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Original Research

Practical application of teledentistry in orthodontic patients during the Covid-19 pandemic: a narrative review

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Aim: Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) or COVID-19 infection has been an unusual plummet in dentistry. Various measures were adopted to slow or halt the spread of COVID-19. Many countries suspended activities that are deemed "non-essential." Several dental procedures fall into this category, and only emergencies that cannot be postponed are still allowed. Therefore, follow-up visits for active orthodontic treatment should be treated with special new standard precautions. This review aims to reduce orthodontic treatment appointments by providing an overview of the available methods and their purpose in patient monitoring, i.e., teleorthodontic. **Methods:** A total of 5 articles demonstrating the practical application of teledentistry including teleorthodontic were included. **Result:** Most emergencies can be handled via teleorthodontics, which can reassure and follow patients from afar. Teleorthodontics achieved its goal of reducing patient visits while keeping regular monitoring without sacrificing results. **Conclusion:** Teleorthodontics can handle most emergencies assist and follow up patients remotely while at their homes. It can reduce the number of patient visits while maintaining regular monitoring without compromising the results of orthodontics treatment. These findings still need further development in efficacy, cost-effectiveness, and long-term outcomes, but we believe teleorthodontics plays an essential role during the COVID-19 outbreaks.

Keywords: COVID-19. Orthodontics. Remote consultation.

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Introduction

Coronavirus Disease 2019, or COVID-19, is the latest infectious disease rapidly developed worldwide. COVID-19 has severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as an etiologic agent. COVID-19 is different from SARS-CoV but has a common host receptor: human angiotensin-converting enzyme 2 (ACE2). It was first discovered in 2019 in Wuhan, Hubei province, China, fast-spreading globally, resulting in the 2019–2020 pandemic, as declared by the World Health Organization (WHO) and Public Health Emergency of International Concern (PHEIC)[1]. The infection started in Asia but quickly spread worldwide: according to the WHO, this is the first pandemic caused by a coronavirus. However, COVID-19 treatment based on measures is knocked out, strict implementation of such interventions regularly and drastically reduces new cases. This experience suggests that a short-term reversal of epidemic growth is possible.

Nearly two years have passed since the first stage of the pandemic, and dental professionals are struggling to adapt and anticipate the upcoming changes. Since the emergence of COVID-19, biosafety measures in dental clinics have improved times to protect health care workers and patients. These changes are broad and include the closure of dental practices during the early months of the pandemic. The recent modifications have involved an extensive range, notably the temporary cessation of dental practice operations during the initial stages of the global pandemic. Furthermore, personal protective equipment (PPE) has substantially influenced care provision methodologies, causing deferments or limitations in scheduling dental appointments and even fundamentally altering perceptions regarding dentistry as a vital facet of comprehensive healthcare. PPE's subtle yet significant impact on healthcare service delivery requires additional elucidation. Regardless of its consistent endorsement within dentistry circles, the emergence of COVID-19 has immensely elevated its importance, thereby necessitating a thorough investigation into how historical and current PPE usage shapes patient-practitioner dynamics and overall public perception towards oral health services[2]. In the orthodontic field, since orthodontics treatment is a long and continuous process, millions of patients were already undergoing orthodontic treatment when scheduled treatment was suddenly discontinued. As a consequence of the unprecedented nature of the pandemic and the unknown timing that mandatory suspensions may apply in different regions, consolidated information and guidelines for orthodontics management of patients during the COVID-19 pandemic are lacking. The interruption of dental and orthodontic practices due to the COVID-19 pandemic has created a pressing need for alternative treatment options. With the limitations on in-person visits and the need for social distancing, the proposal of teleorthodontics as a viable solution is crucial. By addressing the need for reducing in-person orthodontic treatment and justifying the use of teleorthodontics, this study aims to provide valuable insights into the adaptation of orthodontic practices in the face of the pandemic by reducing orthodontic treatment appointments by giving an overview of the available method and its purpose in patient monitoring, i.e., teleorthodontics, and provide a summary provision of emergency orthodontics treatment using currently available data and previous literature.

Material and Methods

A wide selection of sources were sought and summarized to ensure all relevant information regarding the rapidly evolving COVID-19 pandemic and orthodontic treatment is obtained. These sources include publications from electronic databases for articles published in English, such as Google Scholar, Cochrane databases, PubMed, Embase, Scopus, Web of Science, and Science Direct published from 2019-2021, then filtered for relevance using the following search terms: " Coronavirus," or "COVID-19," or "SARS-CoV-2," or "2019-nCoV," combined separately with "transmission," "symptoms," "dentistry," "infection control", "teledentistry", and "emergency orthodontics". Up-to-date reports and information from significant health agencies such as the Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), National Institutes of Health, and significant international orthodontics associations are also referenced.

A comprehensive search was conducted across seven databases resulting in sixty-two articles recorded. The findings were meticulously reviewed, and the titles along with abstracts were attentively screened to eliminate studies that fell outside the purview of this review. Duplicate studies identified during our retrievals stage also faced exclusion for preserving research credibility. Furthermore, a thorough examination was initiated on all potentially eligible studies to single out those which failed to satisfy our inclusion standards.

We confined our selection only to cross-sectional design articles and qualitative research which led us into removing twelve additional citations whose designs weren't consistent with specified requirements. After the elimination process carried out at each stage, we have finally included five highly relevant academic pieces within this stringent framework.

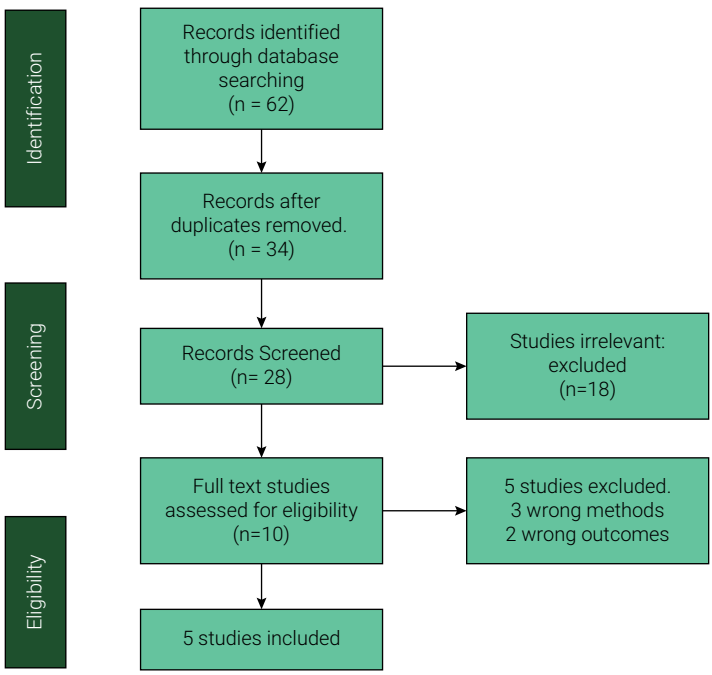

Figure 1. Flow diagram of the literature search and included studies

The inclusion criteria were original research articles in English during 2019-2021. Meanwhile, the exclusion criteria were opinion papers, commentaries, book reviews, articles that discuss content that did not relate to dentistry during COVID-19.

Results

Sixty-two publications were found through the literature search, and they were chosen based on the year, duplication, title, and abstract. Finally, five full-text publications met the criteria for inclusion and were processed for the final evaluation. In addition, a cross-sectional study with a survey was included in two of the papers. Each article's MMAT score was derived by multiplying the satisfied criteria by four (25% for one criterion, 100% if all four were satisfied). According to Whittemore, the usage of this system is compatible with a literature review that examines various study methodologies. The results of each study collected from chosen articles are presented in Table 1.

Table 1. Description of each research and MMAT Score.

Author (Year)	Study Design	Title and journal source	Methods	Primary endpoint	MMAT score and Limitation of study.
Maspero et al.[3] (2020)	Qualitative	Available Technologies, Applications and Benefits of Teleorthodontics. A Literature Review and Possible Applications during the COVID-19 Pandemic/ Journal of Clinical Medicine	The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) criteria were used to conduct the literature review. The Mixed Methods Appraisal Tool was used to assess the quality of randomized clinical trials, cross-sectional studies, observational studies, and case-control studies.	Most dental emergencies can be handled via teleorthodontics, which can reassure and monitor patients from afar. Dental teleassistance achieved its goal of reducing patient office visits while keeping continuous monitoring and without sacrificing results. Although further research is needed to objectively evaluate the efficacy, cost-effectiveness, and long-term results of our first findings, we are confident that teleassistance in orthodontics will play a role in the near future.	MMAT Score was 79.5%. Because of the diversity of study designs and technological tools evaluated, a meta-analysis of the data was not possible.
Deshpande et al.[4] (2021)	Cross-sectional survey	Teledentistry: A Boom Amidst COVID-19 Lockdown-Narrative Review/ International Journal of Telemedicine and Applications	The awareness of general dentists, postgraduate dental students, dental educators, and consultants with postgraduate degrees toward teledentistry was assessed using a prevalidated structured questionnaire. Acceptability, dependability, and language clarity were all verified beforehand. This research involved 510 dental practitioners in total.	In comparison to final-year students and postgraduate dental students, general dentists with a Bachelor of Dental Surgery degree have a higher awareness of teledentistry. The majority of participants believed that teledentistry, improves health care (88.20 %), and improves access to rural areas (82.90 percent). General practicing dentists agreed that teledentistry saves time significant difference (0.00).	Not applicable. The problem with getting the required number of replies was discovered by the researcher. Since this study involved dental experts from all over the country, ethical approval from all of the institutions was not possible.

Continue

Continuation

Caprioglio et al.[5] (2020)	Qualitative	Management of Orthodontic Emergencies during 2019-NCOV/ Progress in Orthodontics	To carry out the survey of bibliographic sources, the electronic database was used, accessed through the PubMed search tool.	WhatsApp online is a good way to manage emergencies, reassure, and track patients remotely while they are at home. The orthodontist should not let the patient to utilize any appliances that could cause a rush in the office. At this time, only true cases of urgencies that cannot be handled remotely by the patient must be managed in the office with the requisite PPE, according to WHO and local authority guidelines.	MMAT score 50%. The research is based on the author's personal experience. There were no patients analyzed, and no findings were documented.
Rahman et al.[6] (2020)	Survey	Teledentistry from A Patient Perspective During the Corona Virus Pandemic/ British Dental Journal	Assessed patient satisfaction, ease of use, effectiveness, including expanding access to clinical services, teledentistry system reliability, and patient utility were all evaluated.	Patients who used the virtual clinic and telephone consultation were satisfied with their experiences in 97 percent and 94 percent of cases, respectively. Considering COVID-19, all respondents agreed or strongly agreed with statements indicating that the teledentistry system would be highly valuable in saving time, and a large majority (96 percent) would use it again.	Not applicable. The sample size was limited, and for valid results, a bigger survey response would be required. However, because the survey was not anonymous, patients may have been concerned that providing unfavorable comments would jeopardize their connection with the therapist.
Kuriakose et al.[7] (2019)	Cross-sectional study and survey	The Assessment of Rapid Palatal Expansion using a Remote Monitoring Software/ Journal of the World Federation of Orthodontists	Patients who had been treated in a row and were undergoing rapid palatal expansion were encouraged to take part. The DM app was used to teach participants how to take intraoral photos and movies. Digital models and intraoral measurements were used to compare DM's measures of maxillary intermolar width (mm) and posterior crossbite correction. A survey was used to assess patient approval of the DM app.	Dental monitoring is a reliable method for tracking rapid palatal expansion during crossbite repair. There was no significant difference in measuring intermolar distances using Dental Monitoring, digital impressions, or in-office examination. The study found that teleorthodontic can successfully replace in-office evaluation of a fast maxillary expander (DM software).	MMAT score 50%. Because of the significant dropout rate, the sample size was limited. Most DM app users in this trial were the patients' parents, which may have contributed to the high dropout rate. Young adult or adult subjects who can take their own DM exams may have different results. This study did not consider the participants' photography skills or their level of familiarity with technology. Furthermore, the findings of this study are based on a specific patient population at a university. As a result, these findings may not be applicable in a private practice context.

In general, a dental clinic is a place that potentially transmits COVID-19. Some dental treatments using high-speed handpieces or ultrasonic instruments will generate aerosols of saliva or blood droplets in the dental clinic[8,9]. Aerosol transmission of COVID-19 is possible if a person is exposed to a highly concentrated mixture in an enclosed area for a long time[10]. In addition, the delivery of dental care involves close contact between the dentist and the patient. Direct contact transmission has been proved to be one of the main transmission routes of SARS-CoV-2[11]. The peculiarities of the dental clinic setting suggest that dental patients and dentists should receive new standard precautions.

Risk of COVID-19 transmission in the orthodontic field

The latest COVID-19 recommendation is to avoid direct contact with people and keep a gap of 1-2 meters between them[12]. In addition, the incubation period of 2019-nCoV infection might last up to 24 days, during which time the virus remains infectious. This should become a concern essential for orthodontists who treat many patients in a short amount of time. Moreover, an escalated threat to the orthodontic workforce has been observed owing to numerous older patients in orthodontics, even those pediatric patients showing no symptoms. There have been many recorded instances where COVID-19 has been cross-transmitted within dental clinic settings.

Reinforcement of infection

Although it remains unclear which device is most effective for protection against Sars-CoV-2 infection, all dental patients should be considered potentially infected[13]. Therefore, the use of Personal Protective Equipment (PPE), such as scrubs and bonnets, gloves, eye protection, face shields, shoe covers, and disposable masks, is highly recommended[8,14,15].

In dentistry, eye protection has been consistently indicated to minimize eye contact with mechanical (e.g., slivers and foreign bodies), chemical (e.g., acids and disinfectants), and biological (e.g., saliva, blood, oral fluids) agents[16]. The visual pathway is one of the most common lanes for Sars-CoV-21 infection. Therefore, glasses with wrap frames should have wide lenses to cover as much face as possible. Alternatively, plastic shields may be preferred over glasses because of their greater capacity to protect the face from aerosol droplets. This shield can be worn directly on the forehead or tucked into a surgical mask[17].

Orthodontics pliers can be sterilized by steam autoclave sterilization, ultrasonic bath sterilization, thermal disinfection, or chemical disinfection with 2% glutaraldehyde or 0.25 % peracetic acid. Instrument cassettes can be used efficiently, and pliers sterilized in an open position are preferable. Autoclave sterilization is recommended over cold sterilization because it does not influence the surface characteristics of arch wires. Using glutaraldehyde solution, orthodontics markers can be autoclaved or disinfected. The most successful way of decontamination was said to be cleaning photographic retractors using a washer-disinfector.

The bacterial contamination of tungsten carbide debonding burs could be effectively removed. After proper pre-cleaning and sterilization, using tried-in orthodontics bands is safe. Clinical viability is not jeopardized by decontamination[18].

Many orthodontics treatments, such as the bonding and debonding of brackets and attachments, produce a significant quantity of aerosols, leading to infection transmission[12]. Therefore, depending on the size of the office, it may be necessary to set aside a separate, appropriately equipped area for procedures that involve the use of rotary instruments such as handpieces or ultrasonic scalers and, if possible, group these appointments together when planning the agenda.

In addition to the usual cleaning and sterilization of equipment and other supplies in dental offices, it has been deemed critical to apply extra systematic cleaning routines between patients addressing waiting room furniture, toilets, floors, and other surfaces during the pandemic. Even though they slow the pace of practice, these new procedures will likely to be used in the future, at least in part.

Orthodontic Emergencies

Government and healthcare organizations have put their heads together to reorganize triage services to reduce COVID-19 nosocomial infection[11]. This process is complicated because transmission occurs primarily through droplets, and many people may be asymptomatic or in the incubation stage. Keeping track of treatment outcomes and current health conditions while eliminating unnecessary follow-up sessions would be of considerable interest and relevance to healthcare practitioners.

Patients show up for emergency visits for some reason. Dislodged brackets and tubes; loose bands; band ripping; weld failure; extraoral appliance trauma; soft tissue trauma with an archwire, ligature wire, or bracket hooks; retainer repair/adjustment; and issues with elastomeric chain. The most common reason for a surprise visit in fixed orthodontics treatment is the repair of debonded brackets, which tend to break in some teeth than others. Aside from the ill-fitting prosthesis, orthodontics appliances are thought to be one of the top causes of iatrogenic physical injuries to the intra- and extraoral tissues, prompting patients to return to the physician[19].

Teledentistry

Teledentistry is divided into several subcategories, including teleconsultation, telediagnosis, telemonitoring, and teletriage, all of which serve vital functions in dental practice[20]. Teleconsultation helps to reduce non-urgent patient referrals, easing the demand on already overburdened healthcare systems. Telediagnosis is the use of technology to remotely diagnose oral disorders by exchanging patient records, intraoral pictures, and radiographic images[21]. Teletriage focuses on patients who require urgent dental care after a remote evaluation of their oral health, reducing unnecessary travel in light of the pandemic situation[22].

The use of teledentistry in orthodontic treatment was investigated in terms of dental professionals' opinions, treatment outcomes, referrals, and servicing of underserved groups. Stephens and Cook in 2002, Mandall et al. in 2005, and Bradley et al. in 2007 published studies on the views of orthodontists and general dental practitioners

toward teledentistry[23-25]. The findings revealed that both orthodontists and general dentists favored using teledentistry to make orthodontic consultations more accessible to dentists and patients. Although general dental practitioners in this study expressed concerns about the unnecessary time spent obtaining photos and transmitting information, teleconsultation increased the outcome of orthodontic therapy provided by general dental practitioners[26]. Several kinds of research looked into teledentistry referrals for orthodontic problems[27-29]. Teledentistry was discovered to be a valuable method for preventing unnecessary referrals of orthodontic cases to consultants. Patients, in addition to the dentist, recognized the function of teledentistry in improving the consultation process[30]. Store-and-forward teledentistry produced the same results as referrals provided by general dental practitioners based on their clinical examination in a study evaluating the reliability of orthodontists to receive new patients based on their clinical pictures. In addition, Berndt et al. assessed the possibility of orthodontic treatments being offered by a general dental practitioner under the supervision of an orthodontist in real-time, intending to serve impoverished children. The study's findings demonstrated that teledentistry is a viable method for treating children with malocclusions when seeing an orthodontist is time and expense prohibitive.

Telecommunication in the field of orthodontics also can treat minor problems such as rubber ligature displacement and irritation caused by orthodontic appliances, reducing trips to the dental office[31]. Instead of casting jaw models in plaster, an orthodontist can send dental impressions of the jaws via a particular postal service to specialized companies for three-dimensional (3D) digitization of working models; they then create digital 3D models and return them to the therapist via the internet. The therapist can use the network to communicate this digital model of the jaws with others, allowing for meaningful discussions with their colleagues. If needed, peer teleconsultants can assist in formulating an orthodontic treatment plan and program utilizing a digital patient model from a distance[32]. This innovation, teledentistry, was created to deliver healthcare services in remote places in the medical field and could help manage healthcare services in this unique emergency.

Furthermore, it can facilitate communication and engagement between the patient, healthcare professional, and physicians. Indeed, it can, to some extent, erase geographical and temporal obstacles, bridging gaps in the healthcare market's heterogeneous distribution. As a result, it can provide care for many people, benefiting from healthcare services, particularly those who reside in distant places or areas with inadequate healthcare facilities. In addition, improved appointment scheduling can ease the online transmission of diagnostic tests and shorten consultation wait times[33]. Consequently, these technologies are an excellent resource for optimizing and decreasing in-office visits while still allowing for important check-ups.

Bracket breakage and wire loosening are two common orthodontics emergencies. Addressing orthodontic issues such as bracket breakage and wire loosening via teleorthodontics involves guiding patients through specific temporary measures. While a comprehensive solution may require an in-person visit, here are some general instructions that can be provided over the telephone:

Bracket Breakage:

- **Assessment:** Instruct the patient to examine the affected area carefully. If the bracket is still attached but loose, advise them to avoid manipulating it excessively.
- **Avoid Certain Foods:** Avoid hard and sticky foods to prevent further stress on the bracket.

Wire Loosening:

- **Repositioning with Tweezers:** If the wire has shifted and caused discomfort, patients can gently use clean tweezers to guide it back into place.
- **Orthodontic Wax:** Advise using orthodontic wax to cover any protruding or sharp edges of the wire to prevent irritation.
- **Soft Foods:** Encourage the patient to consume soft foods to minimize the risk of further wire displacement.

Immediate Consultation:

- **Virtual Consultation:** If the issues persist or are causing significant discomfort, recommend a virtual consultation with the orthodontic team. This can involve sending clear photos of the affected area for assessment.
- **Schedule an In-Person Visit:** For more complex issues, emphasize the importance of scheduling an in-person visit to address the problem comprehensively.

It's crucial to convey to the patient that these are temporary measures and professional assistance is necessary for a permanent solution. Additionally, the guidance may vary based on the specific circumstances and the orthodontic treatment plan.

The dentist can readily manage such complaints about the phone, and the patient can temporarily be informed on how to fix the problem. Interceptive orthodontics treatments were performed by sufficiently trained general dentists and overseen remotely by orthodontics specialists via teledentistry, according to Berndt et al.[34] When a referral to an orthodontist is not possible; this has proven to be a successful method of reducing the severity of malocclusions in underprivileged children.

The presence of any symptoms of a febrile respiratory infection such as fever or cough and any recent travel history to a region with a high incidence of COVID-19 exposure should be requested for initial screening.

Teleconsultation

Teleconsultation is the most popular type of teledentistry, in which patients or local healthcare providers use telecommunication to obtain advice from dental specialists[35]. It has proved helpful in the consultation of physically and mentally challenged patients and people from elderly care homes and jails[36]. Teleconsultation has been proven to reduce referrals from primary health centers to higher facilities by more than half[37]. In addition, it may help patients continue their treatment during quarantine and lockdown in the current COVID-19 outbreak.

Telediagnosis

Telediagnosis uses technology to remotely diagnose oral disorders by exchanging patient records, intraoral pictures, and radiographic images[21]. It also has been used to communicate images and data to diagnose an oral lesion[38]. Patient referral to specialists was reduced from 96.9% to 35.1 percent using the telediagnosis tool EstomatoNet[39].

While using cellphones to detect dental caries is widely recommended[40,41], it has also proven a valuable tool for screening potentially oral cancerous lesions[42]. Furthermore, Telecytology, a technique for early identification of oral potentially malignant or malignant lesions, is an addition to telediagnosis.

Telemonitoring

Dental patients must visit their dentist regularly to have their treatment progress monitored. Telemonitoring can replace frequent physical visits with virtual visits to track treatment outcomes and illness progression[35]. Telemonitoring appeared to be a promising strategy in remote monitoring surgical and non-surgical dental patients in recent pilot research during this pandemic, notably in terms of minimizing expenses and waiting times[43].

Barrier in Teleorthodontic

Dentists' reluctance to accept teledentistry might be related to the fact that they may find it complex and resistant to learning new skills[44,45]. In addition, they could be technologically challenged, fearful of providing an incorrect diagnosis, and anxious about rising expenditures and expenses. Infrastructure restrictions could include insufficient internet access, a scarcity of hardware, a lack of training, technical support, and knowledge. Other barriers to acceptance by dentists include organizational incompatibility of teledentistry with the healthcare system, insufficient financial reimbursement, poor guidelines, incoordination between remote and core centers, and exorbitant setup costs[45]. Other limitations include a two-dimensional portrayal of lesions and the inability to perform tests such as palpation and auscultation[46].

Any module's success hinges on patient acceptance. Patients may fear that their difficulties are not appropriately communicated to their dentists due to a lack of face-to-face communication. It will take time to overcome these obstacles. However, patients' acceptance of teledentistry will rise in lockstep with the overall acceptance of telemedicine, growing by the day. According to numerous polls, teledentistry is progressively gaining favor among consumers and healthcare practitioners[47,48].

Discussion

The COVID-19 has impacted human existence in various ways, causing global uncertainty. To mitigate the risk of SARS-CoV-2 virus cross-contamination between dental professionals and patients, orthodontists should modify their practices to align with the requirements of need-based dentistry. Following the WHO and local authorities' standards and regulations after adequate telescreens and triage, orthodontics therapy should ensure only the management of an actual emergency with the required

PPE during a pandemic emergency. Orthodontics practice and patient management must adapt to changing circumstances while maintaining a balance of service and societal requirements.

The Italian Society of Orthodontics (SIDO) recently released a guideline for managing orthodontic patients during the COVID-19 outbreak. Orthodontic emergencies are unpredictably painful or uncomfortable complications produced by orthodontic appliances that need immediate oral care. Patients should continue with their current therapies while also being video examined on a regular basis. This treatment must be organized by dental specialists and their teams, who must choose the number of eligible patients. In all other cases, it is recommended to actively contact each individual patient in therapy in order to provide specific indications and to schedule telephone appointments with patients 4–6 weeks apart to conduct a follow-up check-up or to schedule an appointment in the clinic, if strictly necessary[5]. Teleorthodontics achieves this goal by avoiding unneeded follow-up visits while keeping constant monitoring, ensuring that desired results are not jeopardized. Teleorthodontics has nearly limitless potential; remote consultations might be conducted anywhere in the world without the need for travel or appointment scheduling. This method could be extremely beneficial in the administration of all detachable dentofacial orthopedic appliances as well as orthodontic treatments that require minimum in-office maintenance, such as clear aligner therapies[3]. During the COVID-19 outbreak, healthcare professionals should consider adjusting patient routes and utilizing telehealth as a consultation mode in service recovery planning, as well as limiting the transmission of this highly infectious disease[6]. While teleorthodontics provides valuable remote support, it is imperative to emphasize that it does not offer a comprehensive solution for all orthodontic emergencies. Face-to-face maintenance remains crucial for the success of the treatment, as specific procedures, such as the execution of intricate mechanics, reattachment of orthodontic appliances, and other hands-on interventions, can only be performed by the orthodontist during in-person visits. Therefore, it is essential to recognize the limitations of teleorthodontics and prioritize scheduled in-office appointments for the execution of critical aspects of orthodontic care.

In conclusion, even while many dental and orthodontics procedures still require in-office visits, teleorthodontics offers new frontiers in the treatment and follow-up of many patients. It can successfully address a variety orthodontic emergency and reassure and follow patients from afar without putting them or dental practitioners in danger. Furthermore, communicating using images and videos can quickly resolve most case difficulties without the patient visiting the orthodontics office, saving the patient's and clinician's significant time. This method could be highly beneficial in administering all detachable dentofacial orthopedic appliances and orthodontics treatments that require minimum in-office maintenance, such as precise aligner therapies.

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Conflict of Interest

Author declared no conflict of interest.

Data Availability

Datasets related to this article will be available upon request to the corresponding author.

Author Contributions

Karima Qurnia Mansjur: Conceptualization and design; acquisition, analysis, and interpretation of the data; writing, drafting the work and reviewing, and final approval of the version to be published. **Aafiah Ifada**: Conceptualization and design, writing. **Mansjur Nasir**: Data curation and investigation. **Eka Erwansyah**: Supervision and validation. **Ardiansyah S. Pawinru**: Participation in data collection. **Eddy Heriyanto Habar**: Participation in data collection. **Baharuddin M. Ranggang**: Participation in data collection. **Donald R. Nahusona**: Data curation and investigation. **Nasyrah Hidayati**: Table and figure creation. **Zilal Islamy Paramma**: Table and figure creation. We declare that all authors revised and approved the final version of the manuscript.

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