

# Prolonged COVID-19 Symptoms & Dental Considerations

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## COVID-19 so far ...

- Mortality rate of Covid-19 patients : 3 to 5% and the rest have reported recovery.
  - Patients who survive from Covid-19 may have the prolonged symptoms after their acute phase recovery.
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## Persistent symptoms

- Some symptoms may lasts for 60 days
    - Fatigue, Joint Pain
    - Dry Cough, Dyspnea
    - Headache
    - Anosmia and ageusia
    - Psychological issues
    - Myocardial inflammation
    - Malnourished
    - Hypercoagulability
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## COVID-19 impact on Dentistry :

- Highest risk of exposure due to high production of aerosol during the procedures and close proximity between the dental team and patients.
- Several protocols & guidelines for reopening clinics and performing selective emergency dental treatment have been issued by Governments & regional dental authorities.
- However, there are no recommendations for the dental management for the patients with persistent COVID-19 symptoms.

## AIM:

- To provide information on the persistent symptoms faced by the COVID-19 survivors.
- To highlight the practical issues that might be faced by the dentists while treating long COVID-19 patients.
- Provides clinical recommendations for the recovered COVID-19 patients with prolonged symptoms.



# Methodology

*Sub-systematic method was used for selection of articles presenting persistent symptoms after COVID-19 & dental management during pandemic.*



## Data Sources

Databases : PubMed, Scopus , Google Scholar  
Websites : WHO & CDC

## Search Strings

- "Covid-19 and recovered patients"
- "Covid-19 recovered persistent symptoms"
- "COVID-19 and dentistry"
- "COVID-19 and oral health"
- "Dental practice and Novel Coronavirus"

n=827  
n= 56  
n = 46  
n = 41  
n = 6



## Inclusion

January 2020 - present  
English  
Peer reviewed & indexed journals  
Recovered from COVID-19 or long COVID-19

## Publication

Date  
Language  
Type  
Study population

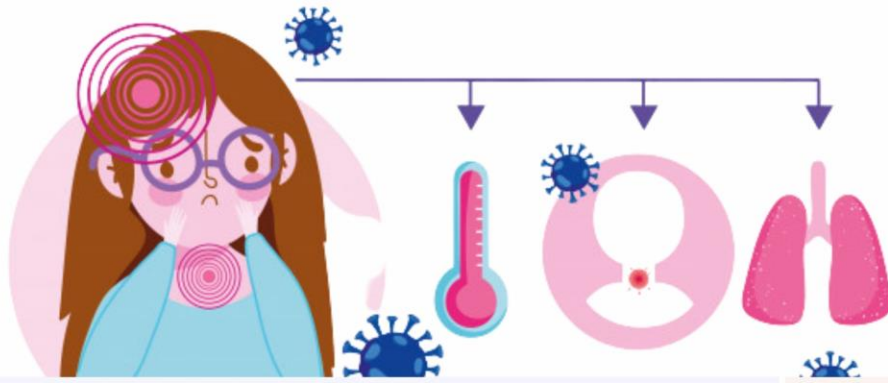
## Exclusion

Prior to COVID-19  
Apart from English  
Not peer reviewed  
Other Viral

**45 articles were extracted using COVIDENCE**

Original research, Systematic reviews, Case reports, WHO reports & Letter to editor

# Know the PROLONGED COVID-19 SYMPTOMS



## PULMONARY

- Post-Covid Fibrosis
- Decrease muscle strength
- Dyspnea , Breathlessness
- Dry coughing
- Chest pain



## CARDIO VASCULAR



- Myocardial inflammation
- Stress cardiomyopathy
- Myocardial injury
- Acute myocardial infarction
- Heart failure

## CHRONIC FATIGUE SYNDROME

It may lead to physical debility and emotional disturbance.

## MENTAL HEALTH

- COVID-19–related stigma
- Psychological toll



## NEUROLOGIC



- Headache, vertigo
- Chemosensory dysfunction (anosmia & ageusia)
- Brain fog
- Guillain-Barré syndrome

## OTHER COMPLICATIONS..

- Hypercoagulability
- Malnourishment
- Anorexia
- Sudden Hearing loss
- Changes in blood clotting system

## ORAL HEALTH

- Xerostomia
- Ageusia
- Enanthema
- Opportunistic fungal infections
- Ulcers causing Pain
- HSV-1 due to Covid treatment
- Gingivitis & Periodontitis.

➤ Increase in the viral load  
in the salivary glands



Source

• Centers for Disease Control and Prevention (cdc.gov)

# Possible challenges



## Dental Team

UNCLEAR KNOWLEDGE ABOUT PERSISTENT SYMP OF COVID-19

NO EXISTING PROTOCOL FOR MANAGEMENT OF LONG COVID -19 PATIENTS

## Treatment

PATIENTS ON THROMBOPROPHYLAXIS

POST TREATMENT ADVERSE EFFECTS & IMMUNE DEFICIENCY

## Patients

SOCIAL STIGMA OF DISCRIMINATION

FEAR OF CONTRACTING COVID-19

LACK OF TRUST BETWEEN OTHER PATIENTS & DENTISTS

Prolonged COVID-19 symptoms due to

# Keep Our Dental Clinic Safe!



# CLINICAL CONSIDERATIONS

Clinical Consideration	Clinical Condition/ Situation	Suggested Dental recommendations and management
Respiratory	Breathlessness	<p>Periodic recording of oxygen saturation for a week by the patient prior to treatment</p> <p>Continuous monitoring of oxygen saturation by "pulse oximeter" during the treatment</p> <p>Practice and train breathing techniques (inspiration to expiration ratio of 1:2)</p> <p>Bilateral mandibular blocks should not be administered</p> <p>Clinics must include medical emergency first aid kits (oxygen cylinders)</p>
	Cough	<p>Practice and train breathing techniques (inspiration to expiration ratio of 1:2)</p> <p>Antitussives or lozenges for immediate cough suppression.</p> <p>Chair position during the treatment : Upright or semi-supine position</p>
Psychosocial	Fear in Covid-19 recovered pts.	Virtual consultations using AI based patient management screening tools
	Fear and Anxiety in Covid-19 recovered pts.	<p>Appointments to be scheduled after complete health assessment</p> <p>Family members should also accompany during the appointment.</p> <p>First or last time slot should be scheduled</p> <p>Screen the patients using "The Seattle System" for anxiety and fear</p> <p>To be treated with utmost care and empathy</p>
	Stress in Covid-19 recovered pts.	Psychotherapeutic interventions can be used
	Fear in Dentists	Learning about the virus and post-Covid symptoms
Oral health	Inflammatory reactions (salivary glands, tongue)	Dental follow-ups of recovered patients
	Pain	Acetaminophen (not exceeding 60 mg/kg/day or 3 mg/day)
	Periodontal	<p>Oral health hygiene training (online , if necessary)</p> <p>Regular online follow ups (patient management software can be used)</p>
Musco-skeletal	Associated sleeplessness and anxiety	<p>Non-pharmacological (3ps Technique by RCOT)</p> <p>Pharmacological interventions (tranquilizers, muscle relaxants or anxiolytics)</p>
	Fatigue	<p>Pre-planning the treatment</p> <p>Short appointments and relaxing dental setting</p>
Bleeding disorders	Active Bleeding	ASH guidelines for controlling bleeding (who are not under thromboprophylaxis)
Bleeding disorders (Hypercoagulability/ thromboembolic disorders/Congenital Bleeding Diathesis) Cardiac Damages (Stress cardiomyopathy)	Pain	Acetaminophen (not exceeding 60 mg/kg/day or 3 mg/day)
	Pain due to Irreversible Pulpitis/necrosis	Endodontic treatment should be considered over extraction
		Endodontic consideration : Copious irrigation with sodium hypochlorite sol.
		Endodontic consideration: Intracanal dressing to limit the bleeding from canals
		Surgical consideration: Short appointments
		Safe anaesthesia : Infiltration from the vestibule side of the mouth
		Surgical consideration: Resorbable sutures and haemostatic agent to be used
Pts.Instructions: Maintain a pressure tampon for 1- 2 hours post-extraction, No NSAID		

# CLINICAL MANAGEMENT

<b>Primary Telemedicine Examination</b>	Ask the patient about the past and present signs and symptoms of COVID-19
	Ask the patient about the treatment received for COVID-19 (supplemental oxygen, antibiotics, anti-retroviral, HCQ)
	Check the past diagnostic reports of COVID-19
	Detailed medical and medication history, course of hospital stay
	Patient counselling and treatment recommendation should be advised
	Patient to share intra oral pictures in different perspectives using phone camera in patient management software
	Share the comprehensive dental report based on screening softwares with the patient
<b>Comprehensive Covid-19 post-acute assessment</b>	Examination of gastrointestinal system
	Lifestyle assessment (physical activity, diet, alcohol consumption)
	Oxygen saturation, heart rate, blood pressure assessment
	Physical performance test (6 mins walking, hand grip and chairside stand) for the elderly patients
	Psychiatric history and quality of life assessment
<b>Dental facility considerations for Covid-19 recovered patients</b>	Short waiting time
	The appointments for the patients who have persistent symptoms should be preplanned (either first or the last appointment)
	Mandatory use of facemasks in the waiting room
	Waiting area should allow social distancing (6-feet/2metres) apart
	'Critical' heat sensitive instruments should be disinfected with 2% glutaraldehyde
	Administer frequent disinfection of touched surfaces with NaOCl and ethanol
	Disinfecting the floors of the operatory room with 1000 mg/L chlorine
	Use of HEPA filters in dental care facilities with commercial split and centralized/window Acs
	Proper ventilated dental operatory rooms
Provision for tissue paper dispenser and foot operated waster bin	
Waste disposal in accordance to the CDC guidelines	
<b>Dental Radiology</b>	Extraoral radiography (panoramic radiography or cone-beam CT)
<b>Successive follow-ups</b>	Providing the patient with cheek-retractors
	Regular follow-ups by using oral health assessment forms or patient management softwares

# FUTURE DIRECTIONS & CONCLUSION



**FURTHER RESEARCH SHOULD INCLUDE EFFECTS OF :  
COVID-19 VIRUS IN THE ORAL CAVITY  
THROMBOPROPHYLAXIS IN EMERGENT DENTAL  
TREATMENT**

**AEROSOL-GENERATION RISK IN DENTAL  
USAGE OF PERIOPERATIVE ANTIBIOTICS & ANALGESICS  
IN COVID-19 PATIENTS**



## **FRAME A GUIDING TOOL**

- To overcome the fear among dental professionals & patients
- Finding an alternative to current dental practices among all demographics

