

Effects Of Covid 19 On Dentistry - A Review

Ajith Bose.S¹, Dr.T.Manigandan²

1. Undergraduate student, SreeBalaji Dental College and Hospital, Bharath Institute of Higher Education and Research, Chennai.
2. Professor, Dept. of Oral Medicine and Radiology, SreeBalaji Dental College and Hospital, Bharath Institute of Higher Education and Research, Chennai.

Corresponding author

Dr.T.Manigandan

Professor, Dept. of Oral Medicine and Radiology, SreeBalaji Dental College and Hospital, Bharath Institute of Higher Education and Research, Chennai.

Mail id: manident@yahoo.com

Phone no: 9840726350

ABSTRACT

People affected by coronavirus disease 2019 (COVID-19) out of proportion are also at high risk for oral diseases and experience oral health and oral health care inconsistencies at high rates. COVID-19 has led to reduced hours of dental practices or even closure except for emergency services. Dental care includes aerosol releasing procedures that may increase the transmission of virus. This pandemic offers a chance for the dental professionals to change towards procedures without much aerosol, preventive approaches to care and away from surgical interventions. Regular barrier changes to oral health care access during the pandemic could have a valid impact if maintained in the future.

Keywords: Corona virus, Aerosol, Pandemic, Personal protective equipment

INTRODUCTION

On March 11, 2020, the World Health Organization declared the global spread of coronavirus disease 2019 (COVID-19) a pandemic^[1]. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a new virus without any vaccine or trusted treatment, and most people currently has really low or no immunity. The virus is predominantly transmitted by direct or indirect contact through airborne respiratory droplets from an infected person^[2]. On March 16, 2020, the American Dental Association (ADA) suggested that dental practices postpone selective dental procedures until April 6, 2020, and provide only emergency dental services to keep patients from burdening hospital emergency departments and unnecessary viral exposure. Because of the rise of infections, this suggestion was updated on April 1, 2020, when the WHO advised hospitals to remain closed to all but emergency procedures until April 30. As a result, access to dental care considerably decreased. During the week of March 23, 2020, an WHO Health Institute survey indicated that 77% of dental clinics were closed but seeing emergency patients only, 18% were completely closed, and 5% were open but treating a lesser amount of patients.

In addition to widespread of COVID-19, testing in dental offices also was not possible. Due to the inability to test all patients and the fact that asymptomatic patients could be infectious, WHO guidance shifted in mid-April 2020 for reopening different types of services, including dental services. Now the Question is about how long patients will have to wait to resume nonemergency dental care amidst other delayed health care services. This article emphasizes on why oral health care should be prioritized as public health in the response to the pandemic and aspects of dental care that make it challenging.

Importance Of Oral Health

In 2000, the primary and only Surgeon General's Report on Oral Health made clear that oral health is a component of overall health and well-being. The mouth is indispensable to eating, speaking, smiling, and quality of life. The most prevalent oral conditions are cavities and periodontal diseases, and that they are largely preventable. Dental caries is the commonest chronic childhood disease and continues into adulthood. A national data indicate that among adults 32.7% had untreated dental caries^[3]. Furthermore, from 2009 through 2013, 43% of adults aged 30 or older had periodontitis^[4].

Oral disease is unevenly distributed within the population by race and ethnicity. The progression of oral disease can cause pain, infection, sepsis and lots more, and treatment is expensive. In addition to primary prevention, in early stages the progression are often reversed or arrested with appropriate oral hygiene, fluoride exposure, dental sealants, changes in diet, and other measures.

Populations With Oral Health And Chronic Disease Disparities: Covid-19 Puts Both At Risk

People at higher risk for several chronic diseases are similar to those at higher risk for developing oral diseases. Common risk factors includes stress, poor diet, alcohol and tobacco use, substance abuse, violence, and poverty. Many of these factors have been highlighted during the pandemic. These and other social determinants of health that causes exacerbation of chronic disease and poor oral health outcomes^[5]. Populations susceptible to COVID-19, including those in low socioeconomic groups, minority groups, older adults, low-literacy individuals, those in rural areas, and therefore the uninsured also are at increased risk for oral disease and associated systemic health problems. Minority populations are especially in danger during the COVID-19 pandemic. The Centers for Disease Control and Prevention (CDC) notes that "non-Hispanic blacks, Hispanics, and American Indians and Alaska Natives generally have the poorest oral health of any racial and ethnic groups within the US" and these same populations have disproportionately higher incidence of COVID-19-related infection and death^[6].

Among those patients hospitalized with COVID-19, diabetes and other disorders are 2 of the foremost prevalent underlying co morbidities consistent with CDC periodontitis is related to diabetes and disorder although causality is difficult to determine due to of confounding evidence, and few randomized trials or longitudinal studies are conducted on the consequences of treatment^[7,8].

Scientists notes that, "The COVID-19 pandemic has alarming implications for individual and collective health and emotional and social functioning" which "health care providers have a crucial role in monitoring psychosocial needs and delivering psychosocial support to their patients"^[9]. Research suggests a robust association within oral health conditions like erosion, caries, and periodontitis and mood conditions like stress, anxiety, depression, and loneliness^[10]. There are other potential connections downstream between COVID-19 and oral health. With the COVID-19 pandemic's impact on psychological state, pandemic-related increases in oral health risk factors, and anticipated declines in per capita dental visits, increasing integrated practice and referrals between dental providers and behavioral health providers are going to be prudent. Similarly, increased efforts to more effectively integrate dental programs focused on prevention, screening, and risk assessment with medical care, obstetrics and gynecology, and pediatric offices should be pursued to expand access to oral health services for vulnerable populations.

Covid-19 And Oral Health Disparities In Access To Care

Access to oral health care is particularly limited for populations at high risk for COVID-19. Patients with symptoms of COVID-19 are advised "to avoid nonemergent dental care". Dentists are advised, "if possible, [to] delay care until the patient has recovered".

More than 49 million US residents sleep in areas designated by the Health Resources and Services Administration as Dental Health care provider Shortage areas^[11]. This shortage has been compounded by the COVID-19 pandemic, which has led to limited preventive dental services within the interest of public health safety. Emergency departments, a less-than-ideal but common treatment destination for those facing oral health care access disparities, have dropped

significantly in visits for health problems unrelated to COVID-19^[12]. School-based oral health programs, like effective dental sealant programs to prevent dental caries — the only source of preventive oral health care look after many children in vulnerable populations — have similarly been suspended due to government-mandated school closures^[13]. Nationally, children in low-income families and at higher risk of caries are less likely to receive sealants than children in higher-income families, at 38% and 45%, respectively^[14].

Access disparities are particularly acute for poor and minority populations. Researchers note that “poor and minority children are substantially less likely possess access to oral health care than their nonpoor and nonminority peers”^[11]. These populations also are more likely to lack dental insurance. A 2020 report notes, “The oral health care safety net is predicted to hide one-third of the US population, notably those that are low-income, uninsured, and/or members of racial/ethnic minority, immigrant, rural, and other underserved groups”^[15]. Many of those populations, which frequently believe Medicaid dental benefits, have seen their access restricted or eliminated by reductions during this important coverage. In 2020 it had been reported that “in response to fiscal challenges, many nations have reduced or eliminated Medicaid dental coverage over the past decade, with a concurrent 10% decline in oral health care utilization among low-income adults”. Among those in at-risk populations who do have dental benefits under Medicaid, an equivalent report notes there often “difficulty finding Medicaid-contracted dental providers, because only 20% of dentists nationwide accept Medicaid”. We will reasonably anticipate a worsening of those trends because of the COVID-19 pandemic takes an outsized proportion of national budgets.^[16]

Covid-19 And Dental Care: Aerosol-Generating Procedures Create Risk

Dental professionals are practicing increased infection control and undergoing universal precautions since the 1980s HIV epidemic. Nevertheless, oral health professionals are among those occupations at the very high risk for COVID-19, as reported by *The New York Times*^[17]. Dentists face challenges due to their proximity to infected patients. These patients’ mouths are open and unmasked during treatment, significantly increasing the potential for direct and indirect exposure to infectious materials. The Occupational Safety and Health Administration designates the performance of aerosol-generating procedures on known or suspected COVID-19 patients as “very high risk”^[18]. Shortages of personal protective equipment (PPE) and therefore the use of instruments and equipment that generate aerosols containing oral and respiratory fluids only multiply the risk. Two of the highest aerosol-creating procedures involve inventions that have been considered major advances in dental practice, because they are faster and less painful for the patient: the high-speed handpiece with its spray coolant and the ultrasonic scaler used to remove hard calculus on teeth. These dental procedures have become problematic during the pandemic, providing an opportunity to change to nonaerosolizing procedures and a greater specialization on prevention.

GOING FORWARD: OPPORTUNITIES

Focus On Prevention And Promote Nonaerosol-Generating Dental Procedures

Prevention is a cornerstone of public health. The COVID-19 pandemic presents a chance for the dental profession to shift from an approach focused on surgical intervention to at least one emphasizing prevention. Embracing nonsurgical, nonaerosolizing caries prevention and management are going to be critical during this endeavor. The profession has always supported community water fluoridation, and dental hygienists are considered prevention experts. However, the dental compensation model is predicated on providing expensive, restorative procedures that are financially out of reach for several people.

Guidelines are developed to shift the care paradigm to a more preventive focus^[19-23]. Prevention and nonsurgical caries management include many options. Evidence-based materials include dental resin sealants, glass ionomers as sealants or as a part of atraumatic restorative treatment performed with hand instruments, silver diamine fluoride, sodium fluoride varnish, and other self-applied and professionally applied topical fluorides. These materials are often applied without generating aerosols, reducing the danger of viral transmission. These methods present a serious opportunity to expand access to preventive and restorative care to look after vulnerable

populations, particularly when combined with policy changes increasing hygienists' scope of practice, sustainable payment reform, and changes within the education of oral health professionals.

Doctors and patients together have a responsibility to shift toward preventive care, particularly as COVID-19 threatens to extend disparities in oral health care access for the United States' most vulnerable populations. Before the pandemic, Birch et al noted that a review of provider and payer practices made clear that "further work was required on both the dentist and patient side to make sure that the evidence-based prevention was both implemented properly but also reimbursed sufficiently"^[23]. As health care compensation moves toward value-based care and attention on health outcomes, prevention and maintaining oral health and sound tooth structure will shift reimbursement faraway from the current expensive model of reimbursement for restoration of tooth structure and performance, specially reimbursement policies, which traditionally have incentivized surgical, high-end restorative procedures like crowns and multisurface fillings, must be revisited to prioritize preventive and nonsurgical, nonaerosolizing treatments and make them more financially sustainable.^[24]

Advance Teledentistry To Address Access Gaps

The COVID-19 pandemic has thrust alternative modalities like teledentistry to the forefront of policy considerations. Teledentistry supports the delivery of oral health services through electronic communication means, connecting providers and patients without usual time and space constraints. Teledentistry's unique ability to connect disadvantaged, primarily rural communities and therefore the homebound with dental providers makes this method particularly well-suited to deal with the lack of access care during and after the pandemic.

When many dental offices are closed and people are largely staying at home, communication and knowledge via teledentistry can help less burden of the individuals seeking dental care at overwhelmed emergency departments and urgent dental care settings. In addition to usual circumstances, teledentistry can also be used to facilitate access to preventive services and oral health education when members of the dental team can provide such services in community settings, like schools, without onsite dentist supervision.

Before COVID-19, many nations inhibited use of teledentistry through legislative barriers and limited public and personal insurance reimbursement. Compared with dentistry, many medical and behavioral health providers have less restrictive regulations and insurance reimbursement policies concerning telehealth. "Telemedicine was largely ready for the influx." Teledentistry, on the other hand, was forced to play catch-up. Emergency reimbursement changes prompted by COVID-19 have brought relief, but post-pandemic, we recommend that legislators, regulatory authorities, and third-party payers consider making permanent the temporary modifications to teledentistry policies to support increased access.

Implications For Public Health Practice: Dental Public Health's Roles

Oral health disparities and inequities are a part of larger, cultural picture. There has been a tendency to blame the victim. It is perhaps not hyperbole to explain pandemic-related circumstances as creating a "perfect storm" in oral health care. Risk factors are elevated, access for the foremost vulnerable is restricted, safety concerns are heightened, and the economy presents substantial challenges for patients and providers alike. The effects of COVID-19 are particularly acute for vulnerable populations, and the crisis has made evident the challenges and opportunities for oral health care. In such a time, oral health care providers and advocates must clearly communicate the importance of oral health to overall health, indicate the steps being taken to ensure patient and provider safety, and promote prevention and nonaerosolizing procedures. Oral health should be included in policy considerations, continued research, monitoring, surveillance, and other aspects of health. Advocacy is crucial to make permanent the temporary regulatory changes being implemented to address the immediate crisis, ensure access to oral health care, address disparities and inequities, and improve population health.

REFERENCES

1. Bahl P, Doolan C, de Silva C, Chughtai AA, Bourouiba L, MacIntyre CR. Airborne or droplet precautions for health workers treating COVID-19? *J Infect Dis* 16 april2020;jiaa189.
2. Jepsen S, Blanco J, Buchalla W, Carvalho JC, Dietrich T, Dörfer C, et al. Prevention and control of dental caries and periodontal diseases at individual and population level: consensus report of group 3 of joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. *J ClinPeriodontol* 2017.
3. Kaye EA, Sohn W, Garcia RI. The Healthy Eating Index and coronal dental caries in US adults: National Health and Nutrition Examination Survey 2011–2014. *J Am Dent Assoc* 2020;151(2):78–86.
4. Eke PI, Thornton-Evans GO, Wei L, Borgnakke WS, Dye BA, Genco RJ. Periodontitis in US Adults: National Health and Nutrition Examination Survey 2009–2014. *J Am Dent Assoc* 2018;149(7):576–588.
5. Watt RG, Sheiham A. Integrating the common risk factor approach into a social determinants framework. *Community Dent Oral Epidemiol* 2012;40(4):289–96.
6. Brian Z, Weintraub JA. Oral Health and COVID-19: Increasing the Need for Prevention, *Prev Chronic Dis* 2020;17:200-266
7. Winning L, Linden GJ. Periodontitis and systemic disease: association or causality? *Curr Oral Health Rep* 2017;4(1):1–7.
8. Liu W, Cao Y, Dong L, Zhu Y, Wu Y, Lv Z, et al. Periodontal therapy for primary or secondary prevention of cardiovascular disease in people with periodontitis. *Cochrane Database Syst Rev* 2019;12(12).
9. Pfefferbaum B, North CS. Mental health and the COVID-19 pandemic. *N Engl J Med* 2020.
10. Kisely S. No mental health without oral health. *Can J Psychiatry* 2016;61(5):277–82.
11. Bersell CH. Access to oral health care: a national crisis and call to reform. *J Dent Hyg* 2017;91(1):6–14.
12. Wong LE, Hawkins JE, Langness S, Murrell KL, Iris P, Sammann A. Where are all the patients? Addressing COVID-19 fear to encourage sick patients to seek emergency care. *N Engl J Med Catalyst* 2020.
13. Griffin SO, Wei L, Gooch BF, Weno K, Espinoza L. Vital signs: dental sealant use and untreated tooth decay among U.S. school-aged children. *MMWR Morb Mortal Wkly Rep* 2016;65(41):1141–5.
14. Northridge ME, Kumar A, Kaur R. Disparities in access to oral health care. *Annu Rev Public Health* 2020;41(1):513–35.
15. Kohn WG, Collins AS, Cleveland JL, Harte JA, Eklund KJ, Malvitz DM; Centers for Disease Control and Prevention (CDC). Guidelines for infection control in dental health-care settings — 2003. *MMWR Recomm Rep* 2003;52:1–61.
16. Gamio L. The workers who face the greatest coronavirus risk. *The New York Times*. Mar 15, 2020.
17. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. *J Am Dent Assoc* 2004;135(4):429–37.
18. Ge ZY, Yang LM, Xia JJ, Fu XH, Zhang YZ. Possible aerosol transmission of COVID-19 and special precautions in dentistry. *J Zhejiang UnivSci B* 2020;21(5):361–8
19. Slayton RL, Urquhart O, Araujo MWB, Fontana M, Guzmán-Armstrong S, Nascimento MM, et al. Evidence-based clinical practice guideline on nonrestorative treatments for carious lesions: a report from the American Dental Association. *J Am Dent Assoc* 2018;149(10):837–849.
20. Urquhart O, Tampi MP, Pilcher L, Slayton RL, Araujo MWB, Fontana M, et al. Nonrestorative treatments for caries: systematic review and network meta-analysis. *J Dent Res* 2019;98(1):14–26.

21. Al-Halabi M, Salami A, Alnuaimi E, Kowash M, Hussein I. Assessment of paediatric dental guidelines and caries management alternatives in the post COVID-19 period. A critical review and clinical recommendations. *Eur Arch Paediatr Dent* 2020.
22. Cianetti S, Pagano S, Nardone M, Lombardo G. Model for taking care of patients with early childhood caries during the SARS-Cov-2 pandemic. *Int J Environ Res Public Health* 2020;17(11).
23. Birch S, Bridgman C, Brocklehurst P, Ellwood R, Gomez J, Helgeson M, et al. Prevention in practice—a summary. *BMC Oral Health* 2015;15.
24. Decker SL, Lipton BJ. Do Medicaid benefit expansions have teeth? The effect of Medicaid adult dental coverage on the use of dental services and oral health. *J Health Econ* 2015;44:212–25.