# Evidence Search Service Results of your search request:

## “The impact of COVID-19 on orthodontic patient concerns: A Scoping Review”

**ID of request:** 27945; **Date of request:** 1st March, 2021; **Date of completion:** 4th March, 2021

If you would like to request any articles or any further help, please contact:  Adam Tocock at [adam.tocock@nhs.net](mailto:adam.tocock@nhs.net)

Please acknowledge this work in any resulting paper or presentation as: Evidence search: The impact of COVID-19 on orthodontic patient concerns: A Scoping Review. Adam Tocock. (4th March, 2021). LONDON, UK: Barts Health Knowledge and Library Services.

**Date range used** (5 years, 10 years): -   
**Limits used** (gender, article/study type, etc.): -   
**Search terms and notes**: full search strategy reported at the end of this document.

## Summary:

## A a sensitive search of several healthcare databases was performed, looking for any/all research containing the 2 facets of *COVID-19* and *orthodontics*. Please find below the full yield of the search, with results focusing on patient concerns/worry/anxiety etc. highlighted in yellow.

## From result #7 below, set in Nigeria:

## “Most respondents (95%) considered the infection as dangerous and believed the orthodontic patient was at risk of contracting the disease but were willing regardless to carry on with their orthodontic treatment during the pandemic. Fear of contracting the COVID-19 virus during orthodontic appointments and missed orthodontic appointments (74%), and increased treatment time (50%) were the immediate and long-term concerns, respectively. A high acceptance rate of compliance to precautionary measures to mitigate virus spread in the clinic was observed. CONCLUSIONS The COVID-19 pandemic has had a negative impact on the orthodontic treatment and the financial and emotional wellbeing of orthodontic patients. Patients were willing to continue with orthodontic management during the pandemic while complying with precautionary measures to prevent disease spread in the orthodontic practice setting

## From result #47 [Brazil]:

## “The quarantine and coronavirus pandemic showed to have impact on orthodontic appointments and patients' anxiety. Patients willing to attend an orthodontic appointment presented significantly lower level of anxiety than patients that would not go or would go only in urgency/emergency. Females were more anxious than males about coronavirus pandemic, quarantine and impact on their orthodontic treatments. Delay in treatment was the greatest concern of patients undergoing orthodontic treatment”

## No UK studies focusing on patient worries were identified. Please contact us if you would like us to find research on *patient anxiety/worries and orthodontics* more broadly, if you would like to receive your results in a different format, or if you aware of relevant research not featured in this report: [adam.tocock@nhs.net](mailto:adam.tocock@nhs.net)

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## A. Original Research

1. **Biosafety in dental practices versus COVID-19 outbreak**  
   Santos I.G. Pesquisa Brasileira em Odontopediatria e Clinica Integrada 2021;21:1-12.

Objective: To evaluate the dentists' knowledge about biosafety considering the SARS-CoV-2 and the risks of increasing the COVID-19 outbreak by dental practices during the pandemic in Brazil. Material(s) and Method(s): A cross-sectional study was performed by internet-based snowball sampling technique. A questionnaire with questions about different content was applied, and then analyzed the following two parameters: participants' Brazilian region and professional's specialty. Result(s): A total of 413 equestionnaires from all Brazilian regions were considered valid. There were no significant differences among biosafety measures adopted by participants from different Brazilian regions (p&gt;=0.05), except for those from North region, which have applied less previous oral antisepsis, temperature screening, and specific anamnesis tracking COVID-19 symptoms (p&lt;0.05). The unique use of N95 mask was positively associated with North region (p&lt;0.05). Expert participants of Groups 2 (oral surgery and correlate areas) and 4 (orthodontics, oral radiology and facial jaw orthopedics) were more updated than other ones (p&lt;0.05). Conclusion(s): The biosafety protocols applied by participants were not adequate for the epidemiologic status of COVID-19 in each region of Brazil, from 13th May to 17th June 2020. Specialties linked to microbiology area or structured social networks have better applied preventive measures for COVID-19. Copyright &#xa9; 2021, Association of Support to Oral Health Research (APESB). All rights reserved.

1. **Challenges, limitations, and solutions for orthodontists during the coronavirus pandemic: A review.**  
   Malekshoar Milad American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2021;159(1):e59.

INTRODUCTIONOrthodontic patients worldwide missed appointments during the early months of the coronavirus disease 2019 (COVID-19) pandemic. A significant problem with this virus is its high transmission power. Asymptomatic patients can transmit the virus. The aim of this review is to examine orthodontic emergencies and the necessary strategies and measures for emergency and nonemergency treatment during the coronavirus pandemic.METHODSThe following databases were comprehensively searched: PubMed, MEDLINE, Scopus, and Google Scholar. Up-to-date data released by major health organizations such as the World Health Organization and major orthodontic associations involved in the pandemic were also evaluated.RESULTSFew studies were conducted on managing orthodontic offices or clinics during the pandemic, and most are not of high quality. Appropriate communication is the most important issue in managing orthodontic patients, particularly virtual counseling. Many orthodontic emergencies can be managed in this way by patients themselves. Most studies recommend using the filtering facepiece 2 masks, equivalent to N95 masks for non-COVID-19 patients undergoing aerosol-generating procedures and all suspected or confirmed COVID-19 patients in orthodontic visits.CONCLUSIONSAt this time, there are no definitive clinical protocols supported by robust evidence for orthodontic practice during the COVID-19 pandemic. Orthodontists should not rush to return to routine orthodontic work and should follow state guidelines. Nonemergency orthodontic visits should be suspended during the severe acute respiratory syndrome coronavirus 2 pandemic in high-risk areas. Resuming orthodontic procedures during the pandemic requires paying special attention to screening, performing maximum efforts to reduce aerosol generation, using appropriate personal protective equipment, having proper ventilation, and fully adhering to sterilization and disinfection principles.

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[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d932f27a11e2e2b9e96a26355279eca4)

1. **COVID-19 and cosmetic dentistry: the 'Zoom boom'.**  
   Norton Rachael Dental Nursing 2021;17(1):18-19.

Rachael Norton is a dental nurse at Bow Lane Dental Group in the City of London. Here, she discusses the pandemic's impact on smile makeovers and how patients are considering the bigger picture when it comes to their dental care

1. **Covid-19 awareness among the patients visiting orthodontists**  
   Kavitha M. International Journal of Pharmaceutical Research 2021;13(1):4544-4550.

Introduction: The novel corona virus (COVID-19) pandemic was first recognized in Wuhan, China with Severe Acute Respiratory Syndrome Corona virus-2 (SARS-Cov-2)<sup>[9].</sup> COVID-19 declared as a worldwide pandemic on March 11, 2020. It spread through person-to-person contact, aerosol and droplet infections<sup>[1]</sup>.With no prior anticipation or warning, patient's orthodontic appointments were temporarily ceased as dental clinics and institutions were indefinitely closed. Orthodontic emergency might be described as a problem arising from orthodontic braces or appliances. Specific recommendations for dental clinic are patient screening, infection control precautions and emergency treatment protocols<sup>[12].</sup> Aim: To create awareness/access the impact of the COVID-19 related to lockdown on emergencies, precautions and psychology of patients who undergoing orthodontic treatment. Material And Methods: A self-designed online questionnaire of 19 questions was distributed to 300 potential responders through emails/messages. It was mandatory to answer all questions and the survey was anonymized and did not contain any identifying information. Online consent was taken before participation in the pilot-study and the obtained data were evaluated using inferential and descriptive statistics. Result(s): The rate of responses was 100%. The study revealed that the majority of patients were anxious regarding their orthodontic treatment and affected by lack of access to orthodontic visits; fear of increased treatment duration; inconveniences caused by deboned brackets, loose orthodontic brackets etc. The study revealed the importance of orthodontic appointments as well as precautions to be taken by the patients and the dentists. Conclusion(s): The need for understanding the patient psychology and patient education related to aerosol and Tele-dentistry is mandatory in the pandemic situation. Proper communications and explanations on how to maintain dental emergencies, proper dental care would give an encouragement to the orthodontic patients. Copyright &#xa9; 2021, Advanced Scientific Research. All rights reserved.

1. **Evaluating splatter and settled aerosol during orthodontic debonding: implications for the COVID-19 pandemic.**  
   Llandro Hayley British dental journal 2021;:No page numbers.

Introduction Dental procedures produce splatter and aerosol which have potential to spread pathogens such as SARS-CoV-2. Mixed evidence exists on the aerosol-generating potential of orthodontic procedures. The aim of this study was to evaluate splatter and/or settled aerosol contamination during orthodontic debonding.Material and methods Fluorescein dye was introduced into the oral cavity of a mannequin. Orthodontic debonding was undertaken with surrounding samples collected. Composite bonding cement was removed using a speed-increasing handpiece with dental suction. A positive control condition included a water-cooled, high-speed air-turbine crown preparation. Samples were analysed using digital image analysis and spectrofluorometric analysis.Results Contamination across the eight-metre experimental rig was 3% of the positive control on spectrofluorometric analysis and 0% on image analysis. Contamination of the operator, assistant and mannequin was 8%, 25% and 28% of the positive control, respectively.Discussion Splatter and settled aerosol from orthodontic debonding is distributed mainly within the immediate locality of the mannequin. Widespread contamination was not observed.Conclusions Orthodontic debonding is unlikely to produce widespread contamination via splatter and settled aerosol, but localised contamination is likely. This highlights the importance of personal protective equipment for the operator, assistant and patient. Further work is required to examine suspended aerosol.

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1. **Evaluation of the quality of information on the internet about 2019 coronavirus outbreak in relation to orthodontics.**  
   Olkun Hatice K.übra Health and technology 2021;:1-5.

This study aims to evaluate the content of information in three different search engines in terms of orthodontics as the source of information at the current stage of the COVID-19 outbreak. An internet search was conducted on April 10th, 2020, using the most popular search engines: GoogleTM, BingTM, and Yahoo!® with the keyword "coronavirus orthodontics". Top 10 websites were evaluated for each search engine. After excluding duplicates the remaining 23 sites were saved in Microsoft Excel programme and evaluated by two independent researchers (HKO and RSO; both experienced orthodontists) using the modified DISCERN tool and JAMA benchmarks. The websites were also classified as "useful, misleading and news updates". Sixty one percent of the websites were classified as useful, 26% as misleading, and 13% as news updates. Most of the authors of the websites were unknown (35%) and followed by orthodontists (30%). The DISCERN and JAMA scores of the four websites were excellent and their target audience were orthodontists. The average modified DISCERN score of 23 websites was moderate (average score 2,8). Useful websites had a significantly higher number of DISCERN and JAMA scores than the misleading websites (p < 0.05). Most of the information available in three different search engines about orthodontics related to COVID-19 were useful. The most reliable websites belonged to American Association of Orthodontists (AAO), Australian Society of Orthodontists (ASO), and British Orthodontic Society (BOS), and they appeared on the first page of the GoogleTM.

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1. **Impact of the coronavirus disease 2019 pandemic on orthodontic patients and their attitude to orthodontic treatment.**  
   Umeh Onyinye Dorothy American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2021;:No page numbers.

INTRODUCTION This study aimed to assess the impact of the coronavirus disease 2019 (COVID-19) pandemic on the orthodontic patient. It also assessed the knowledge and attitude of patients to the COVID-19 infection and the willingness to carry out specific precautionary measures in the orthodontic clinics to mitigate the spread of the virus. METHODS It was a cross-sectional descriptive study. Questionnaires were distributed to orthodontic patients via Google forms. The questionnaire assessed participants' knowledge, attitude, the impact of the COVID-19 pandemic on orthodontic treatment, and willingness to carry out infection control precautionary measures in the orthodontic clinic. RESULTS A total of 304 responses were obtained; 83 males (27.3%), 221 females (72.7%) with a mean age of 35.6 years. Subjects demonstrated good knowledge of COVID-19 infection (94.7%). Most respondents (95%) considered the infection as dangerous and believed the orthodontic patient was at risk of contracting the disease but were willing regardless to carry on with their orthodontic treatment during the pandemic. Fear of contracting the COVID-19 virus during orthodontic appointments and missed orthodontic appointments (74%), and increased treatment time (50%) were the immediate and long-term concerns, respectively. A high acceptance rate of compliance to precautionary measures to mitigate virus spread in the clinic was observed. CONCLUSIONS The COVID-19 pandemic has had a negative impact on the orthodontic treatment and the financial and emotional wellbeing of orthodontic patients. Patients were willing to continue with orthodontic management during the pandemic while complying with precautionary measures to prevent disease spread in the orthodontic practice setting.

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1. **Implementation of teledentistry for orthodontic practices.**  
   Park Jae Hyun Journal of the World federation of orthodontists 2021;:No page numbers.

Recent advances in technology, growing patient demand, and the need for social distancing due to Coronavirus Disease 2019 has expedited adoption of teledentistry in orthodontics as a means of consulting and monitoring a patient without an in-office visit. However, a lack of computer literacy and knowledge of software choices, and concerns regarding patient safety and potential infringement of regulations can make venturing into this new technology intimidating. In this article, various types of teledentistry systems for orthodontic practices, implementation guidelines, and important regulatory considerations on the use of teledentistry for orthodontic purposes are discussed. A thorough evaluation of the intended use of the software should precede commitment to a service. Selected service should be Health Insurance Portability and Accountability Act compliant at minimum and a Business Associate Agreement should be in place for protection of privacy. Ensuring the compatibility of the designated clinic computer with the system's requirements and installation of all safeguards must follow. Appointments should be documented in the same manner as in-office visits and teledentistry patients must be located within the clinician's statutory license boundary. Informed consent forms should include teledentistry or a supplemental teledentistry consent form should be used. Malpractice insurance covers everything usual and customary under the provider's license but the need for cyber liability insurance increases with teledentistry.

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1. **In an era of uncertainty: Impact of COVID-19 on dental education.**  
   Hung Man Journal of dental education 2021;85(2):148-156.

PURPOSE/OBJECTIVESThe coronavirus disease 2019 (COVID-19) pandemic arguably represents the worst public health crisis of the 21st century. However, no empirical study currently exists in the literature that examines the impact of the COVID-19 pandemic on dental education. This study evaluated the impact of COVID-19 on dental education and dental students' experience.METHODSAn anonymous online survey was administrated to professional dental students that focused on their experiences related to COVID-19. The survey included questions about student demographics, protocols for school reopening and student perceptions of institutional responses, student concerns, and psychological impacts.RESULTSAmong the 145 respondents, 92.4% were pre-doctoral dental students and 7.6% were orthodontic residents; 48.2% were female and 12.6% students lived alone during the school closure due to the pandemic. Students' age ranged from 23 to 39 years. Younger students expressed more concerns about their emotional health (P = 0.01). In terms of the school's overall response to COVID-19, 73.1% students thought it was effective. The majority (83%) of students believed that social distancing in school can minimize the development of COVID-19. In general, students felt that clinical education suffered after transitioning to online but responded more positively about adjustments to other online curricular components.CONCLUSIONSThe COVID-19 pandemic significantly impacted dental education. Our findings indicate that students are experiencing increased levels of stress and feel their clinical education has suffered. Most students appear comfortable with technology adaptations for didactic curriculum and favor masks, social distancing, and liberal use of sanitizers.

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1. **Management of odonto-stomatological emergencies during the COVID-19 alarm state in dental clinics in the Autonomous Community of Madrid (CAM), Spain: An observational study.**  
   Ramírez J.-M Medicina oral, patologia oral y cirugia bucal 2021;26(1):e114.

BACKGROUNDOdontology practice has been severely compromised by the pandemic caused by COVID-19 and Spain is one of the countries with higher incidence. Our aim with this study is to find out the number of cases and type of odonto-stomatological emergencies (OSE) treated in four dental clinics of the Madrid capital area and region (CAM) in the period covered between March 17th and 4th of May.MATERIAL AND METHODSWe search the cases in the demographic/epidemiological databases of the CAM regional government and the Illustrious Official College of Dentists and Stomatologists of the First Region (Madrid).RESULTSWe found that the most prevalent pathology was acute apical periodontitis whereas odontogenic abscess showed the lowest frequency. Prosthetic-orthodontic OSE represented 14% of cases.CONCLUSIONSIn this period of time, the most prevalent pathology acute apical periodontitis, odontogenic abscess reported the lowest frequency and prosthetic-orthodontic treatments were the third in number of cases. Most of OSE were resolved, without referring the patient to a hospital emergency department.

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1. **Novel approach for better compliance of mask during COVID pandemic.**  
   Chaudhry Anshul Journal of oral biology and craniofacial research 2021;11(2):234-236.

COVID 19, started as a respiratory illness has affected the human life world-wide. Mandatory guidelines for wearing of masks have been issued by WHO even if you are stepping out. The continuous wearing of masks for prolonged duration has led to some negative consequences.Material and methodA new method was introduced to increase the compliance of mask by using easily available orthodontic wires in the dental set up.ResultsThe new approach was helpful in getting rid of rashes, irritation and erythematous patches behind the ears along with the reduction in the chances of cross contamination.ConclusionThis method can be incorporated in routine in the dental practice, even when one is not working on the patient.

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1. **Online consultation and emergency management in paediatric dentistry during the COVID-19 epidemic in Wuhan: A retrospective study.**  
   Yang Fengjiao International journal of paediatric dentistry 2021;31(1):5-11.

BACKGROUNDThe COVID-19 pandemic posed a great challenge to paediatric dentistry, which confronted with the restriction of service and resource shortage.AIMTo retrospectively analyse the information of children's dental online health consultation during the COVID-19 pandemic in China, and to provide methods to distinguish between dental emergencies and non-emergencies as well as their management.DESIGNWe collected all the online consultation information in Dept. of Paediatric dentistry, School & Hospital of Stomatology, Wuhan University, from 2 February to 31 March 2020, and extracted the information of age, gender, reason for consultation, description of symptom, and preliminary diagnosis of the children.RESULTSA total of 474 online consultations of paediatric dentistry were included within 59 days during lockdown, and 190 (40.1%) were dental emergencies and 284 (59.9%) non-emergencies. Of 190 emergency consultations, 186 (97.9%) showed swelling, pain, and trauma with or without systemic symptoms. Among 284 non-emergency consultations, retained primary teeth (n = 126) and orthodontic consultation (n = 53) were the most common reasons for consultation.CONCLUSIONThe paediatric emergency and non-emergency problems should be clearly distinguished and sufficient instructions provided in the special period of COVID-19. Priorities also should be set to deal with urgent conditions after the release of lockdown.

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1. **Psychological status of TMD patients, orthodontic patients and the general population during the COVID-19 pandemic.**  
   Wu Yange Psychology, health & medicine 2021;26(1):62-74.

Confronting the outbreak of COVID-19, this cross-sectional study was aimed to assess psychological status of temporomandibular disorders (TMD) patients, orthodontic patients and the general population in China during the pandemic. An online anonymous questionnaire was developed in Chinese, including the individual background information, the perception of the epidemic, and level of anxiety and depression through Kessler Psychological Distress Scale (K10). The respondents were divided into ORTHO group, TMD group and Control group. Descriptive analysis and multiple linear regression modelling were performed. In total, 1241 valid questionnaires were collected, covering 587 orthodontic patients and 220 TMD patients. It is shown that the overall mental health is not quite optimistic during the COVID-19 pandemic with the mean score of K10 being 18.65. TMD patients have higher level of anxiety and depression than orthodontic patients as well as the general population. Younger age, female gender, having close contact with individuals from Hubei province, higher self-rated infection possibility, concern about psychological barriers and distrust are negatively affecting patients' psychological status. Mental health care should be emphasized when hospitals and clinics reopen after the COVID-19 pandemic, especially to patients with these relevant characteristics.

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1. **Strategic use of obturator prostheses for the rehabilitation of oral cancer patients during the COVID-19 pandemic.**  
   Brandão Thais Bianca Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer 2021;29(1):11-15.

During the current pandemic scenario, maxillofacial rehabilitation specialists involved with supportive care in cancer must transform its practice to cope with COVID-19 and improve protocols that could quickly return the oral function of complex cancer patients who cannot wait for surgical complex rehabilitation. This includes the role of the maxillofacial prosthodontist for the rehabilitation of surgically treated patients with maxillary cancers by the means of filling obturator prostheses that are considered an optimal scientific-based strategy to reduce hospital stay with excellent pain control, oral function (speech, swallowing, mastication, and facial esthetics), psychologic and quality of life outcomes for the patients following intraoral cancer resection. Therefore, the aim of this commentary was to bring new lights to the strategic use of obturator prostheses for the rehabilitation of oral cancer patients during the COVID-19 pandemic as well as to present a protocol for managing such cases.

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1. **When convenience trumps quality of care: A population-based survey on direct to consumer orthodontics.**  
   Bous Rany M. American journal of orthodontics and dentofacial orthopedics: official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2021;:No page numbers.

INTRODUCTION Since the introduction of direct to consumer orthodontic (DTCO) products in the last decade, these products have been increasing in popularity among orthodontic patients. The purpose of the current article was to assess the populations' perception of DTCOs and to examine various factors that may influence their decision in choosing treatment with DTCO products. METHODS A cross-sectional population-based survey was conducted in the United States. The 35-question survey was disseminated through Amazon Mechanical Turk (Amazon.com, Inc, Seattle, Wash), and participants were asked questions about their demographics, their perceptions of DTCOs, orthodontists, and factors that may influence their decision should they decide to pursue orthodontic treatment. Pearson's correlations were conducted to assess the association between various factors and the participants' likelihood to choose DTCO products. RESULTS A total of 1441 subjects participated in the study. More than 83% of the participants have considered pursuing orthodontic treatment to some extent. Twenty-three percent reported that they would highly likely choose DTCO products. The majority of participants reported convenience to be the greatest benefit of DTCOs, followed by cost. The majority of responses seemed to favor DTCOs. Forty-seven percent reported that the coronavirus disease 2019 pandemic did not affect their preference, whereas 26.6% reported to be more likely to pursue DTCOs because of the pandemic. CONCLUSIONS The majority of participants seemed to perceive DTCOs as a viable alternative for seeking orthodontic care. Although participants had concerns about the coronavirus disease 2019 pandemic, results showed that the pandemic might not significantly affect the preferences. Orthodontists and their constituent organizations may consider more robust awareness and advocacy campaigns to educate the population about orthodontic treatment and the benefits of pursuing treatment with a trained orthodontist.

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1. **Anxiety and perceptions on the impact of COVID-19 pandemic among orthodontic patients visiting a tertiary care center: A cross-sectional study**  
   Ghosh P. International Journal of Research in Pharmaceutical Sciences 2020;11:1487-1493.

As the COVID-19 pandemic is steadily rising, there is an increase in psychological distress among the orthodontic patients regarding their ongoing treatment. Thus aim of the study was to assess the anxiety and perceptions among orthodontic patients regarding the impact of COVID-19 pandemic on orthodontic treatment. A closed end online questionnaire was sent as Google forms to 300 adult patients' currently undergoing orthodontic treatment at a tertiary care center. 266 patients answered the survey with a response rate of 88.7%. Online consent was taken before participation in the study and the survey was anonymized and did not contain any identifying information. The descriptive data included the participants' responses using frequency and proportions. The difference in the distribution of responses were compared using Chi-square goodness of fit test and the level of significance was fixed at p &lt; 0.05. Level of anxiety between males and females was compared using independent t-test. Among the respondents, 126 were males and 140 were females. The mean level of anxiety level among males was 4.28 +/- 2.28 whereas for females it was 5.85 +/- 2.48. The differences in the distribution of responses by the participants were statistically significant. The COVID-19 pandemic showed to have a greater impact on orthodontic appointments and anxiety levels of patients. Females showed greater anxiety than males for visiting the dental clinics. The greatest concern that patients reported was the increase in their treatment duration and they also recognized the importance of monthly orthodontic reviews. Copyright &#xa9; 2020 International Journal of Research in Pharmaceutical Sciences. All rights reserved.

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1. **Appropriate orthodontic appliances during the COVID-19 pandemic: A scoping review.**  
   Kaur Harneet Journal of oral biology and craniofacial research 2020;10(4):782-787.

IntroductionThe esoteric Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) infection or COVID-19 has been an unusual plummet in dental/orthodontic practice. Based on current recommendations for various amendments in an orthodontic practice, this scoping review aims to identify orthodontic appliances that are most appropriate to us during this on-going pandemic. Methods Electronic databases (PubMed, Scopus, Web of Science, Science Direct, and Google Scholar) were searched up until August 11, 2020. Full-text articles in English with keywords "COVID-19 and Orthodontics" and related search terms were included. Results Out of 17 retracted articles, only 4 articles were found to be brief the choice for orthodontic appliances in pandemic times speculating clear aligner therapy (CAT) to be a pragmatic solution. The remaining articles were also thoroughly studied and the new norms set by the pandemic were determined. Criteria for orthodontic appliance selection included careful patient screening and collection of records, minimal physical visits, efficient use of technology, virtual consultations but the use of PPE for physical appointments; and lesser AGPs with a lesser risk of airborne transmission.ConclusionsSubject to regional demands, CAT can be considered as the relatively safer modality-predictable and effective apposite to fixed orthodontic appliances in these unprecedented times.

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1. **Author's response.**  
   Jerrold Laurance American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(1):13.

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1. **Available Technologies, Applications and Benefits of Teleorthodontics. A Literature Review and Possible Applications during the COVID-19 Pandemic.**  
   Maspero Cinzia Journal of clinical medicine 2020;9(6):No page numbers.

BACKGROUNDCOVID-2019 spread rapidly throughout the world from China. This infection is highly contagiousness, has a high morbidity, and is capable of evolving into a potentially lethal form of interstitial pneumonia. Numerous countries shut-down various activities that were considered "not essential." Dental treatment was in this category and, at the time of writing, only non-deferrable emergencies are still allowed in many countries. Therefore, follow-up visits of ongoing active therapies (e.g., orthodontic treatment) must be handled taking special precautions. This literature review aims at reducing in-office appointments by providing an overview of the technologies available and their reliability in the long-distance monitoring of patients, i.e., teledentistry.METHODSA literature review was made according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) guidelines. Randomized clinical trials, cross sectional, observational, and case-control studies were evaluated with the Mixed Methods Appraisal Tool for quality assessment and study limitations.RESULTSA primary search found 80 articles, 69/80 were excluded as non-relevant on the basis of: the abstract, title, study design, bias, and/or lack of relevance. Twelve articles were included in the qualitative analysis.CONCLUSIONSTeleorthodontics can manage most emergencies, reassuring and following patients remotely. The aim set by dental teleassistance was met as it reduced patients' office visits whilst maintaining regular monitoring, without compromising the results. Although our preliminary findings should be further investigated to objectively evaluate the efficacy, cost-effectiveness, and long-term results, we are confident that teleassistance in orthodontics will have a role to play in the near future.

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1. **Can orthodontic care be safely delivered during the COVID-19 pandemic? Recommendations from a literature review.**  
   Carter Annabelle Evidence-based dentistry 2020;21(2):66-67.

Data sources Five electronic databases were searched: COVID-19 Open Research Dataset (CORD-19-2020); PubMed; MEDLINE; Scopus; and Google Scholar.Study selection Titles of articles and abstracts were identified during the electronic database searches and then screened for relevance. Publications up until the date of the literature search, 19th March 2020, were used. All articles with the appropriate topics pertaining to COVID-19, dentistry, orthodontics, and infection control were used irrespective of language. The author did not state whether they were selective about the study type or design of articles screened. References of these articles were also screened, via the 'snowballing technique', to obtain as much relevant literature as possible.Data extraction and synthesis Articles were reviewed by the cited author, and one research assistant. Data was extracted from each study by this author. The data obtained was combined and discussed narratively, in a qualitative manner. Due to the broad scope of studies included, it was not possible to conduct a meta-analysis.Results This literature review describes ways to reduce COVID-19 transmission in orthodontic practice. Overview of the literature discusses how the virus may be transmitted in the orthodontic setting: by human-human contact; saliva; aerosols; and use of orthodontic instruments. The literature review illustrates the need for optimum infection control and strict cleaning, detailing surface disinfection and sterilisation protocols. It highlights the need for optimal hand hygiene, use of high standard personal protective equipment, controlling aerosol use, appropriate ventilation, and treating emergency cases only.Conclusions While there are no known cases of COVID-19 cross-transmission within the dental setting currently reported, utmost vigilance is required by orthodontic professionals to reduce risk of transmission. The review reinforces crucial measures required to reduce infection, as outlined in the Results section above. While the virus is still emerging, knowledge is limited and as such it is difficult to provide robust and complete recommendations for best practice. Further studies to inform future practice are required.

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1. **Challenges in Remote versus Clinical Pain Diagnoses for an Orthodontic Patient during the 2020 COVID-19 Crisis**  
   Pai S. Dental Update 2020;47(11):924-926.

Challenges arose in ascertaining accurate diagnoses for patients via remote phone triage during the COVID-19 crisis in 2020. We report on a case that highlights possible pitfalls in remote consultation versus chairside contact in making clinical diagnoses and illustrates a complication that may arise in orthodontic patients who have not been seen for an extended period of time. CPD/Clinical Relevance: This case illustrates an extreme example of a complication of fixed appliance orthodontic treatment and the difficulties and challenges of remote telephone consultations. Copyright &#xa9; 2020 George Warman Publications. All rights reserved.

1. **Changes in orthodontics during the COVID-19 pandemic that have come to stay.**  
   García-Camba Pablo American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(4):e1.

The coronavirus disease 2019 pandemic will have a long-lasting impact on orthodontic practice. Some of the adaptations needed will improve the orthodontist's line of work when the pandemic will be defeated, but others will not be sufficiently cost-effective. These changes concern 4 areas of orthodontic practice: (1) microbiologic control measures, with increased use of personal protective equipment, stricter protocols inside and outside of the clinical area, and minimization of procedures that generate aerosols; (2) social distancing measures by redistributing spaces and decreasing the number of patients and companions in the clinics; (3) increasing teleorthodontics and use of appliances and techniques that require fewer scheduled and urgent appointments; and (4) bioethical considerations that promote a broader view of the psychosocial aspects of patients, their families, and the community. Some of these important adaptations, implemented while we are still suffering the effects of the pandemic, may be reversible, but others have come to stay.

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1. **Characteristics of scientific articles on COVID-19 published during the initial 3 months of the pandemic.**  
   Di Girolamo N. Scientometrics 2020;:1-18.

The COVID-19 pandemic has been characterized by an unprecedented amount of published scientific articles. The aim of this study is to assess the type of articles published during the first 3 months of the COVID-19 pandemic and to compare them with articles published during 2009 H1N1 swine influenza pandemic. Two operators independently extracted and assessed all articles on COVID-19 and on H1N1 swine influenza that had an abstract and were indexed in PubMed during the first 3 months of these pandemics. Of the 2482 articles retrieved on COVID-19, 1165 were included. Over half of them were secondary articles (590, 50.6%). Common primary articles were: human medical research (340, 59.1%), in silico studies (182, 31.7%) and in vitro studies (26, 4.5%). Of the human medical research, the vast majority were observational studies and cases series, followed by single case reports and one randomized controlled trial. Secondary articles were mainly reviews, viewpoints and editorials (373, 63.2%). Limitations were reported in 42 out of 1165 abstracts (3.6%), with 10 abstracts reporting actual methodological limitations. In a similar timeframe, there were 223 articles published on the H1N1 pandemic in 2009. During the COVID-19 pandemic there was a higher prevalence of reviews and guidance articles and a lower prevalence of in vitro and animal research studies compared with the H1N1 pandemic. In conclusions, compared to the H1N1 pandemic, the majority of early publications on COVID-19 does not provide new information, possibly diluting the original data published on this disease and consequently slowing down the development of a valid knowledge base on this disease. Also, only a negligible number of published articles reports limitations in the abstracts, hindering a rapid interpretation of their shortcomings. Researchers, peer reviewers, and editors should take action to flatten the curve of secondary articles.

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1. **Clinical orthodontic management during the COVID-19 pandemic.**  
   Suri Sunjay The Angle orthodontist 2020;90(4):473-484.

OBJECTIVESTo provide a comprehensive summary of the implications of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and coronavirus disease 2019 (COVID-19) on orthodontic treatment, contingency management, and provision of emergency orthodontic treatment, using currently available data and literature.MATERIALS AND METHODSOrthodontically relevant sources of information were searched using electronic databases including PubMed and Google Scholar and current reports from major health bodies such as Centers for Disease Control and Prevention, World Health Organization, National Institutes of Health, and major national orthodontic associations.RESULTSWhere available, peer-reviewed and more recent publications were given priority. Due to the rapidly evolving nature of COVID-19 and limitations in quality of evidence, a narrative synthesis was undertaken. Relevant to orthodontics, human-to human transmission of SARS-CoV-2 occurs predominantly through the respiratory tract via droplets, secretions (cough, sneeze), and or direct contact, where the virus enters the mucous membrane of the mouth, nose, and eyes. The virus can remain stable for days on plastic and stainless steel. Most infected persons experience a mild form of disease, but those with advanced age or underlying comorbidities may suffer severe respiratory and multiorgan complications.CONCLUSIONSDuring the spread of the COVID-19 pandemic, elective orthodontic treatment should be suspended and resumed only when permitted by federal, provincial, and local health regulatory authorities. Emergency orthodontic treatment can be provided by following a contingency plan founded on effective communication and triage. Treatment advice should be delivered remotely first when possible, and where necessary, in-person treatment can be performed in a well-prepared operatory following the necessary precautions and infection prevention and control (IPAC) protocol.

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1. **Continuing Education Update by Dr. Howard Goldstein.**  
   Goldstein Dental Town 2020;:1-3.

1. **Control of SARS-CoV-2 transmission in orthodontic practice.**  
   Guo Yongwen American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(3):321-329.

The coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has attracted worldwide concerns because of its high person-to-person infectivity and lethality, and it was labeled as a pandemic as the rapid increase in the number of confirmed patients in most areas around the world became evident. The SARS-CoV-2 is mainly transmitted through respiratory droplets and close contact. There is also evidence of transmission through aerosols and digestive tracts. Because orthodontic treatment involves a large population who need routine return-visits, it was significantly affected and suspended because of the COVID-19 pandemic and the shutdown of the dental clinics and hospitals. Although the spread of COVID-19 has been effectively controlled in China, and many areas have gradually resumed work and classes, orthodontic participants are still under high risks of SARS-CoV-2 infection. This is due to the fact that the asymptomatic carriers of SARS-CoV-2 or patients in the incubation period may cause the cross-infection between orthodontic practitioners and patients. The close proximity between the practitioners and the patients, and the generation of droplets and aerosols that contain saliva and blood during treatment further increase the risks of transmission. In this article, we summarized the preventive strategies for control of SARS-CoV-2 transmission to protect both staff and patients during the orthodontic practice.

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1. **Covid 19 pandemic unveiling the opportunities and challenges in orthodontic training.**  
   Artese Flavia Dental press journal of orthodontics 2020;25(3):7-8.

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1. **COVID-19 affecting our world.**  
   Lindauer Steven J. The Angle orthodontist 2020;90(3):467.

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1. **COVID-19 and orthodontics in Brazil: What should we do?**  
   Freitas Karina Maria Salvatore American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(3):311.

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1. **COVID-19 and orthodontics-A call for action.**  
   Saltaji Humam American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(1):12-13.

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1. **COVID-19 increases value of oral appliance therapy for sleep apnea.**  
   Viviano John Oral Health Journal 2020;110(6):8-9.

1. **Covid-19 outbreak - immediate and long-term impacts on the dental profession**  
   Ghani F. Pakistan Journal of Medical Sciences 2020;36:No page numbers.

The health professions and systems have been challenged evoking heightened reactions around the globe as response to Covid-19. While most heavily impacted, the role of the dental professionals in preventing the transmission and responding to its long-term impacts on dentistry is critically important. This report, while outlining the immediate impact that the Covid-19 outbreak currently has on dental healthcare professionals, it also looks at some heavier impacts that this outbreak might have on the profession of dentistry. As such this manuscript offers some suggestions and recommendations based on personal feeling. Copyright &#xa9; 2020, Professional Medical Publications. All rights reserved.

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1. **COVID-19 Related Experience, Knowledge, Attitude, and Behaviors Among 2,669 Orthodontists, Orthodontic Residents, and Nurses in China: A Cross-Sectional Survey.**  
   Hua Fang Frontiers in medicine 2020;7:481.

Objectives: To assess the current COVID-19 related experiences, knowledge, attitudes, and behaviors among orthodontists, orthodontic residents, and orthodontic nurses in China, and to identify factors associated with their self-perceived and actual level of knowledge, as well as their willingness to treat/care for COVID-19 patients. Materials and Methods: A cross-sectional online survey was conducted in China using a 37-item questionnaire developed based on previous research. A professional online survey tool (www.wjx.cn) and a social media platform (WeChat) were used to display and distribute the questionnaire. Data were collected during April 11 to 13, 2020, when most regions of China had resumed dental practice except for high-risk regions such as Wuhan. Then the data were analyzed with multivariable generalized estimating equations. Results: A total of 2,669 valid questionnaires were collected. Orthodontic services were suspended for nearly all respondents (97.8%) during the epidemic, and 68.0% had resumed work by the time they completed the questionnaire. The majority of respondents (80.2%) were confident that they understood COVID-19 related knowledge, but most of them only correctly answered less than half of the questions testing their actual level of knowledge. About two-thirds (64.1%) were willing to treat/care for patients with confirmed or suspected COVID-19. The completion of relevant training programs was significantly associated with more confidence in knowledge mastery (P < 0.001) and a higher actual level of knowledge (P < 0.001), but did not increase their willingness to treat/care for patients with COVID-19 (P = 0.235). Conclusions: Before work resumption, COVID-19-related training programs are essential for the improvement of knowledge, confidence, and preparedness of orthodontic professionals. Sufficient and proper protection should also be provided to ensure safety and reduce the psychological burden on them. Clinical Relevance: The findings can provide evidence for policy-making related to the resumption of elective dental services.

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1. **Covid-19: impact and dealings in orthodontic Practice design Post viral outbreak and Lockdown**  
   Trivedi M. Biomedical and Pharmacology Journal 2020;13(3):1387-1391.

Covid-19 or corona virus is a novel virus causing an infectious disease which is responsible for causing respiratory discomforts like difficulty in breathing along with cough and fever. orthodontic workstation is no different than any other situation where a disease like Covid-19 can be transmitted as there are high probability of transmission of this deadly virus through coughing and sneezing or by coming in contact with object or a surface and indirectly exposing the doctor treating the patient and vice versa. dealing with an orthodontic emergency should be planned in advance along with the preventive measures in cases of emergencies have to be the mainstay as patient and the orthodontist are not allowed to visit the each other during the Covid-19 outbreak. Hence a virtual approach has to be ready on the orthodontist's part to deal with an orthodontic emergency. Taking into consideration the duration of an orthodontic treatment, a periodic follow up is very necessary normally and also in emergencies as the patient needs to be assured every now and then to have confidence in the orthodontist. importance should be given to the overall orthodontic process so that an individual can benefit from it in the best possible way. Copyright Published by Oriental Scientific Publishing Company &#xa9; 2020

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1. **COVID-19: implications for paediatric dental care in the hospital setting**  
   Welti R. Journal of Paediatrics and Child Health 2020;56(10):1661-1662.

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1. **Covid-19: The aftermath for orthodontics.**  
   Artese Flavia Dental press journal of orthodontics 2020;25(2):7-8.

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1. **COVID-19: What do we know?**  
   Marshall American Journal of Orthodontics & Dentofacial Orthopedics 2020;158(5):No page numbers.

• Evidence regarding the provision of orthodontic care during the COVID-19 pandemic is examined.

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1. **Creating predoctoral orthodontic laboratory online modules and a complete course kit in response to COVID-19.**  
   Abdelkarim Ahmad Journal of dental education 2020;:No page numbers.

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1. **Dental Care during COVID-19 Outbreak: A Web-Based Survey.**  
   Faccini Melissa European journal of dentistry 2020;14:S14.

OBJECTIVE This survey aimed to assess the effects of coronavirus disease 2019 (COVID-19) on elective and urgency/emergency dental care and dentists concerned.MATERIALS AND METHODS A web-based survey was performed using Google forms questionnaire sent to dentists in Brazil. Questions included: personal information, type of dental care provided during quarantine, if emergencies increased, the dental office biosafety routine, among others. The levels of concern about the impact of quarantine on dental care and patient oral health conditions and the economic impact on dental practices were evaluated using a 0- to 10-point scale. Statistical analysis included descriptive, percentages, one-way ANOVA, Tukey, and chi-square tests.RESULTS During quarantine, 64.6% of the dentists attended only urgency/emergency treatments, while 26.1% maintained routine appointments, and 9.3% closed the dental offices. A higher percentage of dentists from the least affected states continued routine dental treatment; dentists were younger and presented a significantly lower level of concern about dental treatments and oral health conditions of their patients. An increase in urgency/emergency procedures was reported by 44.1% of the dentists, mostly due to the unavailability of routine/elective dental care and increased patient anxiety and stress. The main causes of urgency/emergency appointments were toothache, dental trauma, and broken restorations, besides the breakage of orthodontic appliances and temporomandibular disorders. Dentists reported a high level of concern about the economic impact caused by quarantine.CONCLUSIONS The pandemic/quarantine has negatively affected the clinical routine. Personal protection/hygiene care must be adopted and reinforced by dental professionals/staff to make dental procedures safer.

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1. **Dental nurse power.**  
   Power Rebecca Dental Nursing 2020;16(7):340-342.

Rebecca Power works as a dental nurse at the Norfolk and Norwich University Hospital in the maxillofacial and orthodontic department. Here, she reveals how her 'inner geek' is driving her passion

1. **Dental sleep medicine perspectives after COVID-19: interprofessional adaptation and directions.**  
   Lavigne Gilles Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine 2020;16(8):1421.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d7072b64a705823b2f91d445f1a371c7)

1. **Dental Treatments During the COVID-19 Pandemic in Three Hospitals in Jordan: Retrospective Study.**  
   Obeidat Lina Interactive journal of medical research 2020;9(4):e24371.

BACKGROUNDCases of COVID-19 first emerged in December 2019. Since then, the virus has spread rapidly worldwide, with daily increases in the numbers of infections and deaths. COVID-19 spreads via airborne transmission, which renders dental treatment a potential source of virus transmission. Dental treatments require the use of handpieces, ultrasonic devices, or air-water syringes, which generate considerable amounts of aerosols. Jordan, being one of the affected countries, instituted preventive lockdown measures on March 17, 2020. Emergency dental treatments were only allowed in dental clinics of the Royal Medical Services of Jordan Armed Forces and Ministry of Health, and were prohibited in other sectors such as private clinics and universities.OBJECTIVEThe aim of this study is to investigate the dental treatments performed in three military hospitals during the 44-day lockdown period in Jordan. The investigation explores the impact of COVID-19 on the number of patients and types of performed dental treatments.METHODSData such as number of patients, patients' age and gender, and performed dental treatments were collected retrospectively from the hospital records and were analyzed.RESULTSOur results showed a 90% (17,591 to 1689) decrease in patient visits during the lockdown period compared to regular days. The total number of treatments (n=1689) during the lockdown period varied between endodontic cases (n=877, 51.9%), extraction and other surgical cases (n=374, 22.1%), restorative cases (n=142, 8.4%), orthodontic treatments (n=4, 0.2%), and other procedures (n=292, 17.3%). The differences in gender and age group among all clinics were statistically significant (P<.001 and P=.02, respectively).CONCLUSIONSThe COVID-19 pandemic had a significant effect on the number of patients seeking dental treatments. It also affected the types of treatments performed. Endodontic treatment accounted for almost 50% of patient load during the lockdown compared to approximately 20% during regular days.

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1. **Evaluation of knowledge, attitude and practice of teledentistry among undergraduate dental students**  
   Hiranya S. International Journal of Pharmaceutical Research 2020;12:2190-2204.

Teledentistry is a blend of communication and dentistry which associates the exchange of information of health, images and treatment outlines in remote areas. Teledentistry has the capability to advance the approach to oral care by delivering oral health care at a reasonable cost in areas where there is reduced access to dental clinics. This is an alternative and innovative method of delivering oral health care. The aim of the study is to evaluate the awareness of teledentistry among undergraduate dental students. A cross sectional questionnaire survey was conducted among 100 undergraduate dental students. The questionnaire was circulated through google forms. The results were tabulated and appropriate statistics was done using SPSS software. The questions were separated based on knowledge, attitude and practice. From the results we can conclude 51% are aware of teledentistry; and most of them were introduced to it through workshops in college. 42% know the definition of teledentistry. Students also responded that teledentistry is most useful in the field of 5orthodontics and oral and maxillofacial surgery. 81% of the respondents affirm that teledentistry is a good tool to be used during lockdown. Within the limitations of the study, we can conclude that there is a need to increase awareness about the teledentistry among undergraduate students. In the present scenario of Covid 19 pandemic the use of teledentistry can be exploited as the access to dental clinics has decreased. Hence students should be made more aware of teledentistry as it is the need of the hour. Copyright &#xa9; 2020, Advanced Scientific Research. All rights reserved.

1. **Evaluation of knowledge, attitudes, and clinical education of dental students about COVID-19 pandemic.**  
   Ataş Osman PeerJ 2020;8:e9575.

BackgroundThe novel coronavirus disease (COVID-19) is a new viral respiratory illness, first identified in Wuhan province, China. Dental professionals and dental students are at an increased risk for these viruses from dental patients, as dental practice involves face-to-face communication with the patients and frequent exposure to saliva, blood, and other body fluids. Dental education can play an important role in the training of dental students, adequate knowledge and adopting attitudes regarding infection control measures. The aim of this study was to evaluate knowledge, attitudes, and clinical education of dental students about COVID-19 pandemic.MethodsA total of 355 pre-clinical and clinical dental students (242 and 113, respectively, comprising 190 females and 165 males) at Fırat University Dentistry Faculty, in Elazığ, Turkey answered an online questionnaire about the biosafety procedures for and their attitudes to and knowledge of COVID-19. The study was conducted in March 2020, Turkey. The data gained were analyzed using descriptive statistical methods and chi-square test.ResultsBoth the clinical and preclinical students were found to be afraid of infecting themselves and their environment with COVID-19, and the difference between them was statistically significant. Three quarters (74.9%) of the participants responded yes to the question of whether they thought that experiences related to COVID-19 affected them psychologically, with the differences between gender and clinical status were statistically significant. Responses to the question of which clinical rotation worried them more were 29.9% endodontics, 25.1% oral and maxillofacial surgery, 16.3% prosthesis, 15.2% periodontology, 6.8% restorative dentistry, 3.9% oral diagnosis and radiology, 1.7% pedodontics, and 1.1% orthodontics, with a significant difference between the preclinical and clinical students. Regarding the measures applied by the clinical students in their clinical rotation, the responses were 100% gloves and 100% mask (with 11.5% FFP3/N95 mask), 73.6% face protective shield and 37.1% safety glasses, and 49% bonnet and 16.8% disposable box, with 90.2% frequent hand washing, and 86.7% frequent hand antiseptic usage.ConclusionsWhile students gave good responses regarding the standard measures they take to protect against transmission of COVID-19, their knowledge and attitudes about the extra measures they can take should be improved. For students to be least affected by fears associated with the disease, dental faculties should be ready to provide psychological services to those in need.

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1. **Exceptional circumstances.**  
   Jerrold Laurance American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;157(6):852-855.

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1. **How does the quarantine resulting from COVID-19 impact dental appointments and patient anxiety levels?**  
   Peloso Renan Morais Brazilian oral research 2020;34:e84.

The present study sought to evaluate the impact of quarantine resulting from the coronavirus disease 2019 (COVID-19) pandemic on dental appointments and patients' positions and concerns regarding their ongoing dental treatment. Patients from private dental clinics answered an online questionnaire anonymously regarding their treatment, availability and willingness to attend dental appointments, and concerns about contamination. Descriptive statistics of the responses were performed with percentages and responses were compared between sexes, regions, and other aspects using the chi-squared test. Five hundred ninety-five patients (412 females and 183 males; mean age: 38.21 years) answered the questionnaire. Most patients reported they were receiving dental treatment (orthodontics) and would attend to a dental appointment; meanwhile, those patients not receiving treatment would not attend or would visit only in the case of an emergency. Males reported to be calmer than females, who were more anxious and afraid; as such, males reported more willing to go a dental appointment while, in general, females were not worried about how quarantine could affect dental treatment. Patients actively undergoing treatment and orthodontic patients were more concerned about a delay in treatment. There was a significant association between feelings about the COVID-19 pandemic and the level of willingness to attend a dental appointment. The quarantine recommended due to the COVID-19 pandemic was shown to have an impact on dental appointments and the anxiety levels of patients, since there was a significant association between patients' feelings and their willingness to attend a dental appointment. Overall, patients undergoing dental treatment and orthodontics were more willing to attend an appointment and were more concerned about an increase in treatment duration.

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1. **Impact of coronavirus pandemic in appointments and anxiety/concerns of patients regarding orthodontic treatment.**  
   Cotrin Paula Orthodontics & craniofacial research 2020;23(4):455-461.

OBJECTIVE: To evaluate the impact of the coronavirus pandemic and the quarantine in orthodontic appointments, and patients' anxiety and concerns about their ongoing orthodontic treatment. SETTINGS AND SAMPLE POPULATION: Patients from private dental clinics of two orthodontists that were undergoing active orthodontic treatment. MATERIAL AND METHODS: An online anonymous questionnaire regarding their anxiety about the coronavirus situation, availability/acceptance to attend an appointment, among others, was answered by orthodontic patients. Descriptive statistics with percentages was performed and responses were compared between sexes, cities, and association of the feelings/level of anxiety of patients and willingness to attend an appointment were performed with chi-square, independent t test, one-way ANOVA and Tukey's tests. RESULTS: The questionnaire was answered by 354 patients (231 female; 123 male) with mean age of 35.49 years. Most patients are respecting the quarantine, 44.7% related to be calm and 46.3% afraid or anxious. The level of anxiety was greater for females than males. There was significant association of the level of anxiety and the willingness to attend an appointment. The greatest concern of patients was delay in the end of treatment. CONCLUSION: The quarantine and coronavirus pandemic showed to have impact on orthodontic appointments and patients' anxiety. Patients willing to attend an orthodontic appointment presented significantly lower level of anxiety than patients that would not go or would go only in urgency/emergency. Females were more anxious than males about coronavirus pandemic, quarantine and impact on their orthodontic treatments. Delay in treatment was the greatest concern of patients undergoing orthodontic treatment.

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1. **Impact of delayed orthodontic care during COVID-19 pandemic: Emergency, disability, and pain.**  
   Turkistani Khadijah A. Journal of the World federation of orthodontists 2020;9(3):106-111.

BACKGROUNDThe aim of this study was to evaluate the impact of clinical closure and delayed orthodontic care delivery in terms of types of emergencies, pain intensity, and disability experienced by orthodontic patients during the COVID-19 pandemic.METHODSThis was a descriptive cross-sectional study using an electronic survey that was distributed to orthodontic patients who were not seen in clinic for 2 to 3 months due to clinic closure. The survey included demographics, types of orthodontic emergencies, Numerical Rating Scale, and Manchester Orofacial Pain Disability Scale.RESULTSThere were a total of 150 respondents with mean age of 20 years; 57.33% were female patients. The most common reported orthodontic emergencies were poking wire 30%, debonded brackets 27.3%, bad odor 24%, sharp ligature tie 20%, inflammation and bleeding 9.3%, ulcer 8.7%, and problematic palatal device 8%. Pain was significantly associated with poking wire (P < 0.001), sharp ligature tie (P < 0.01), ulcer (P < 0.05), and problematic palatal device (P < 0.01). Poking wire, sharp ligature tie, and problematic palatal device were found to be significant predictors of pain intensity. Median pain intensity was 3, similar to the median disability score. There was a significant association between pain intensity and disability score (P < 0.01). With each unit increase in pain intensity, the disability score increased by 1.18.CONCLUSIONSDelay in receiving orthodontic care could result in an orthodontic emergency, yet pain and disability resulting from these events are minimal. The decision to resume clinical service should be evaluated considering risks and benefits in case of the pandemic. Further studies are required.

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1. **Implementation of photographic triage in a paediatric dental, orthodontic, and maxillofacial department during COVID-19.**  
   Davies Anna International journal of paediatric dentistry 2020;:No page numbers.

BACKGROUNDDuring the COVID-19 pandemic, limitations were placed on face-to-face encounters in dentistry and oral and maxillofacial surgery (OMFS) in order to promote physical distancing and reduce viral propagation. To facilitate continued assessment of dental, orthodontic, and maxillofacial emergencies, a photographic triage system was initiated at Alder Hey Children's Hospital (AHCH). We will discuss the benefits this system offers at a patient, clinician, departmental, and NHS service level.AIMTo share our experience of photographic triage during the first 3 months of COVID-19 lockdown, lessons learned, and recommendations.DESIGNProspective data collection over 3 months.RESULTS220 photographic referrals were received, and swelling (30%) and dental trauma (27%) were the most common presenting complaints. 57% of referrals were not seen, 23% were seen semi-urgently, and 20% booked for outpatient review. Of those seen, 7 children were seen elsewhere and 44 were seen face-to-face at AHCH, with 8 being admitted.CONCLUSIONPhotographic triage reduced physical encounters and proved useful in training junior staff, assessment of new patient referrals, and first on-call from home. Implementation should be considered throughout dental, orthodontic, and OMFS departments nationwide. In the event of a COVID-19 resurgence or emergence of a new pandemic, photographic triage could facilitate physical distancing and service provision.

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1. **Making impressions count: An evaluation of the quality of information provided by orthodontic practices in London in response to the COVID-19 pandemic.**  
   Woolley Julian Heliyon 2020;6(11):e05516.

Introduction/ObjectivesAs a result of the coronavirus disease 2019 (COVID-19) pandemic, primary care specialist orthodontic practices have been limited to providing emergency treatment only. This has resulted in a cessation of normal face-to-face services and patient advice can only be offered by remote means. A service evaluation was carried out to assess the quality of information published on websites and social media pages of specialist orthodontic practices in London, against General Dental Council guidance on communication and advertising and the British Orthodontic Society (BOS) COVID-19 specific guidance for orthodontics in primary care in relation to Coronavirus Disease 2019 (COVID-19) pandemic. This study also aimed to provide a gold standard template for orthodontic practices to aid in the delivery of information on a digital platform during the current (COVID-19) pandemic and future possible spikes.Materials and methodsAll orthodontic practices providing care in the London region were identified from a CQC Database and subsequently checked against predetermined criteria based on the BOS guidance and the GDC Guidance on Ethical Advertising.ResultsOf the 83 orthodontic practices sampled; 78 had a website of which 18 (23.1%) were non-compliant with GDC guidance. Facebook pages were identified for 62 orthodontic practices. 17 practices did not provide any update in relation to the COVID-19 pandemic. This was more frequently carried out on practice websites (78.2%) compared to Facebook pages (33.9%). A number of practices were identified as having novel strategies to manage communication during the COVID-19 pandemic.ConclusionVariation was observed in information published by practices despite the regularly updated, blanket information provided by the BOS. Communication may have been delivered by a different means during the pandemic which this study did not account for. In addition, the sampling method may not have identified all practices within the London region, however the sample size seems appropriate to draw meaningful conclusions. The checklist created should help improve the delivery of future information.

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1. **Management of orthodontic emergencies during 2019-NCOV.**  
   Caprioglio Alberto Progress in orthodontics 2020;21(1):10.

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1. **Mental distress in orthodontic patients during the coronavirus disease 2019 pandemic.**  
   Xiong Xin American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(6):824.

INTRODUCTIONThe ongoing coronavirus disease 2019 (COVID-19) outbreak impacts the mental health of patients, health workers, and the public. The level of impact on the mental health of orthodontic patients in treatment is unknown. The objective of the study was to evaluate the mental health of orthodontic patients in China during the early stage of the pandemic.METHODSAn online survey was conducted on a convenience sample of anonymous participants. The questionnaire, in Chinese (Mandarin), comprised 5 sections. Sections 1-3 included demographic, epidemical, and orthodontic status of the patients. Section 4 assessed mental health-related to orthodontics. Section 5 was the Kessler-10 Mental Distress Scale. A total of 48 orthodontists were invited to distribute the questionnaires to their patients. Descriptive statistics, principal component analysis, K-means cluster analysis, and bivariate logistics regression analysis were performed with significance set at P <0.05.RESULTSQuestionnaires were collected from 558 patients (104 males, 354 females; mean age 24.78 ± 6.33 years). The prevalence of mental distress was 38% (174/458). Higher odds ratios were associated with female participants, missed appointments, and Hubei residence. The type of orthodontic appliance was associated with the anxiety of prolonged treatment duration. The manner of communication with patients regarding the postponement of appointments was associated with patients' concerns of prolonged treatment duration. The frequency of contact from dentists was associated with patients' independence.CONCLUSIONSOver one-third of orthodontic patients experienced mental distress during the pandemic. Multiple factors affected the level of anxiety of orthodontic patients, such as the type of orthodontic appliance, time since last dental visit, manner of communication with the orthodontist, and the localities of the pandemic progression.

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1. **Orthodontic emergencies and perspectives during and after the COVID-19 pandemic: The italian experience**  
   Colonna A. Pesquisa Brasileira em Odontopediatria e Clinica Integrada 2020;21:1-8.

Objective: To investigate the types of dental emergencies that occurred during the lockdown period in Italy (12th March-4th May) and to investigate future therapeutic preferences related to the use of different types of appliances. Material(s) and Method(s): A questionnaire dedicated to assessing dental emergencies during the lockdown period and surveying the resumption of orthodontic practice was submitted to clinicians in digital form. The first part of the questionnaire, focused on the orthodontic emergencies that were encountered in relation to the different types of orthodontic appliances and how these were resolved. The second part of the questionnaire was devoted to the resumption of clinical practice; in particular, it was designed to assess whether and what percentage of clinicians are willing to change the duration of appointments in relation to the different types of appliance used, asking them whether their approach to orthodontic treatment would change in the coming months as compared to the pre-COVID-19 era. Result(s): Results show that in most cases (82%), the percentage of patients who experienced a dental emergency was less than 5% and that far fewer emergencies were attributable to removable (5.7%) than to fixed appliances (94.3%). Looking ahead, clinicians expressed a greater preference for using removable (60.8%) rather than fixed appliances (39.2%). Conclusion(s): During the lockdown, there relatively few orthodontic emergencies, many of which were handled by telephone consultation. However, a far lower percentage of emergencies were generated by removable (e.g., clear aligners) as opposed to fixed appliances (e.g., multibracket equipment), likely influencing the decision of the majority of clinicians to opt for removable appliances in the wake of the COVID-19 pandemic. Copyright &#xa9; 2020, Association of Support to Oral Health Research (APESB). All rights reserved.

1. **Orthodontics in the COVID-19 Era: The way forward Part 2 orthodontic treatment considerations.**  
   Srirengalakshmi M. Journal of clinical orthodontics : JCO 2020;54(6):341-349.

1. **Overcoming the Challenges of COVID-19 Pandemic in Orthodontic Practice.**  
   Jain Mahesh Frontiers in dentistry 2020;17(12):1-4.

The coronavirus disease 2019 (COVID-19) turned into a pandemic in short-time with multi-dimensional effects on human lives. The containment of this infection has become a big challenge in all countries due to its rapid spread. In this situation, when there is no definitive cure or any vaccine available to overcome COVID-19, it is prudent for the world to live with this deadly virus for the many months to come. Hence, it is imperative for the dental professionals, particularly orthodontists, to modify their approach to learn the new normal of practicing dentistry.

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1. **Patient and clinician satisfaction with video consultations during the COVID-19 pandemic: an opportunity for a new way of working.**  
   Byrne Emer Journal of orthodontics 2020;:1465312520973677.

OBJECTIVETo assess satisfaction of patients and clinicians with virtual appointments using Attend Anywhere for their orthodontic consultation and to identify any areas where the technology could be further utilised.DESIGNService evaluation involving descriptive cross-sectional questionnaire.SETTINGOrthodontic Departments at Royal Blackburn Teaching Hospital and Burnley General Teaching Hospital.PARTICIPANTSPatients and clinicians involved in video consultations.METHODSPatient- and clinician-specific questionnaires were designed and those involved in virtual clinics were invited to complete these at the end of their consultation. The questionnaires focused on setting up and connecting to the virtual clinic, assessing if the correct types of patients were involved in the clinics and satisfaction with these types of remote consultations.RESULTSA total of 121 questionnaires (59 patient and 62 clinician) were completed. Of the patients, 93% found the instructions provided to access the consultation easy to follow and 70% of clinicians did not report any connection issues. In 90% of cases, a virtual appointment was seen to be appropriate by the clinician. Respondents showed a high level of satisfaction with 76% of patients saying a remote consultation was more convenient than face-to-face, and 66% reporting they would, if appropriate, like more appointments like this in the future.CONCLUSIONThe overall satisfaction among patients with virtual clinics introduced during the COVID-19 pandemic was generally high. The majority of patients would, where appropriate, prefer more virtual appointments in the future in comparison to face-to-face appointments and it was found to be more convenient for the patient.

1. **Perceived impact of the COVID-19 pandemic on orthodontic practice by orthodontists and orthodontic residents in Nigeria.**  
   Isiekwe Ikenna Gerald Journal of the World federation of orthodontists 2020;9(3):123-128.

BACKGROUNDThe Coronavirus Disease 2019 (COVID-19) pandemic has had far-reaching effects on orthodontic care delivery worldwide. This study aimed to assess the impacts of the pandemic on orthodontists and orthodontic residents in Nigeria.METHODSThis cross-sectional study was conducted among consenting orthodontists and orthodontic residents. The respondents were contacted through the WhatsApp group of the Nigerian Association of Orthodontists to fill the self-administered online questionnaires (Google forms). The questionnaire had two sections: A, Sociodemographics; B, Perceived impact of the COVID-19 pandemic. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics were used to compute mean and standard deviation and chi-square for association. Level of significance was set at P < 0.05.RESULTSThis study population comprised 98 people; however, only 73 participants responded, which represented a response rate of 74.5%. Approximately 60% (44) of the respondents thought that the COVID-19 pandemic would lead to a reduction in the number of orthodontic patients in the future, whereas almost all the respondents reported that it would affect their future practice of orthodontics. Most of the respondents (63.0%) reported that the pandemic had recorded a moderate to severe negative economic impact on them. Significant gender differences were recorded, in the social life of respondents, in addition to economic and psychosocial effects.CONCLUSIONSAlmost all respondents reported that they would change their future practice of orthodontics, particularly with respect to placing a greater emphasis on infection control. Most of the respondents reported perceived economic, psychosocial, and social impacts due to the pandemic.

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1. **Perspectives of tele-orthodontics in the COVID-19 emergency and as a future tool in daily practice.**  
   Saccomanno S. European journal of paediatric dentistry 2020;21(2):157-162.

AIMThe aim of our study was to explain how tele-orthodontics represents the only way to perform orthodontics during a period of restriction as the one subsequent to COVID-19 emergencies: To do this, we report a case study and explore the proposal of a model of tele-orthodontics, considering the advantages of this modality in the immediate post-emergency phase and in the future daily practice.MATERIALS AND METHODSStudy design: Our study involves 30 patients, who had undergone different orthodontic therapies in a traditional way, and that the clinician continued to follow by means of tele-orthodontics. Given the obvious limitations of tele-practice, a comparison with patients who did not undergo any follow-up or underwent only in-office follow-ups could not be possible. The communication tools used in our study and proposed in our model of tele-orthodontics are videocalls, dedicated applications, intraoral and extraoral photos taken by the patients and instant messaging.RESULTSTele-orthodontics allowed to perform some orthodontic follow-ups with less chairside time, reduced time spent by the patients in the dental office from up to 45 min, less risk of infection, fewer to no missed appointments, specific troubleshooting solutions, and more follow-ups with odontophobic patients. Overall, tele-orthodontics balanced the disadvantages of less personal contacts and in-office visits.CONCLUSIONSThe need to respect safety distance and the fears patients have about the risk of infection make tele-orthodontics a fundamental tool during a pandemic lockdown and in its immediate post-emergency phase. Tele-orthodontics demonstrated to be a viable tool to continue at least some orthodontic care in times of emergency, but it may be considered an appropriate solution and addition even in normal times to ease therapy demands for both the orthodontist and the patient, while reducing time and money spent, without an excessive decrease in orthodontic quality.

1. **Post-COVID-19 management guidelines for orthodontic practices.**  
   Park Jae Hyun Journal of clinical orthodontics : JCO 2020;54(6):351-355.

1. **Precautions and recommendations for orthodontic settings during the COVID-19 outbreak: A review.**  
   Turkistani Khadijah A. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(2):175-181.

INTRODUCTIONCoronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus (SARS-CoV-2). It emerged as a global pandemic in early 2020, affecting more than 200 countries and territories. The infection is highly contagious, with disease transmission reported from asymptomatic carriers, including children. It spreads through person-to-person contact via aerosol and droplets. The practice of social distancing-maintaining a distance of 1-2 m or 6 ft-between people has been recommended widely to slow or halt the spread. In orthodontics, this distance is difficult to maintain, which places orthodontists at a high risk of acquiring and transmitting the infection. The objective of this review is to report to orthodontists on the emergence, epidemiology, risks, and precautions during the disease crisis. This review should help increase awareness, reinforce infection control, and prevent cross-transmission within the orthodontic facility.METHODSA comprehensive literature review of English and non-English articles was performed in March 2020 using COVID-19 Open Research Dataset (CORD-19 2020), PubMed, MEDLINE, Scopus, and Google Scholar to search for infection control and disease transmission in orthodontics.RESULTSThis review emphasizes minimizing aerosol production and reinforcing strict infection control measures. Compliance with the highest level of personal protection and restriction of treatment to emergency cases is recommended during the outbreak. Surface disinfection, adequate ventilation, and decontamination of instruments and supplies following the guidelines are required.CONCLUSIONSReinforcing strict infection control measures and minimizing personal contact and aerosol production are keys to prevent contamination within orthodontic settings. Although no cases of COVID-19 cross-transmission within a dental facility have been reported, the risk exists, and the disease is still emerging. Further studies are required.

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1. **Profit Without Pain?**  
   Anon. Dental Town 2020;:12-15.

1. **Proposed clinical guidance for orthodontists and orthodontic staff in the post-COVID-19 environment: a clinician's perspective.**  
   Graham John Journal of clinical orthodontics : JCO 2020;52(5):264-267.

1. **Putting Jim's System to the Test.**  
   Anon. Dental Town 2020;:15-16.

1. **Quantitative analysis of particulate matter release during orthodontic procedures: a pilot study.**  
   Din Ahmed Riaz British dental journal 2020;:No page numbers.

Introduction Transmission of SARS-CoV-2 through aerosol has been suggested, particularly in the presence of highly concentrated aerosols in enclosed environments. It is accepted that aerosols are produced during a range of dental procedures, posing potential risks to both dental practitioners and patients. There has been little agreement concerning aerosol transmission associated with orthodontics and associated mitigation.Methods Orthodontic procedures were simulated in a closed side-surgery using a dental manikin on an acrylic model using composite-based adhesive. Adhesive removal representing debonding was undertaken using a 1:1 contra-angle handpiece (W&H Synea Vision WK-56 LT, Bürmoos, Austria) and fast handpiece with variation in air and water flow. The removal of acid etch was also simulated with the use of combined 3-in-1 air-water syringe. An optical particle sizer (OPS 3330, TSI Inc., Minnesota, USA) and a portable scanning mobility particle sizer (NanoScan SMPS Nanoparticle Sizer 3910, TSI Inc., Minnesota, USA) were both used to assess particulate matter ranging in dimension from 0.08 to 10 μm.Results Standard debonding procedure (involving air but no water) was associated with clear increase in the 'very small' and 'small' (0.26-0.9 μm) particles but only for a short period. Debonding procedures without supplementary air coolant appeared to produce similar levels of aerosol to standard debonding. Debonding in association with water tended to produce large increases in aerosol levels, producing particles of all sizes throughout the experiment. The use of water and a fast handpiece led to the most significant increase in particles. Combined use of the 3-in-1 air-water syringe did not result in any detectable increase in the aerosol levels.Conclusions Particulate matter was released during orthodontic debonding, although the concentration and volume was markedly less than that associated with the use of a fast handpiece. No increase in particulates was associated with prolonged use of a 3-in-1 air-water syringe. Particulate levels reduced to baseline levels over a short period (approximately five minutes). Further research within alternative, open environments and without air exchange systems is required.

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1. **Redefining dental practice during and post-covid-19 era: A review**  
   Bharath R.K. Medico-Legal Update 2020;20(4):1475-1483.

The spread of the COVID-19 pandemic has led to widespread concerns internationally and among the members of the public health community including dental health professionals. The dental health care professionals are at higher than usual risk due to the proximity to the patient's face, direct contact with the body fluids such as saliva and blood. The objective of this article is to provide an overview of the symptoms, modes of transmission of the COVID-19 infection, triaging of the dental patients, specific recommendations for the management of the dental patient, infection control modalities with an emphasis on dental specialties, global outlook on the pandemic by dentists, and implications on the patients and dentists. A literature search was performed and articles about the symptoms and modes of transmission of the COVID-19 infection, management of COVID-19 diffusion in dental practice were retrieved. The articles were then reviewed and infection control measures for various dental specialties as well as patient management strategies were also outlined in the results. The dental team has to implement measures to provide care and treatment to the patient as well as prevent the spread of the infection. Copyright &#xa9; World Informations Syndicate. All rights reserved.

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1. **Resuming safe orthodontic practice in india, post COVID-19**  
   Department of Orthodontics Sree Balaji dental college Bharath Institute Of Higher Education and Research India European Journal of Molecular and Clinical Medicine 2020;7(4):1722-1726.

According to OSHA, Dentistry is at a risk of COVID-19 infection through direct contact by means of droplet infection and indirect contact by means of contaminated surfaces. It is vital for any clinician to take necessary precautions to prevent oneself from getting infected as well as to prevent cross contamination. This article reviews the various methods in which a clinician can resume safe practice in the Post COVID Era. Copyright &#xa9; 2020 Ubiquity Press. All rights reserved.

1. **Self-reported dental treatment needs during the COVID-19 outbreak in Brazil: an infodemiological study.**  
   Oliveira Leandro Machado Brazilian oral research 2020;34:e114.

The aim of the present infodemiological study was to evaluate whether the COVID-19 outbreak has influenced the volume of content related to the dental treatment needs of Brazilian Twitter users to summarize the trends, and to identify the perceptions of the treatment needed. We collected tweets related to dental care needs of individuals exposed to the COVID-19 outbreak scenario between March 23 to May 4, 2020 and of those not exposed to the COVID-19 pandemic (unexposed group) on the same reported days of 2019 using the terms "dentista (dentist), dente (tooth), siso (third molar), and aparelho (orthodontic appliance)." Descriptive analysis was performed to provide summary statistics of the frequencies of tweets related to different dental treatment needs and also the differences in volume content between the years 2019 and 2020. Moreover, the data were analyzed by qualitative analysis using an inductive approach. A total of 1,763 tweets from 2020 and 1,339 tweets from 2019 were screened. Those tweets posted by non-Brazilian users, duplicates, and those unrelated to dental treatment needs were removed and, therefore 1,197 tweets from 2020 and 719 tweets from 2019 were selected. Content volume related to dental treatment needs greatly increased during the COVID-19 outbreak. Findings from the word cloud and content analysis suggest that dental pain, related or not to the third molar, and problems with orthodontic appliances were the topics most commonly related to dental treatment needs discussed during the COVID-19 outbreak, mainly conveying anxiety and distress. The volume of tweets related to dental treatment needs posted by Brazilian users increased during the COVID-19 outbreak and self-reported pain and urgencies were the most popular topics.

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1. **Severe acute respiratory syndrome coronavirus 2 infection prevention in orthodontic practice.**  
   Di Blasio Alberto American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(6):777-779.

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1. **Taking the lead: management during a crisis.**  
   Price Dental Nursing 2020;16(6):296-298.

Lauren Price is practice manager at Bath Orthodontics. Here, she shares her lockdown experience

1. **Teledentistry as a solution in dentistry during the covid-19 pandemic period: A systematic review**  
   Achmad H. International Journal of Pharmaceutical Research 2020;12:272-278.

Introduction: Dental practice during the COVID-19 pandemic became an obstacle for dentists to treat dental patients. This is due to the spread of the COVID-19 virus which poses challenges in providing dental care. Teledentistry was originally a new field of dentistry based on electronic, telecommunications, Internet, and imaging technologies to connect patients living in rural areas. However, during the COVID-19 pandemic, teledentistry services are very useful for all groups with the aim of avoiding direct contact with patients. Objective(s): To explore the benefits of teledentistry as a solution in the field of dentistry during the COVID-19 pandemic. Method(s): In this systematic review, the articles search was performed on Google Search and Pubmed. Studies published on 2020. 130 were articles assessed, including 115 articles from the electronic databases, 0 from the manual hand search. 60 records screened, 50 records excluded, 40 full-text articles assessed for eligibility and 15 full text articles included. Result(s): There are 15 articles about teledentistry as a solution in dentistry during the COVID-19 pandemic period. Conclusion(s):: Based on 15 articles show that consultation through teledentistry is a solution as dental health services and is very useful in this COVID-19 pandemic situation. Copyright &#xa9; 2020, Advanced Scientific Research. All rights reserved.

1. **Telemedicine and covid-19: Pandemic**  
   Kulkarni R. International Journal of Research in Pharmaceutical Sciences 2020;11:1580-1584.

To decrease the chance of spread of highly infectious coronavirus disease, the complete lockdown has been taking place in India as well as many other countries of the world. At this difficult time, telehealth can play a major role as it is ideal for the treatment and management of infectious diseases, thus fulfilling the purpose of 'social distancing'. Telehealth can be beneficial to those who are at higher risk of getting infected and also to the health care providers by decreasing the exposure as well as the workload of health care providers. Tele-health uses computer technology to convey clinical data for diagnosis, treatment as well as management of the disease. Tele-dentistry is telemedicine in dental practice which can also be helpful in the current national emergency. Within the dental practice, teledentistry is widely used in disciplines like preventive dentistry, orthodontics, endodontics, oral surgery, periodontal con-ditions, early dental caries detection, and education. Patients, oral medication and diagnosis. Some of the main modes and methods used in teleden-tistry are electronic health records, electronic referral systems, image scan-ning, teleconvention and telediagnosis. All applications used in teledentistry aim to improve efficiency, provide access to an ineligible population, improve quality of care, and reduce the burden of oral disease. This article provides a review of the use of telemedicine and teledentistry in the time of coronavirus disease. Copyright &#xa9; International Journal of Research in Pharmaceutical Sciences.

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1. **The Assessment of Knowledge, Behaviors, and Anxiety Levels of the Orthodontists about COVID-19 Pandemic.**  
   Yilmaz Hanife Nuray Turkish journal of orthodontics 2020;33(4):224-231.

ObjectiveA new viral disease called Coronavirus disease-19 (COVID-19) affected the whole world because of its characteristics of spreading rapidly via respiratory droplets and aerosol. As one of the most aerosol-generating occupations, dentists are at high risk and are recommended to treat emergency cases only. We aimed to assess the general knowledge, emergencies, personal precautions, and avoided behaviors among the orthodontists and also their anxiety levels, during COVID-19.MethodsA survey research, including demographic information, general knowledge about COVID-19, treatment strategies, protective measures, and Generalized Anxiety Disorder (GAD) 7 test, was conducted via a web-based questionnaire (1 open-ended and 26 closed-ended questions). A total of 215 orthodontists older than 20 years of age and practicing in different regions of Turkey were included in this study. The answers received within the first 10 days were included.ResultsMost of the orthodontists were aware of COVID-19 symptoms and transmission routes (n=159 and n=183, respectively). Almost all of them treated only emergency cases (n=209). Orthodontic emergencies were reported mostly as injury due to band/bracket failure, soft/hard tissue trauma, and problems in retention appliances (n=197, n=186, and n=81, respectively). The participants also avoided aerosol-generating procedures and used transmission-based protective equipment. The prevalence of GAD was 16.7% during COVID-19, and there was no statistically significant difference when it was stratified by gender, age, city, and COVID-19 related questions (p>0.05).ConclusionThe orthodontists followed the guidelines and took protective measures during COVID-19, and the majority had subthreshold anxiety levels.

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1. **The COVID-19 pandemic suggests opportunities for researchers to investigate pertinent topics in orthodontics.**  
   Saki Maryam The Angle orthodontist 2020;90(5):742-744.

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1. **The effective use of an e-dentistry service during the COVID-19 crisis.**  
   Crawford Elizabeth Journal of orthodontics 2020;47(4):330-337.

In 2020, we experienced the largest disruption to normal life recorded in recent years with the COVID-19 global pandemic. Creative thinking was required to ensure patient care was maintained. In this article, we share a service evaluation and experiences dealing with the crisis through using a virtual office approach with video conferencing to manage emergency consultations, treatment reviews, new patient and multidisciplinary clinics in a hospital orthodontic unit.

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1. **The impact of COVID-19 pandemic on patients receiving orthodontic treatment: An online questionnaire cross-sectional study.**  
   Bustati Nour Journal of the World federation of orthodontists 2020;9(4):159-163.

BACKGROUND: The spread of Coronavirus Disease 2019 (COVID-19) has led to a major public health issue; most dental clinics were closed and millions of orthodontic patients were unable to complete their treatment. This study aimed to assess the challenges faced by patients receiving orthodontic treatment and their preferred solutions to overcoming these challenges during this pandemic. METHODS: An online questionnaire was developed and sent to patients receiving orthodontic treatment at a public or private clinic. RESULTS: A total of 388 responses were analyzed: mean age 20.4 ± 4 years, 75% (291) female, and 58% (226) received their treatment at a public clinic. Of all participants, 27.3% (106) were still unable to attend their appointments and 69% (244) stated that closing of the clinic was the main reason for missing their appointments. Depending on their type of appliance, the patients faced different problems and chose multiple ways to deal with them. Most participants had fixed appliances, 84% (327), and only 21% (64) of them stated that they had no problem compared with 39% (11) and 36% (8) for removable appliance and clear aligner groups, respectively. CONCLUSION: The COVID-19 pandemic has had a significant impact on orthodontic treatments. Almost every orthodontic patient had to stop attending their appointments, which put them in complicated situations and in fear of delayed treatment. Patients from a public clinic and patients with fixed appliances reported more problems than others. More attention should be giving to teleorthodontics; also orthodontists should prepare their patients to deal with some of the problems related to their appliances when possible.

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1. **The Impact of the COVID-19 Epidemic on Orthodontic Patients in China: An Analysis of Posts on Weibo.**  
   Guo Feiyang Frontiers in medicine 2020;7:577468.

Background: During the COVID-19 pandemic, many dental care services including orthodontic practice were suspended. Orthodontic patients turned to social media platforms to communicate, share experiences, and look for solutions. Our study aimed to investigate the attitudes and perspectives of orthodontic patients during the COVID-19 epidemic in China by analyzing orthodontics-related posts on Sina Weibo (a Chinese counterpart of Twitter). Materials and Methods: Potentially eligible posts on Sina Weibo platform were collected between December 30, 2019, and April 18, 2020. Posts related to both orthodontics and COVID-19 were included and then coded and classified into specific appliances and themes. Geographic and temporal distributions of the included posts were analyzed. In addition, time-lagged cross correlation was performed to explore the association between the number of daily posts and daily new COVID-19 cases/deaths in China. Chi-square tests were employed to compare the differences between fixed appliances and aligners in problems/difficulties and feelings during the epidemic. Results: Of the 28,911 posts identified, 4,484 were included in the analysis. The most frequently mentioned themes were appointments (n = 2,621, 58.5%), negative feelings (n = 2,189, 48.8%), and problems/difficulties (n = 1,155, 25.8%). A majority of posts were tweeted in regions with high levels of economic development and population density in eastern China and from February to March. The number of daily posts had a significantly positive correlation with daily new COVID-19 cases/deaths in China (P < 0.05). Compared with clear aligners, patients with fixed appliances reported more problems/difficulties (P < 0.001) and negative feelings (P < 0.001), but fewer positive feelings (P < 0.001). Conclusions: The analysis of Weibo posts provided a timely understanding of the impact of COVID-19 on orthodontic patients. Delayed appointments were their greatest concern, and negative feelings and untreated orthodontic problems increased during the suspension of dental care services. However, patients with clear aligners reported fewer negative feelings and problems than those with fixed appliances. The findings highlighted the need to consider both treatment- and psychology-related issues of orthodontic patients and how to handle them appropriately during the epidemic.

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1. **The Perception of COVID-19 among Italian Dentists: An Orthodontic Point of View.**  
   Martina Stefano International journal of environmental research and public health 2020;17(12):No page numbers.

COVID-19 has severely impacted dentists, who are at a great risk of infection. This study aimed to investigate if dentists are anxious about returning to their daily activities, and what the perception of the risk is for dentists and orthodontists regarding orthodontic procedures. An online questionnaire, including the Patient Health Questionnaire-4 (PHQ-4), was sent to Italian dentists during the final days of the lockdown with items about anxiety, fear, distress, perceived risk for operators, and concerns about orthodontic patients caused by working during the COVID-19 outbreak. Data were analyzed with a chi-square test and logistic regression analysis. The level of significance was set as p < 0.05. A total of 349 dentists completed the survey, including 183 orthodontists. Returning to their daily work activity was a source of anxiety for 192 participants and this was associated with the level of distress (odds ratio (OR) = 3.7; p < 0.001). Most of the orthodontists (67.6%) thought that they would increase the number of working hours during the week (OR = 1.8; p = 0.007). Italian dentists were mostly scared to return to their daily activities because they considered their jobs a high risk to them and their families. Dentists with an exclusive/prevailing orthodontic activity were forced to increase their working day during the week.

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1. **The State of Orthodontic Practice After the Outbreak of COVID-19 in Southeast Asia: The Current Scenario and Future Recommendations.**  
   Karobari Mohmed Isaqali Asia-Pacific journal of public health 2020;32(8):517-518.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=2299c50833efdca821c4920ba265e21c)

1. **Urgencies and emergencies in orthodontics during the coronavirus disease 2019 pandemic: Brazilian orthodontists' experience.**  
   Cotrin Paula American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2020;158(5):661-667.

INTRODUCTIONThe present study aimed to evaluate the most common urgencies and emergencies in orthodontics during the coronavirus disease 2019 (COVID-19) pandemic and to assess how orthodontists in Brazil were dealing with patients and challenges.METHODSEarly in 2020, as the COVID-19 pandemic spread around the world, routine dental care was suspended in many countries, and only patients needing urgent or emergency care could be seen. During this period, orthodontists in Brazil were invited to participate in an anonymous online survey. Over 48 hours (May 1-3, 2020), 395 orthodontists (specialists, MScs, and PhDs) responded. They answered questions regarding dental office and appointments during the pandemic, the type of urgency or emergency care provided, the type of appliance and urgencies, etc. The level of concern about the impact of the pandemic on patients' orthodontic treatments and the financial impact on the dental office was also evaluated. Descriptive statistics were performed with percentages, and responses were compared between specialists, MScs, and PhDs, using chi-square tests.RESULTSSpecialists were the majority of respondents. Most orthodontists were handling only emergencies or urgencies. The most frequent urgencies were bracket breakage, archwire breakage, and breakage of molar tubes and/or bands. Stainless steel fixed appliances were the most common type of appliance related to unscheduled appointments. The majority of patients got in touch with the orthodontist using the professional WhatsApp messenger (WhatsApp Inc, Menlo Park, Calif). Orthodontists were more concerned with the financial impact of the pandemic than with the orthodontic treatment itself.CONCLUSIONSBreakage of brackets, archwires, or tubes and/or bands were the most common causes of urgency and/or emergency appointments during the pandemic. The level of concern about the financial impact of the stay-at-home orders and the COVID-19 pandemic was significantly greater for specialists and MScs than for PhDs.

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1. **World Federation of Orthodontists: An orthodontic umbrella organization coordinating activities and pooling resources.**  
   Thom Allan R. Journal of the World federation of orthodontists 2020;9(3S):S3.

The idea of a global orthodontic organization, the World Federation of Orthodontists (WFO), made up of national and regional orthodontic organizations, was realized in 1995 in San Francisco at the 4th International Orthodontic Congress that was held in conjunction with the 95th annual American Association of Orthodontists meeting. This umbrella organization strives to promote quality orthodontic care, practiced and delivered by orthodontic specialists in all parts of the world. In addition, it supports its member organizations with governing principles that promote appropriate membership criteria, qualified individual leadership participation, and long-term stability of the organization over time. In response to the Coronavirus Disease 2019 pandemic, the WFO has responded proactively and plans to augment its digital resources even further in the near future. This article describes the formation of the organization, the idea that germinated through the first three international orthodontic congresses, its workflow and membership criteria, the accountability and commitment it has toward its affiliates and individual members, and its plans for future years to come.

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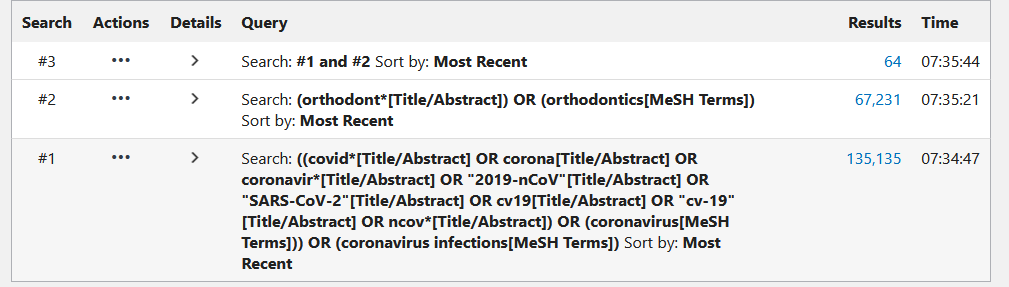
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## B. Search History

**NICE Evidence Search** at [www.evidence.nhs.uk](http://www.evidence.nhs.uk) searched 4/3/21 using the terms [orthodont\* and (covid\* or "corona virus" or coronavir\* or ncov\*)](https://www.evidence.nhs.uk/search?q=orthodont*+and+%28covid*+or+%22corona+virus%22+or+coronavir*+or+ncov*%29&Route=search&ps=100)

**Cochrane Library** at [www.cochranelibrary.com](http://www.cochranelibrary.com) searched 4/3/21:  
ID    Search    Hits  
#1    orthodont\*    5081  
#2    MeSH descriptor: [Orthodontics] explode all trees    2524  
#3    #1 or #2    5748  
#4    covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*    5771  
#5    MeSH descriptor: [Coronavirus] explode all trees    217  
#6    MeSH descriptor: [Coronavirus Infections] explode all trees    728  
#7    #4 or #5 or #6    5791  
#8    #3 and #7    21

**Pubmed** searched 4/3/21:



**Google** and **Google Scholar** searched using the terms [orthodontic patient concern\* covid-19](https://www.google.com/search?client=firefox-b-d&q=orthodontic+patient+concern*+covid-19) and [variations](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=orthodont*+patient*+concern*+covid*&btnG=).

|  | **Source** | **Criteria** | **Results** |
| --- | --- | --- | --- |
| 1. | Medline | exp CORONAVIRUS/ OR exp "CORONAVIRUS INFECTIONS"/ | 16103 |
| 2. | Medline | (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*).ti,ab | 123378 |
| 3. | Medline | (1 OR 2) | 133414 |
| 4. | Medline | (orthodont\*).ti,ab | 39809 |
| 5. | Medline | exp ORTHODONTICS/ | 53022 |
| 6. | Medline | (4 OR 5) | 66797 |
| 7. | Medline | (3 AND 6) | 65 |
| 8. | EMBASE | exp CORONAVIRINAE/ OR exp "CORONAVIRUS INFECTION"/ | 20808 |
| 9. | EMBASE | (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*).ti,ab | 127594 |
| 10. | EMBASE | (8 OR 9) | 139461 |
| 11. | EMBASE | (orthodont\*).ti,ab | 38493 |
| 12. | EMBASE | exp ORTHODONTICS/ | 30843 |
| 13. | EMBASE | (11 OR 12) | 50807 |
| 14. | EMBASE | (10 AND 13) | 63 |
| 15. | EMCARE | exp CORONAVIRINAE/ OR exp "CORONAVIRUS INFECTION"/ | 6477 |
| 16. | EMCARE | (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*).ti,ab | 33805 |
| 17. | EMCARE | (15 OR 16) | 37105 |
| 18. | EMCARE | (orthodont\*).ti,ab | 19731 |
| 19. | EMCARE | exp ORTHODONTICS/ | 16236 |
| 20. | EMCARE | (18 OR 19) | 22739 |
| 21. | EMCARE | (17 AND 20) | 31 |
| 22. | CINAHL | exp CORONAVIRUS/ OR exp "CORONAVIRUS INFECTIONS"/ | 25454 |
| 23. | CINAHL | (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*).ti,ab | 38753 |
| 24. | CINAHL | (22 OR 23) | 43793 |
| 25. | CINAHL | (orthodont\*).ti,ab | 7712 |
| 26. | CINAHL | exp ORTHODONTICS/ | 9709 |
| 27. | CINAHL | (25 OR 26) | 12473 |
| 28. | CINAHL | (24 AND 27) | 25 |
| 29. | BNI | (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*).ti,ab | 4716 |
| 30. | BNI | "COVID-19"/ OR CORONAVIRUSES/ | 5337 |
| 31. | BNI | (29 OR 30) | 5759 |
| 32. | BNI | (orthodont\*).ti,ab | 43 |
| 33. | BNI | ORTHODONTICS/ | 23 |
| 34. | BNI | (32 OR 33) | 53 |
| 35. | BNI | (31 AND 34) | 0 |
| 36. | AMED, HMIC, PsycINFO, PubMed | (orthodontic\* AND (covid\* OR corona OR coronavir\* OR "2019-nCoV" OR "SARS-CoV-2" OR cv19 OR "cv-19" OR ncov\*)).ti,ab | 3 |

## For more information about these resources please go to: <https://www.bartshealth.nhs.uk/knowledge-and-library>