

## Combating the COVID-19 Epidemic in Dentistry while Ensuring Patient Safety

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## Abstract

In China, an outbreak of a novel coronavirus disease (COVID-19) has impacted every facet of life. Healthcare professionals, particularly dentists, are at an increased risk of infection as a result of their intimate contact with infected patients. The current study sought to ascertain dentists' anxiety and fear of infection while on the job amid the current new coronavirus illness (COVID-19) outbreak. Additionally, dentists' understanding of various practise adjustments necessary to combat COVID-19 was assessed. Recognizing the severity of the disease's effects and its high rate of transmission, regulatory authorities directed dentists to discontinue providing oral care to all patients except those with emergency concerns. This was done primarily to safeguard dental healthcare staff, their families, contacts, and patients from viral transmission, as well as to save critical supplies of personal protective equipment (PPE). Dentists should always follow cross-infection control policies professionally, but especially during this critical time, they should do their utmost to determine which emergency cases require dental treatment. Dentists should also be informed about the pandemic's implications for their profession in order to be prepared and informed.

Key words: COVID -19, Dentists, Patients, Oral, Safety.

## 1. Introduction

From 12 December 2019, a highly infectious pneumonia began spreading in Wuhan, China (Guo et al., 2020). In early January 2020, officials identified a novel coronavirus (COVID-19) as the disease's primary pathogen (Li et al., 2020). The World Health Organization (WHO) designated this unique viral pneumonia as "Corona Virus Disease (COVID-19)".

It quickly became one of the most difficult public health concerns of the contemporary era, spreading to nearly 200 nations worldwide. The WHO designated the COVID-19 outbreak a global public health emergency on 30 January 2020 (Mahase, 2020; Lancet, 2020).

Given the critical role of the immune system in the body, older patients with chronic debilitating diseases are at a greater risk of infection than young, healthy persons with a robust immune system (Wu e al., 2020). Three quarters of a million instances have been reported to date, and over 33,000 individuals have died worldwide. Although COVID-19 has a low fatality rate, it has a great potential for dissemination. Due to the rapid and deadly spread of COVID-19, many countries have closed educational institutions, social gatherings, sporting activities, events, airports, and even banks in an attempt to contain the infection. Additionally, numerous individuals entered self-quarantine in order to contribute to society by reducing illness spread (Chen, 2020).

Dentists are one of the highest-risk groups for coronavirus transmission and infection, as many regular dental treatments have the ability to transfer the virus via aerosols. Patients who are asymptomatic (carriers) or who have an acute respiratory disease may present for dental treatment in outpatient dental settings. While it is critical to treat patients who require urgent or emergency dental care, the primary objective should be to minimize infection spread to patients and dental healthcare professionals (Dar Odeh e al., 2020). The growing fear of cross-infection, as well as the possibility that dental practice contributed to the spread of the infection, has compelled dentists to withdraw and enter home quarantine, similar to other non-healthcare sectors of the community. Additionally, there has been an increase in demand for personal protective equipment (PPE), which consists of clothes designed to keep healthcare professionals and other susceptible individuals safe from infection. Standard PPE includes gloves, a mask, and

a gown. However, in the case of airborne illnesses such as COVID-19, extra protective equipment such as face shields, goggles, masks, face shields, gloves, gowns or coveralls, head covers, and rubber boots should be worn (WHO, 2020).

It is well established that producing an efficient vaccine capable of achieving broad vaccination takes time; hence, it is vital to develop new practical approaches for daily dentistry practice in order to provide much-needed care to patients with oral health problems. While the long-term repercussions of this epidemic are unknown at the moment, they will likely result in a 'new normal' for dental care provision. These safety protocols should be implemented with extra vigor in certain medically compromised individuals, such as transplant recipients, individuals with cancer, immunodeficiencies, severe respiratory conditions, and adults with chronic kidney disease, because they are clinically considered to be extremely vulnerable to COVID-19 (Tang et al., 2020).

### **1.1. Aim of the study**

The purpose of this study is to evaluate dentists' practises regarding the COVID-19 epidemic in order to ensure patient safety.

## **2. Literature Review**

### **2.1. Oral Health's Importance**

The pandemic of COVID-19 hampered access to critical medical treatment (e.g., chemotherapy) and basic care, such as vaccination (Schrag et al., 2020; Covid et al., 2020). Oral health, which is an excellent predictor of general health, has been impacted by this public health crisis as well. Oral health problems can be a precursor to various systemic ailments, such as atherosclerosis, lung disease, diabetes, pregnancy, low birth weight, osteoporosis, and renal disease (Fiorillo,

2019). Even in healthy persons, the teeth, periodontium, and biofilm can act as reservoirs for pathogens and may enable pathogen proliferation in the lungs via aspiration (Garcia et al., 2001). The risk of infection is significantly larger in critically sick patients who have weakened biological defenses and are thus predisposed to ventilator-associated pneumonia (VAP) (Kane, 2017).

Appropriate dental treatment and follow-up can help avoid more serious disease not only in the oral cavity, but also throughout the body (Selwitz et al., 2007). For example, pulpitis can quickly become permanent, resulting in persistent, dull, and throbbing discomfort. Acute periapical dental abscesses can develop into septicemia or pulmonary obstruction, increasing the risk of death. Periodontal and endodontic disorders have been demonstrated to influence the course of bacterial pneumonia, cardiovascular disease, and type 2 diabetes. Additionally, if these oral disorders develop during pregnancy, they may be related with low-birth-weight neonates (Velló et al., 2010). It remains unknown whether and how poor oral health contributes to documented health disparities in the incidence and prevalence of COVID-19 (Guan et al., 2020). Given the critical role of oral health in overall health and the longevity of the SARS-CoV-2 virus (and the introduction of additional variations), it is critical to continue to monitor how the COVID-19 pandemic may affect dental care (Cervino et al., 2020). Significant improvements in normal dental care delivery and prioritizing dentists for the COVID-19 vaccination during the initial phase of distribution in 40 states in the United States are all indicators of the profession's long-lasting influence and swift adaptability (Shamsoddin et al., 2021).

## **2.2. COVID-19 Transmission in a Dental Setting**

The transmission of new coronavirus via respiratory droplets and fomite is highly common, as data reveals (To et al., 2020). The incubation time can range from 7 to 24 days, and in rare cases,

there are no clinical signs of the disease (Backer et al., 2020). Both patients and dentists can be exposed to viral pathogens that can be transmitted through the oral cavity and respiratory tract during dental appointments. The face-to-face interaction between patients and the dental team makes dental procedures prone to COVID-19 infection. The use of sharp and high-speed rotary instruments as well as the frequent contamination of saliva, blood, and other bodily fluids increases the risk of infection in dental practises (Kampf et al., 2020). According to a recently published studies, the COVID-19 infection can also be transmitted through prolonged inhalation of airborne viruses suspended in dental procedures. It has long been known that rotary handpiece dental procedures generate a significant amount of aerosol and droplets that are contaminated and may be infectious (Wei & Li, 2016).

Aerosol creation from patient blood and saliva is currently not practicable, raising serious concerns about COVID-19 pathogenic agent transmission to the dental team and patients. Furthermore, aerosol can remain in the air for an extended period of time, allowing it to penetrate the respiratory tracts of both patients and dental workers. Without adequate and stringent cross-infection control methods, aerosol can collect on the surfaces of the dental surgery and tools, making cross contamination between attendees to the dental surgery highly feasible (Cleveland et al., 2016).

### **2.3. Dental infection prevention and management**

Healthcare professionals have a moral obligation to follow infection control guidelines and procedures. Dentistry isn't any different. Keeping patients' saliva free of oral infections and oral commensals is critical in dentistry because of the potential for contamination. SARS-CoV-2 can also be a carrier of certain infections during infection and in the carrier stage. It is impossible to avoid exposure to blood and saliva aerosols because of the nature of dental treatments. Pathogens

can also spread through direct contact with polluted ambient surfaces, instruments, and equipment (Fallahi et al., 2020). While patients and employees alike are at danger of infection in a dental practice, it is especially important to keep an eye on your own health. There is also a risk to dental laboratory workers because of cross-contamination between clinics and labs. In addition, if proper infection control measures are not performed, it can spread to the patient's family members. Therefore, the CDC and governments throughout the world have advised a series of step-by-step infection control procedures, and each country has worked up its own set of country-specific guidelines (Kohn et al., 2003).

### 2.3.1. Dentists' Duty of Self-Preservation

Care must be given when selecting a patient case, sterilizing the clinic and using PPE properly, as well as frequent self-assessment by dentists (Covid Guide, 2020) as shown in figure (1).

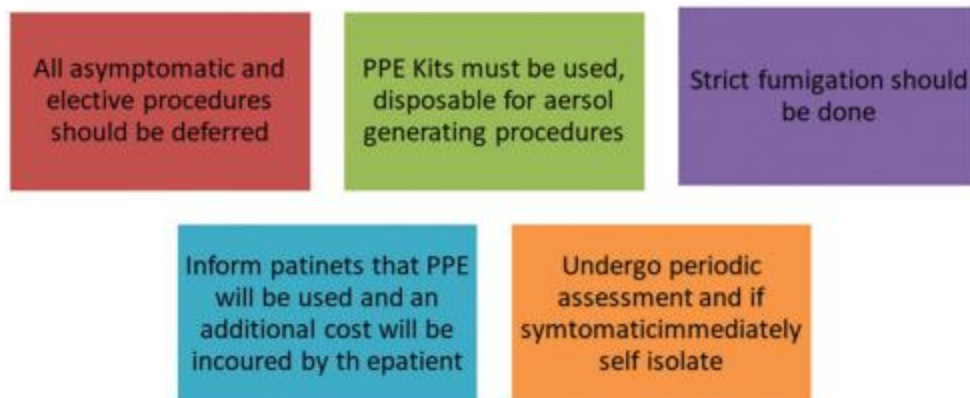


Figure (1): Measure of personal care



### 2.3.2. Assistant Care

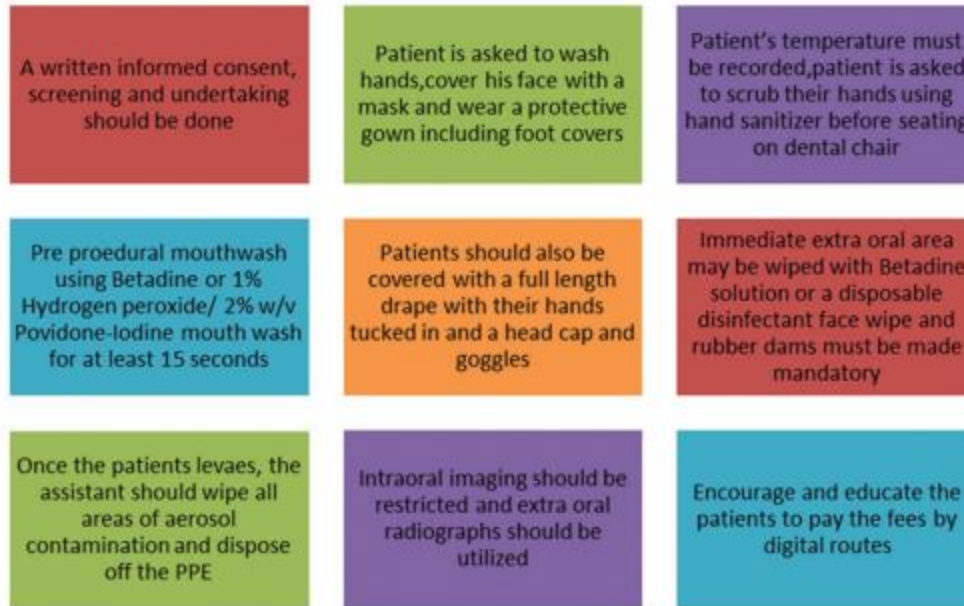
Clinical assistants, receptionists, and housekeeping workers are all examples of dental clinic assistants. Assistants must take all necessary precautions and carry out their duties in accordance with the stated guidelines (Thomé et al., 2020) as shown in table (1).

Type of assistant	Responsibilities	Precautions
Clinical assistant	<ol style="list-style-type: none"> <li>1. Assist the dentist in four-handed dentistry</li> <li>2. Ask patients to gargle with a mouthwash, either hydrogen peroxide or povidone-iodine</li> <li>3. Clean the extraoral area immediately next to the mouth with povidone-iodine</li> <li>4. Clean all the operatory areas with a disinfectant, such as handles, dental chair, counters</li> <li>5. Dispose the PPE appropriately</li> </ol>	<ol style="list-style-type: none"> <li>1. Wear PPE at all times and change them after every appointment</li> <li>2. Wash hands before and after every appointment</li> </ol>
Reception staff	<ol style="list-style-type: none"> <li>3. Help in scheduling appointments and only provide appointments for emergency care</li> <li>4. Ask patients in waiting area to wear masks</li> <li>5. Ensure social distancing in waiting area</li> <li>6. Encourage digital payment methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Wear masks and gloves at all times</li> <li>2. Maintain a minimum of 1 m distance with the patients</li> <li>3. Avoid bringing paper work into operatory area</li> <li>4. Wash hands with soap or alcohol (70%) frequently</li> </ol>
Housekeeping	<ol style="list-style-type: none"> <li>1. All biomedical waste pertaining to patient care should be carefully disposed as per the Bio-Medical Waste Rules</li> <li>2. Clean the floors and walls of the operatory area using disinfection solutions</li> </ol>	<ol style="list-style-type: none"> <li>1. Wear mask and appropriate gloves</li> <li>2. Avoid direct contact with patient fluids</li> <li>3. Wash hands frequently</li> </ol>

**Table (1): Assistant's responsibilities and safeguards to be taken**

### 2.3.3. Patient Care

The dentist's primary concern must be patient care, and all required precautions, including as hand hygiene, temperature recording, preprocedural mouthwash, and protective clothing, must be taken (Fini, 2020) as shown in figure (2).



**Figure (2): Patient care procedures**

#### 2.3.4. Clinic and laboratory Care

Cleaning dental clinics/operatories should occur only after the aerosol settling time has been estimated and only then should the housekeeping crew clean the operatory after the aerosol has settled. Cross-contamination can occur if the impression is not properly disinfected (Abramovitz et al., 2020).

All laboratory workers should wear full PPE when handling patient work, and all laboratory workers should follow all necessary guidelines. They should also practice strict hand hygiene and quarantine themselves if they see any symptoms as shown in figure (3).



Figure (3): Laboratory procedures should be followed

## 2.4. The Dentists' and Patients' Possible Role in the Prevention of the Spread of COVID-19

### 2.4.1. Strict Procedures for the Screening of Patients

To stop the spread of COVID-19, dentists must be able to screen and identify individuals who are at high risk of infection. Patients in the early stages of infection should not receive routine dental treatment, and these patients should be advised to quarantine and self-isolate (Peng et al., 2020). The initial screening measure would be to take each patient's body temperature using a contact-free forehead thermometer. Patients should complete a questionnaire in order to ascertain whether they have experienced COVID-19 symptoms such as fever, persistent cough, or trouble breathing in the preceding two weeks. Contacts with people who tested positive for COVID-19 should be documented. Additionally, patients should report if they have had contact with at least two individuals who have had a fever or respiratory symptoms in the prior two weeks.

If the test results are positive, the patient should be instructed to remain at home and call their COVID-19 care facility if their symptoms worsen (Rivett et al., 2020).

#### **2.4.2. Hand Sanitation**

When it comes to preventing the spread of coronavirus, the World Health Organization and healthcare authorities consistently emphasize the importance of frequent hand washing. Good hand hygiene must be reinforced for patients and dentists alike, as some patients and dentists may not follow adequate protocols when it comes to washing their hands, which could pose a problem for infection management during a pandemic. To prevent the spread of disease, it has been recommended that dental practitioners wash their hands prior to seeing a patient and prior to any dental procedure as well as after encountering the patient. When one comes into direct touch with oral mucosa, wounds, or injured skin; blood, body fluids, saliva, and excreta, one must wash one's hands with soap and water. Until it is safe to do so, dentists should not touch their own eyes, noses, or mouths (Suri et al., 2020).

Coronaviruses can also be inactivated by using alcohol-based hand rubs containing at least 60% ethanol or isopropanol, which is a simple and efficient cross-infection control method (Lotfinejad et al., 2020).

#### **2.4.3. Mouth Rinse before Dental Procedures**

Aerosol generation is almost inevitable during the majority of dental procedures. As a result, it is critical to minimize viral load in droplets and aerosols by prophylactic measures such as preoperative antiseptic mouth rinse use (Bizzoca et al., 2020). The most often used mouth rinses in dentistry practises are chlorhexidine and essential oil-based treatments, which may be less effective than 1% hydrogen peroxide or 0.25% povidone iodine due to the COVID-19 pathogen's increased susceptibility to oxidation. Povidone iodine solution has a 99.99 percent kill rate

against enveloped and non-enveloped viruses such as influenza, Ebola, MERS, and SARS coronaviruses (Eggers, 2019), and it possesses high bactericidal and viricidal characteristics against pathogens that cause oral and respiratory tract infections. The existing evidence supports the safe use of povidone iodine oral solution as a protective oropharyngeal hygiene intervention in persons at high risk of oral and respiratory pathogen exposure (Kirk-Bayley et al., 2020).

#### **2.4.4. Isolation of Rubber Dams**

Rubber dams are one of the simplest and most effective methods for decreasing oral cavity pollution and controlling moisture. When high-speed handpieces and ultrasonic instruments are used, rubber dam isolation has proven to be efficient in reducing the formation of saliva and blood-contaminated aerosols. In an area with a 3-foot circumference, the rubber dam appears to have reduced airborne particulates by 70%, according to available evidence (Nagraj et al., 2020). Povidone iodine or peroxide solution can also be used to sterilize the surgical region once the rubber dam has been placed. With the rubber dam, you may further reduce the possibility of contamination by using a high-volume suction. As an alternative to rubber dam, manual instruments like excavators and hand scalers should be used to minimize aerosol emission (Samaranayake & Peiris, 2004).

#### **2.4.5. Handpiece with Anti-Retraction**

When compared to a handpiece without anti-retraction function, using an anti-retraction handpiece significantly reduces backflow of bacteria and Hepatitis B virus (HBV) from the oral cavity into the tubes of the handpiece and the dental unit. During dental treatments, standard handpieces can aspirate and release contaminated fluids; as a result, oral flora, including bacteria and viruses, can contaminate the air and water tubes within the dental unit, resulting in cross-

infection. Thus, the use of anti-retraction handpieces is recommended and encouraged, particularly during the COVID-19 pandemic (Hu et al., 2007)

#### **2.4.6. Strict Disinfection Procedures in a Clinical Environment**

It is critical that medical and dental teams adhere to a rigorous disinfection protocol for clinical and communal facilities. All surfaces in clinical areas must be thoroughly cleaned and disinfected in accordance with local rules and requirements. Regular cleaning and disinfection of communal areas and public facilities is required, including complete disinfection of all door knobs, seats, desks, touch screens, and monitors. If the building contains a lift, it should be disinfected on a regular basis, and all lift users should be advised to wear masks and avoid direct contact with the lift's buttons (Naboush & Alnimer, 2020).

Additionally, installing better air ventilation systems in healthcare facilities can aid in the elimination of airborne germs from clinical surroundings, hence lowering the risk of infection (Villafruela et al., 2019).

#### **2.4.7. Management of Clinical Waste**

Clinical waste should be placed in a secure temporary storage location, and all reusable equipment and materials should be pre-treated, cleaned, sanitized, and stored correctly according to local norms. Clinical waste collected throughout the course of treatment of COVID-19 positive patients must be treated as infectious clinical waste and placed in clinical waste bags in a designated area. The packaging bags should be labelled and disposed of in accordance with local legislation and requirements for medical waste management (Agamuthu & Barasarathi, 2021).



## 2.5. Previous Studies

**According to Seneviratne et al., (2020): The role of dentists in COVID-19 is beyond dentistry: voluntary medical engagements and future preparedness**

The advent of the extremely contagious new coronavirus SARS-CoV-2 resulted in a global pandemic of COVID-19. Worldwide healthcare systems have been severely strained since the outbreak of COVID-19. The quick and dramatic increase in positive cases has resulted in a huge increase in medical care demand. We discuss the role dentists can play in voluntary medical help and future preparedness for a similar pandemic in this article. While dentists and physicians have distinct scopes of practise, their educations are strikingly similar. As a result, dental practitioners are a vital resource in the COVID-19 pandemic response due to their grasp of basic human science and sterile surgical practises. In general, it is admirable that many dentists have risen to the COVID-19 challenge. In Singapore, for example, the National Dental Centre Singapore (NDCS) dispatched dental clinicians and volunteers from research laboratories to screen for suspected cases, provide consultations, and do swabbing operations. Dental practise will undergo significant changes following the implementation of COVID-19. There is a larger need for continuing education courses on novel infection control measures for practicing dentists. Additionally, dentistry schools' curricula should be enhanced to include pandemic and disaster response competencies. Additionally, community dental curriculums should incorporate volunteer medical work. This volunteerism will have a good effect on the development of young dentists' careers. Thus, future generations will appreciate dentists' contributions outside dental practise in this pandemic crisis.

**The study of Banakar et al., (2020): COVID-19 transmission risk and protective protocols in dentistry: a systematic review**

Dental treatments have gotten a lot of interest as a possible source of transmission for the COVID-19. Many reports, papers, guidelines, and recommendations have been issued on the transmission of this infection through dental services. For the purpose of developing a practical feasibility procedure for reopening dental clinics and redirecting dental services, this study reviewed guidelines. The findings of this study were based on a thorough evaluation of the published literature and worldwide standards on dentistry and COVID-19. We used MESH phrases to search PubMed, Web of Science, and SCOPUS databases. This study presents a step-by-step approach based on the results of testing the identified recommendations on a convenience sample of experienced practitioners. Our inclusion criteria for the 38 articles we found so far included only 9 out of them. Dental care for patients with suspected or known COVID-19 should be delayed at least two weeks during the pandemic, according to all nine-research surveyed. It's only possible to treat oral disease during the COVID-19 epidemic using just pharmaceutical management as the first line of defense, followed by minimally invasive emergency treatment as the second and ultimate treatments. Although the current research does not support a direct link between dental care or surgery and the transfer of COVID-19, there is obviously a risk for transmission. In a dental practise, adherence to the COVID-19 crisis protocols is of highest importance.

**According to the study of Bhandari et al., (2021): Covidentistry: Combating corona virus spread in dental setup: Indian prospective**

Known as COVID-19, SARS-CoV-2 made its human debut in China at the end of 2019 and is now known to be a highly contagious viral particle that causes respiratory system discomfort.



The number of people infected with COVID-19 and the deaths that result from it have been rising steadily since January 2020. Since the sickness is contagious and human culture is social, it has spread across continents, with some countries being hit harder than others. In order to protect the public and healthcare professionals' interests, authorities have consistently released interim recommendations since the disease was first discovered. These guidelines are updated and disseminated as new information becomes available. The conventional precautions for everyone include maintaining social distance, donning a mask when engaging in any outdoor activity, washing their hands, and coughing with care. The most likely source of this uncontrolled disease spread has been identified as respiratory droplet transmission. Because of their reduced size, medical aerosols are also a source of viral particle transmission. Regardless of the apparatus employed, the creation of aerosols is a common occurrence throughout nearly every dental surgery. Dental professionals and patients who come into contact with the infectious droplets produced in the oral cavity are at an increased risk of contracting disease due to their close proximity to the mouth. There are a number of dental-specific recommendations in place to help limit and manage the spread of COVID-19. It is the goal of this article to go over the current set of oral hygiene guidelines and to raise awareness among dentists about the need of following them in light of the present global health crisis.

**The study of Limeres Posse et al., (2021): The Impact of the First Wave of the COVID-19 Pandemic on Providing Special Care Dentistry: A Survey for Dentists**

COVID-19's effect on the experiences of special-care dentists around the world was the focus of this study. From July 10 to July 31, 2020, an online survey was conducted. All participating dentists had their age, sex, years of professional activity, COVID-19 status, geographic location of origin, and lockout time noted. The correlations between these variables and the changes in

clinical activity, the COVID-19 status of the patients being treated, and the deployment of protective measures in the dental clinic were examined. The poll included 436 dentists from 59 nations, 70.6 percent of whom were women. Respondents reported that clinical activity had been reduced or ceased in 79% of cases. The most prevalent adjustment was to limit treatment to only urgent care (53.7 percent). For the vast majority of respondents, the use of general anesthesia or profound sedation was either discontinued or reduced. There was a statistically significant difference between male and female dentists in their ability to sustain their clinical engagement (p 0.001), and those from North America were more likely to do so than those from other locations. COVID-19 was more frequently treated by dentists in Latin America and the Caribbean than those in Europe (p 0.001). Protective measures in the dentist office were influenced by the gender of the survey participants, the amount of clinical activity they were involved in, and their location of origin. To sum up, the pandemic led to a significant reduction in the availability of special care dentistry. The geographic location of the surveyed dentists exacerbated pre-existing inequities in service maintenance.

**According to Patel, (2020): Infection control in dentistry during COVID–19 pandemic: what has changed?**

COVID-19, a novel coronavirus, has emerged and disrupted a wide range of social, economic, and healthcare elements. Transmission of this virus is possible through saliva and contact between sick and uninfected individuals. Aerosols generated by natural activities and dental treatment of infected patients have become a possible vector for transmission and a concern because they are airborne. Objective of this review was to evaluate current infection control methods in dental health care facilities and recommend adjustments to limit the spread of new coronavirus. An all-purpose journal of opinion and analysis. Dental and infection control were

searched for in the National Library of Medicine's Pubmed database using terms such as "dentistry and COVID," "dentistry and COVID and infection control.". Publications on behaviour, education, ethics, treatment, and child care were not included in the review process. Infection control publications were analysed for general information. Using the keyword "Dentistry and COVID" brought up 70 results, all of which were read. A primary goal of infection control in dentistry is to prevent the spread of blood-borne diseases. It is imperative to pay special attention to COVID-19's extremely infectious and transmissible character, as well as its ability to live in the environment for a long time, as mentioned here. Final thoughts: an IPC modification will safeguard the dental professional, their assistants and employees, as well as the patients and the general public. When dealing with a pandemic, extreme actions are required; yet, when dealing with an endemic phase, measures can be remodified as needed.

**The study of Nasser et al., (2020): Assessment of knowledge and practice of dentists towards Coronavirus Disease (COVID-19): a cross-sectional survey from Lebanon**

The Coronavirus Disease (COVID-19) epidemic is a global public health issue. Dentists are at a high risk of contracting COVID-19 during this pandemic. The purpose of this study is to analyze dentists' knowledge about the COVID-19 outbreak in Lebanon. The study used the snowball sampling approach to perform an online poll. We gathered sociodemographic data, knowledge, practise, and any extra information required for COVID-19. The findings indicated that the majority of Lebanese dentists (91.3 percent) had adequate knowledge and nearly half (58.7 percent) had adequate practise related COVID-19. The World Health Organization was the most frequently cited source of information (73.7 percent). Multiple linear regression analysis revealed that specialist dentists who completed COVID-19 training with a high degree of understanding practise more effectively. Dentists in Lebanon demonstrated a high level of

understanding of COVID-19. Dentists, on the other hand, have a limited understanding of the additional preventative steps that safeguard dental staff and patients from this infection. The findings have significant significance for the development of policies aimed at enhancing dentists' level of practise and preventative programs.

### **3. Methodology**

The collection of data in this study has been implemented from several secondary resources such as articles and through previous studies.

### **4. Discussion**

The current study finding is congruent with that of Nasser et al., (2020) examined dentists' anxiety and fear of infection while working during the current virus pandemic. Many reasons contribute to healthcare professionals' psychological trauma, such as the concern that they or their loved ones may become sick when treating an infected patient or infecting a family member while caring for an infected patient. The present rapid spread of COVID-19 has produced in significant psychological stress and terror for millions of people globally, ranging from isolation and quarantine to death. Due to the coronavirus's protracted incubation period (up to 14 days), it is nearly hard to pinpoint an individual's exposure to the virus. Additionally, there is no vaccination or approved therapy, which adds to the worry associated with the possibility of infection. Healthcare workers who are constantly exposed to sick patients are at a greater risk of contracting infectious diseases, which imposes a significant psychological toll.

According to the current study, a significant number of dentists fear infection from their patients or coworkers. The behaviour is consistent with the general population's fear of infection from other members of the community in the face of a fast-spreading pandemic. The majority of

dentists are afraid to treat any patient who reports alarming symptoms. Because COVID-19 has infected such a significant number of people in nearly every country, the worry of contracting the virus from a patient is legitimate. The high degree of worry was reflected in the fact that a big proportion of dentists desired to close their practises, which might have serious economic consequences for dentists and dental healthcare employees. Additionally, patients who are experiencing dental pain and/or are pursuing a multi-visit treatment plan may have dental care delays in such circumstances. Current COVID-19 outbreak recommendations urge postponing all non-essential dental care and recommending treatment only for patients experiencing pain, swelling, bleeding, or trauma. Until the condition improves or stabilises, all elective or non-essential dental treatment for all patients should be postponed. Researchers at a Beijing dental emergency department investigated the impact of the COVID-19 pandemic on dental treatment reporting, which was shown to be lower in the emergency department when compared to pre-COVID-19 reporting in the same location. Dental trauma has decreased as a result of the COVID-19 pandemic, and the amount of dental and oral infection has increased, while the proportion of dental trauma and non-urgent care has decreased.

Infections from their dental practises might pose a real danger to dentists and their families. A few hours to a few days are the range of time the coronavirus can survive on diverse surfaces. This, along with its lengthy incubation time before symptoms appear, makes it difficult to control its spread. Fear of quarantine as a result of a suspected or actual sickness is also a legitimate fear when one considers how other members of one's family will be affected by numerous factors. The financial pressure on the healthcare system and the costs expended during treatment might also put one's mind at ease. In many countries, the cost of health care is not covered by the government, and this can lead to a major financial burden. In many countries throughout the

world, the cost of screening and testing for COVID-19 has been subsidized by the government, which encourages residents to get tested in situations of suspected infection.

We need to keep up with processes and rules to reduce the amount of aerosol generated in the face of this epidemic and deal with it efficiently. Although many dentists were not aware of the Center for Disease Control (CDC) and WHO's current guidelines for cross-infection management in dental practises, such as asking patients about their travel history and keeping track of their temperature, it was promising that many dentists were aware of these guidelines. Dental practises may be able to identify patients who are at risk of infection based on these two factors. Indeed, in this contemporary climate of heightened risk of cross-infection in dentistry practises, the universal precautions already advised and recognized by many regulatory and infectious control authorities worldwide should be strictly followed. Despite the fact that the majority of dentists believed that these precautions should be followed for every patient, a considerable percentage of participants reported not implementing simple cross-infection controls like the rubber dam for all patients. By limiting the passage of aerosols, a rubber dam is an effective method of preventing cross-infection in dental treatments. While employing rotating tools that generate a considerable number of aerosols and droplets, rubber dams should be used throughout dental treatments. Dental treatments necessitate the use of high-volume suction, which is regarded a crucial technique of controlling the evacuation of aerosols.

Rinsing with an antibacterial mouthwash before to any dental procedure considerably lowers the microbial load. Many dentists are bypassing the current pandemic's recommendation to use this method. There is currently no evidence to support the use of antibacterial mouth rinses in the treatment of COVID 19. Because gargling has been shown to reduce viral load and dissemination by eliminating oropharyngeal protease and related viral replication, this

recommendation may be founded on this fact. Mouthwashes containing antiviral drugs such as povidone-iodine have been shown useful in the fight against a variety of respiratory infections.

Proper hand hygiene, including soap and water handwashing and the use of alcohol-based sanitizers, has been found to be a critical measure in the control of respiratory infection, including SARS. As a result, the WHO advises dental patients to wash their hands frequently or use an alcohol-based hand sanitizer. Particulate respirators like the N-95 have been advised for treating patients suspected of COVID-19. If the distance between the oral healthcare worker and the patient is less than 1 m, then at least a surgical mask must be utilised when treating all patients.

Currently, dentists make suggestions based on their own experiences and relevant guidelines in addition to universal precautions for all dental patients. Wherever practical, extra-oral radiographs such as orthopantomograms and cone beam computed tomography can be used to substitute intra-oral radiographs. There should be a switch to hand scaling instead of ultrasonic scaling to limit the formation and spread of aerosol and spatter during periodontal operations. While rubber dams are important, high-volume suction is also helpful in preventing the transmission of infectious droplets from the patient's mouth or respiratory system. There are already dental regulating agencies like the ADA encouraging dentists to only do emergency dental procedures. Further dental treatment advice can be obtained in related documents.

The dentistry community's concern and anxiety around COVID-19 necessitates the use of psychological coping mechanisms and methods in order to remain calm and effective. COVID 19 can infect dentists and dental healthcare workers if dentists and dental healthcare workers don't follow the regulatory authorities' instructions. These comprise the basic measures for cross-



infection control, as well as specific precautions for patients who come with questionable symptoms.

## 5. Conclusion

The COVID-19 pandemic has put dental practitioners around the world in a condition of dread and terror, despite their high standards of education and practise. Today, the consequences of COVID-19 are worsening over the world. According to standards, certain dental businesses have either restricted their services to emergency care, or closed their doors for an unknown period of time. The WHO has designated certain dental procedures as emergencies, and it is critical that these be given top priority while all other dental procedures are postponed until the outbreak has subsided. COVID-19's spread could be slowed by taking this measure.

## 6. Recommendations

Patients seeking dental care most frequently complain of pain. Identification of the source of discomfort and explanation of probable diagnosis may assist in reducing anxiety. Additionally, improving clinician–patient communication may aid in community engagement and education. While there are certain restrictions to receiving internet care and information, the widespread usage of smart phones and their inherent capacity to send photographic material when appropriate has made communication easier. Providing current educational content and tools also aids in public comprehension. Patients could be educated about the etiologies of common symptoms through the use of informative flyers and dental manuals. Additionally, developing COVID-19-related tools may benefit both health care professionals and patients. Patients' anxiety may be reduced with pre-visit online interviews that provide information about any changes that may occur during their office visit and therapy. Additionally, worry about infection



control must be addressed. This fear and anxiety may persist even after the introduction of successful COVID-19 vaccinations and must be reduced for improved prognoses, as patients' compliance with dental instructions is critical for achieving better outcomes, particularly in periodontal treatment.

The following are preventative measures against the spread of COVID-19 in dental clinics:

- Before entering the clinic, patients should be asked to sanitize their hands.
- It is critical to obtain a full case and travel history from patients, as well as their written consent.
- Before and after each patient, the entire dental operator should be cleansed with an alcohol-based scrub.
- Unless absolutely required, the patient should be instructed to refrain from touching any part of the operator.
- Request that the patient gargle with povidone-iodine; this will prevent cross infection.
- Wear all protective equipment, including an N-95 mask or a three-layered mask.
- Utilize a rubber dam during procedures to contain saliva and blood splash.
- Aerosol-releasing procedures should be performed in totally disposable PPE and scheduled at the end of the day.
- Hand pieces, burrs for preparation, and all diagnostic instruments, among others, must be autoclaved in sealed pouches, and reuse without autoclaving is strictly prohibited.
- Hands should be washed thoroughly before and after each procedure.

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