teleorthodontics to provide interceptive orthodontic services to disadvantaged children. *Am JOrthodDentofacialOrthop* 2008;134:700-706.
- [7.] Hansa I, Semaan SJ, Vaid NR, Ferguson DJ. Remote monitoring and "tele-orthodontics": concept, scope and applications. *Semin Orthod*.2018;24:470-481.
- [8.] Pradhan D, Verma P, Sharma L, Khaitan T. Knowledge, awareness, and attitude regarding teleorthodontics among postgraduate dental students of Kanpur city, India: A questionnaire study. *J Educ Health Promot* 2019;8:104.
- [9.] Cook J, Austen G, Stephens C. Videoconferencing: what are the benefits for dental practice? *Br Dent J* 2000;188:67-70.
- [10.] Ata SO, Ozkan S. Information Technology in Oral Health Care: attitudes of Dental Professionals on the Use of Teleorthodontics in Turkey. *European and Mediterranean Conference on Information Systems*.
- [11.] Saccomanno S, Quinzi V, Sarhan S, Laganà D, Marzo G. Perspectives of tele-orthodontics in the COVID-19 emergency and as a future tool in daily practice. *Eur J Paediatr Dent.* 2020 Jun;21(2):157-162.
- [12.] Cooper BR, Engeswick LM. Knowledge, attitudes, and confidence levels of dental hygiene students regarding teleorthodontics: A pilot study. *Internet J Allied Health SciPract* 2007;5:1-4.