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Review Article

Effects of COVID-19 pandemic on orthodontic practice

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ABSTRACT

The COVID-19 is a respiratory illness which was declared as pandemic in 2020 by WHO. The pandemic has not only affected daily lives of people but greatly influenced the healthcare system across the globe especially dental care setup which was affected due to lockdown preventive measures taken by various countries. Orthodontic treatment involves regular consultations and visits to the dental clinic which unfortunately got negatively affected by the pandemic situation resulting in delayed appointments and prolonged treatment. The aim of this research was to review the available information regarding the effects of COVID-19 pandemic on orthodontic practice. Most of the orthodontic services were suspended and dental care settings were closed during the time of pandemic, only emergency patients were treated. Due to the delay in orthodontic services and treatment most orthodontic problems such as loosening brackets and arch wires could not be treated timely which affected patients. Many orthodontics utilized the digital technology for the provision of services and held virtual-based sessions with their patients. Findings from the literature exhibit that corona virus disease pandemic has posed a significant impact on the field of orthodontics however, in future more research is needed on designing management strategies in times of pandemic, so the dental care and orthodontic services are not affected.

Keywords: Coronavirus, Disease, Pandemic, Orthodontic, Services, Dental

INTRODUCTION

The COVID-19 is the most recent respiratory infectious illness to spread swiftly over the globe. It was originally detected in Wuhan, China, in December 2019, but quickly spread throughout the globe, prompting the WHO to proclaim it a pandemic and a public health emergency of international concern in March 2020. It has a significant rate of human-to-human transmission via respiratory aerosols that are persistent for lengthy periods of time at

varying doses. Staying at home, instituting travel prohibitions, maintaining social distance, constant hand washing, and use of personal protective equipment such as masks and gloves are all recommended ways to reduce the risk of transmission and illness. Healthcare personnel who are on the front lines and in direct touch with patients are at the most risk of infection. As a result, many healthcare workers have suffered COVID-19, and several have died as a result.[1] Many governments opted to impose lockdown in countries with closure for unnecessary health care, despite the suggestions issued on ways of protection and essential safeguards to follow. During the lockdown, oral and dental care was limited to urgent care and all other routine operations were postponed, causing a significant delay in receiving care and paying for patients' appointments.

The COVID-19 pandemic disrupted patients' treatment schedules and impeded the success of optimal care because of prolonged and missed consultations. Orthodontic treatment involves regular visits over a long period of time, mostly up to two years, and the COVID-19 pandemic impacted patients' treatment schedules and interrupted the progress of a quality treatment due to extended and missed appointments.[2] Viral pandemics have always presented significant obstacles to the dental profession.

Dentists, on the other hand, responded quickly to new circumstances during the COVID-19 pandemic, enhancing safety. To ensure safety, dentists adjusted their workflow practices and re-configured their clinic settings, as per the COVID-19 standards. Increasing the usage of protective materials and extending the treatment period are two common precautions. While these behaviours ensure safety requirements for patients and dental treatments, on the one hand, they also raise the expense of dental procedures on the other.[3]

A halt on dental practice and strong infection control methods were instituted immediately during the pandemic to promote a healthy and safe environment as well as minimize the spread of COVID-19 due to an increased potential risk of transmission in dental clinics. Due to the unique nature of dental operations and direct face-to-face interactions with patients, dental care practitioners are at a greater risk of acquiring and transmitting COVID-19.[4] To limit the frequency of hospital admissions due to the implications of clinical situations of COVID-19, the assessment and management of dental emergencies and urgent dental care are critical.

Indeed, if routine dental care is suspended, more patients than usual may need to be admitted to the hospital for the treatment of acute dental infections which spread to the respiratory tract and necessitate urgent care. Furthermore, the probability of COVID-19 spread from hospitals and doctors to patients is relatively significant, necessitating the implementation of successful preventive measures to limit the virus's spread.[5]

The purpose of this research was to review the available information about the effects of COVID-19 pandemic on orthodontic practice.

METHODS

This study was based on a comprehensive literature search conducted on 26 April 2022, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the information about the effects of COVID-19 pandemic on orthodontic practice. There were no restrictions on date, language, participant age, or type of publication.

DISCUSSION

COVID-19 is this millennium's first extremely contagious pandemic infection. Although there have been no reports of cross-contamination within a dental context, dentists of all specialties, including orthodontists, must be constantly aware of developing infectious dangers and updated infection control recommendations for prevention. The orthodontic team is responsible for ensuring safety and preventing cross-contamination within the dental care facility.[6] While performing operatory treatments, dentistry, particularly orthodontics, necessitates close closeness to patients. Unfortunately, dental healthcare workers are at significant risk of contracting infectious diseases as a result of this. The current COVID-19 recommendations are to prevent person-to-person contact and keep a space of 1-2 m between individuals. Because of the inherent nature of the orthodontic procedure, which puts the orthodontist and dental assistant at significant risk of infection, this guideline cannot be implemented in the orthodontic clinic.[7,8]

Evidence from research studies

Findings of an Israeli study in 2022 reported that when compared to the pre-pandemic period, there was a significant rise in the number of scheduled appointments during the inter-lockdown periods (p=0.001). The majority of the emergency visits 89.6% were for appliance problems, and 68.7% of the patients were instructed to go to clinics. There was no significant increase in the number of missed and emergency appointments during the peak of the COVID-19 pandemic waves. The majority of orthodontic patients anticipated that the pandemic would have a little impact on the length and quality of their treatment, but a small minority 10% predicted serious and irreversible damage, as well as a longer treatment time.[9] Another Nigerian cross-sectional study results in 2020 showed that the majority of respondents 95% thought the virus was hazardous and that the orthodontic patient was at risk of catching the disease, but they were willing to continue their orthodontic treatment regardless of the

pandemic. The immediate and long-term concerns were, respectively, fear of catching the COVID-19 virus during orthodontic appointments and missed orthodontic appointments among 74% of respondents, and extended treatment duration among 50%. There was a high proportion of acceptance of preventative measures to prevent virus transmission in the clinic.[10]

Results of Italian survey analysis in 2022 concluded that the current health crisis or pandemic situation has not slowed demand for orthodontic treatment, but some patients' attitudes toward oral cleanliness and the significance they place on dental health are shifting. Orthodontists should improve communication and create ways to communicate to patients that the dentist office is safe and that various steps are taken to prevent the spread of COVID-19, because, as in other medical disciplines, some dental disorders cannot be ignored and must be treated right away.[11] Results of another Romanian cross-sectional survey in 2022 depicted that the majority of study participants 62.5% did not consider discontinuing orthodontic treatment because of the COVID-19 pandemic, while most control group participants 70.6% did not consider of not going to the dentist because of the COVID-19 pandemic. During orthodontic treatment, most of the study participants 68.6% were unhappy with having to wear a face mask that hid their orthodontic appliances. The participants 51% in the control group had a similar attitude, complaining about having to wear a face mask that covered their smile. Given that their orthodontic appliances were no longer visible, the majority of patients 52% in the study group did not want face masks to remain mandatory.[12]

Findings of Italian cross-sectional survey in 2020 conducted among dentists reported that returning to the regular work activities caused concern in 192 participants, and this was linked to their level of distress (odds ratio= 3.7; p=0.001). Most orthodontists (67.6%) predicted that they would increase their weekly working hours (Odds ratio=1.8; p=0.007). Most dentists were apprehensive about returning to work because they perceived their jobs as posing a significant risk to themselves and their families. Orthodontists exclusively and predominantly were forced to work for longer hours during the week.[13] Results of a European cross-sectional study in 2021 showed that 45% of the patients needed a face-to-face appointment to fix a problem with their appliance; while 45% who had problems with their appliance were able to solve the problem using digital means, such as guidance by phone and email from their provider or online help; and 99% of patients wanted to proceed with their orthodontic treatment. More patients after the first nationwide lockdown due to the coronavirus pandemic, were concerned about attending face-to-face appointments.[14] Results of Indian cross-sectional study in 2021 depicted that 81% of orthodontists claimed that regular orthodontic treatment was disrupted as a result of the COVID 19 lockdown, and 79.1% reported that a hospital or clinic was closed for more than a month as a result of the lockdown. Despite this, 64.6% of orthodontists use telecommunication to handle orthodontic emergencies, and 47.9% of orthodontists receive complaints regarding fixed appliances among all other appliances. Due to the existing scenario, 41.4% of orthodontists proposed a 3-6-month period to normalize the situation, and 66.9% agreed that orthodontic treatment needs will reduce after COVID 19.[15] Results of Nigerian cross-sectional study in 2020 concluded that according to the majority of the respondents, the pandemic will transform the way they practice orthodontics in the future, especially in terms of infection management. Furthermore, the pandemic had an economic, emotional, and social impact on most study participants, with female orthodontists and orthodontic residents reporting a considerably higher social benefit than their male counterparts. For both the economic and emotional implications, no significant gender differences were observed.[16]

Findings of a cross-sectional study in Middle East in 2020 showed that the majority of the participants 87.61% believed that the pandemic will completely change their way of practicing orthodontics and 78.73% respondents said it will also lead to a decline in the number of orthodontic patients in the future while a considerable number of orthodontists 67.61% believed that the pandemic will not affect the viability of their profession.

The majority of respondents 88.57% expressed concern about COVID-19's negative economic impact on their income, and when asked about the impact of COVID-19 on psychosocial well-being, 73.01% had experienced anxiety and depression, 88.25% were enthusiastic about the profession's future, and 68.57% enjoyed time with their family during the lockdown, and when asked about their social life with family and friends, the majority of the participants 66.34% reported that it has improved due to availability of ample time.[17] Results of a cross-sectional study from Saudi Arabia in 2021 showed that 22% of the patients did not hear from their orthodontist, 18% were very concerned about being unable to continue their treatment, 72% were concerned about the treatment duration lengthening after lockdown, 18% suffered cuts or lacerations from their appliance, and 32% had poking wires. Only with sufficient preventive precautions in place 76% of patients were willing to see a clinic after the lockdown.[18]

Guo et al stated that most orthodontic appointments and problems were judged non-emergent during the outbreak, so most orthodontic departments and clinics were closed. Many orthodontists and patients were at home throughout the orthodontic practice suspension and home quarantine, communicating via smartphones or online telemedicine services. In this extended period of dental service suspension, orthodontic problems such as loosening brackets and arch wires could not be treated timely due to the inability to attend regular appointments, which had a significant influence on the lives and treatments of orthodontic patients. As a result, orthodontists needed to be aware of their patients' emotional and physical

situations in order to make suitable recommendations to them throughout the outbreak and to prioritize their requirements once dental services were reopened.[19]

Teleorthodontics which is provision of orthodontic care through digital platform succeeds by avoiding unneeded follow-up visits while keeping constant monitoring, ensuring that desired results are not jeopardized. Teleorthodontics has nearly limitless potential; remote consultations might be conducted anywhere in the world without the need for travel or appointment scheduling. This method could be extremely beneficial in the administration of all detachable dentofacial orthopaedic appliances as well as orthodontic treatments that require little in-office management, including some clear aligner therapies.

Even while many dental and orthodontic treatments still require in-office visits, teleorthodontics offers up new frontiers in the management and follow-up of several patient.[20] However, virtual orthodontic consultations and care must be regulated. As the COVID-19 pandemic develops, many orthodontists in the West are moving toward digitized orthodontic appointments and treatment procedures, which eliminate the need for in-person patient appointments. Orthodontists are communicating with patients via a variety of platforms, including Zoom, Invisalign team, and others.

As this is a relatively new technique of providing dental care, specific norms and procedures should be set to secure both patients and orthodontists. Since dental professionals are now executing these online consultations without rules, it is indeed possible that the rapid shift to virtual-based interactions would lower orthodontic care standards.[21] Literature is well established regarding the impact of pandemic on orthodontics and exhibit a significant impact of pandemic although the data from gulf countries is quite scarce and limited.

CONCLUSION

The COVID-19 pandemic has greatly influenced the field of orthodontics especially during its initial phase. However, research on better management and infection control strategies in times of pandemic or epidemic is needed so the provision of dental services is not affected also orthodontists must be alert to new hazards and better prepare for future shifts in the epidemiological circumstances, which could drastically alter dental care accessibility.

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