

Dentistry finding a ray of hope in COVID pandemic!!!

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Abstract

Coronavirus disease 2019 (COVID-19) is a declared global pandemic. COVID-19 pandemic has brought the occupation of dentistry at the darkest side. Dental warriors have become transmitter and affectors of coronavirus. So due to this pandemic, the dental practice has become like double edged sword. The COVID-19 has devastating impact on dentistry across the globe. To overcome this situation, dentists are facing many challenges towards quality care, infrastructure improvement and shift of their focus of treatment etc. This review with a title "Dentist finding a ray of hope in COVID pandemic!!! which details about challenges faced protection measures and shift of treatment plan- in short dentists have to make there weakness into strengths as a ray of hope.

Key words: COVID 19, Dentistry, Challenges, Impacts

Introduction: The novel coronavirus was identified in Wuhan, China, in December 2019 in patients presenting with pneumonia of unknown origin. After a rapid escalation, on January 9, 2020, the World Health Organization declared the discovery a new coronavirus, first called 2019-nCoV and then officially named SARS-CoV-2, which had never been identified in humans before. COVID-19 has seen a violent and fast spread worldwide, which has led to the declaration of a pandemic outbreak of the coronavirus by the World Health Organization. Common transmission routes through cough, sneeze, and droplets inhalation. In addition, SARS-CoV-2 infection could occur through contact with asymptomatic patients (Muhammad A.A et al., 2020). Dental professionals appear, indeed, at high risk of contagion due to the exposure to saliva, blood, and aerosol/droplet

production during the majority of dental procedures.

COVID 19 has led the world into health and economic crisis. Although the COVID-19 pandemic has led many obstacles in areas of dental services, research, education but on another side of this pandemic had made us strong to manage the situation with modern approaches and innovative technologies through digital communication modes and platforms; with these modification enabling dentists to face future challenges (Alzahrani SB et al., 2020). Hence, present review highlighted the challenges, impacts and paradigm shift due to COVID 19 on dentistry.

Challenges:

The widespread transmission of SARS-CoV-2 in many communities, the potential for infected individuals who are presymptomatic or asymptomatic to transmit the virus to others, and

the unique nature of dental interventions with close proximity of the provider to the patient's mouth and throat, all contribute to the high risk for dental personnel teams becoming exposed and transmitting the virus to other patients or staff. Some dental procedures may lead to aerosol generation, further increasing transmission risk to dental providers or future patients through direct inhalation or contact with contaminated surfaces (Ben Ramalingam et al., 2020).

The Patient Safety Challenges:(Mostoufi B et al., 2020)

- a. Infection control and prevention in the dental office setting: Dental professionals are very familiar with occupational health issues and corresponding risk assessments in order to reduce risk, and with applying Standard Precautions for minimizing spread of infection directly or through crosscontamination.
- b. Access for patients needing oral healthcare: Delayed dental care has a variety of consequences, whether it is due to dental office closures, reluctance to seek care during a pandemic, loss of employersponsored dental insurance coverage, or other factors.
- c. Re-configuring Dental Practice: Due to the COVID-19 pandemic, new challenges may prevent the return to routine delivery of non-emergent care. Up-to-date recommendations for communications, protocols, and physical measures must be in place to resume safe patient care.

The coronavirus (COVID-19) has challenged healthcare professionals and its entire sector including physical, mental, research and dental education. This article will address the challenges and impact of this outbreak on dentistry mainly in areas of practice, dental education and its methodologies, clinical research, and psychology. All these are interrelated to one another.

A. Dental practice:

Practicing is a challenge as most of the practices including dental colleges and teaching institutions are not compatible with government norms and regulations on COVID-19. WHO has mentioned aerosol transmission as another mode

of disease spread. Dental procedures are however, conspicuous by their absence (WHO, 2020).

Impact:

Dental services has affected a lot as because of vast majority of dental procedures produce a significant amount of droplets, spatters, splashes, and bio-aerosol, close contact with patient while treating and splattering of fluids (Asma SP et al., 2020);(COVID-19 and Dentistry. 2021). So there is shift of dental services to limited or emergency service to no service. Darker side of COVID-19 is loss of economic revenue and instability. In India, dental hospital and colleges, all patient treatment for undergraduate and postgraduate students was suspended and opened only for emergency treatment by faculty in the month of March 2020. Same was observed in other dental schools of China (Meng L et al., 2020), London (Coulthard P.2020), Italy (Prati C et al., 2020). Massive financial losses during the pandemic has hastened the consolidation of dental practices(COVID-19 and Dentistry. 2021).

Paradigm shift observed:

The COVID-19 pandemic has forced dental professionals to establish new norms and operational best practices to benefit frontline workers and their patients in a new era of innovation, collaboration, and curiosity providing crucial employment opportunities and workplace safety resources for the dental community.

In an industry that can sometimes be slow to explore new methodologies or potential best practices that aren't by the book—a natural inclination, considering the nature of our life-saving work—the pandemic has accelerated emerging practices, persuaded dental service organizations (DSOs) to adopt new technologies, and shifted the care delivery model light-years forward (Farhad Attaie. 2020).

In our new reality, where real-time innovation, tele-health, and the need for cloud infrastructure have shifted patient care expectations, innovative companies have set the standard for patient-centered cloud-based practice management software and seen quadrupled growth in the past six months. Their tele health tools—viewed before the pandemic

as mere afterthoughts—have seen a dramatic increase in demand. Staffing and training models transformed in the wake of COVID-19 have allowed practices to more efficiently manage inconsistent schedules, workforce efficiency, and workplace safety (Farhad Attaie. 2020).

In some countries, a platform was created to keep financial transparency to procure the material. The platform allows users to compare prices for dental supplies across several suppliers and streamlines procurement and inventory management.

During the global pandemic, the dental practice has undergone five key shifts that will lead to vast potential across infrastructure, geographic distribution of providers, and care settings (Farhad Attaie. 2020).;

1. **Data-driven models:** Operational excellence and efficiency will be driven through the adoption of critical data-driven models.
2. **Transparent dental procurement:** Supply chain management and dental procurement has optimized dental professionals and practices.
3. **New infrastructure technologies:** The emergence and adoption of new infrastructure technologies will create efficiencies in dental workplaces.
4. **Bold learning at scale:** The intersection of dentistry and modern education technology has allowed for streamlined learning. This has been exemplified by the free Smart Safety COVID-19 courses.
5. **Collaboration for social impact:** Dental practitioners across the country have created support groups and resource-sharing communities that help our community grapple effectively with the financial, emotional, and mental stressors of the pandemic.

B. Dental Education:

Main base for control of COVID 19 is Hand washing frequently, Social distancing and wearing face mask. Dentistry is primarily a profession in clinical practice, the use of strategies in virtual learning remains as a challenge (Alzahrani SB et al., 2020).

Dentistry and dental services mainly dependent on skill development in areas of soft skill, communication skill and manual dexterity,

fine motor skills and cognitive skills. COVID situation has ruined all these forms of education in dentistry (Alzahrani SB et al., 2020).A big challenge for even for dental educators too. A lot of prepreparation is required to develop skills in such a way that students are in clinical environment and done the case (Iyer P et al.,2020).

Impact:

Face-to-face teaching, hands-on laboratory training, and clinical training under supervision had been halted for both undergraduate and postgraduate students.

Paradigm shift observed:

Alternative modes of presentation and assessment teaching through written online reports, multimedia workshops, problem-solving sessions, webinars, and computer-based exams.^[13]But these led impact on education modes at an early phase where class room has turned into online, pre-clinics have been converted into laboratory pre-clinical simulation activities. Simulation of mannequins and videos, clinical orientation turned in to case/clinical scenario.

Virtual reality simulator is one of the efficient methods during this pandemic era. This is recent advancement of haptic technology has fitted the VR simulators which enables trainee to have feel and touch sensation which is one of the skill required for dental practice. With this technique students have shown improvement in hand eye coordination fine motor and reflective skills (Barabari P et al., 2020).

Internet is a boon during this isolation period. It helped to connect with each other. Academic oriented many technology based application were invented to cater education such as Zoom, Google meet, Google Classroom etc (Jennifer L.W.2020).

At institutional level (Asma SP et al., 2020),

1. Mandatory on-job infection control training of dental providers and students.
2. Identifying standard training component for infection control and prevention such as precautionary measures, mode of transmission, and its prevention.
3. Development and implementation of evidence-based triage process to prioritize and manage infectious patients.

C. Dental Research:

Research in dentistry, university-based patents, strategic innovation partnership, deployment, or usage of new technology in academic institutions, coupled with start-ups and ventures by students, these are all important factors to benefit the peoples and economies around the world (Alzahrani SB et al., 2020). Travelling grants are getting shifted to research work, presenting research findings, conference allowance etc.

COVID 19 pandemic resulted in the cancellation of the Local, State, National and International Conferences, Symposium, Workshops since March 2020 in most of the countries (Coulthard P.2020); (Prati C et al., 2020); (Barabari P et al., 2020).

Impact:

All this led to collapse of research programs and grants, suspension of academic conferences, graduation ceremonies & ceremonies of convocation and dramatic shifts in preplanned projects and activities. Moreover, COVID 19 influenced recruiting new academics and scientists, causing psychological impacts on students and faculty (Emami E. 2020).

Paradigm shift observed:

New policies and regulations have been made to UGs and PGs research activities during this pandemic such as limiting non-essential research activities, suspension of most laboratory-based dental research projects (Barabari P et al., 2020).

In this digital era, due to this pandemic many national and international universities are getting connected through online and discussing to tackle the obstacles together. But interestingly research work towards this COVID is increased.

D. Psychological:

Covid 19 pandemic has led anxiety and depression among students, faculty and practitioners that being affected with virus. As many students were far from their parents and friends initially leading to a panic state where they didn't know what exactly to be done as teaching is through online.

Impact:

Surveys have shown the depression, feeling lonely and headaches among students (Coulthard P.2020); (Barabari P et al., 2020); (Quinn B, 2020) during this pandemic. Our dental frontline workers have faced the

unprecedented stress of caring for patients in risky and sometimes untenable working conditions, as COVID-19 continues to reveal inadequacies, inconsistencies, and inequities in our systems (Moraes RR et al., 2020). Unlike others dentists too had associations of regional COVID-19 incidence/mortality with fear of contracting the disease at work (Moraes RR et al., 2020).

Paradigm shift observed:

In the midst of such tragedy and uncertainty, there is the possibility to rebuild better. The immediate response to the public health crisis is causing drastic shifts in how and where care is provided to our communities.

The COVID-19 pandemic has forced dental professionals to establish new norms and operational best practices to benefit frontline workers and their patients, ushering in a new era of innovation, collaboration, and curiosity (Farhad Attiaie.2020). As a result, lot of dentists underwent training to handle current situation (Moraes RR et al., 2020).

The traumatic and collective experience of 2020 has demonstrated the potential for fundamental and revolutionary shifts in the dental delivery model—from the training of dental workers, to the sourcing and inventory management of critical care equipment and PPE, to the optimal settings for care delivery and how it is reimbursed. The future success of dental professionals will be determined by our ability to remain hypervigilant, adjust to the new normal, deal with a specific set of new or accentuated challenges, and capture new opportunities at optimal speed.

Conclusion:

COVID 19 has led the dentistry on darker side by making difficult at service, research and education. But however, dental educators are now gearing up with new technologies and online application to provide education, research. The COVID-19 crisis has taken dentistry with innovative technologies for e-oral health education and services, as well as tele-dentistry. This unfortunate event can act as a wake-up call for our dental profession. Take this call as an opportunity and prepare ourselves to face further waves or another situation.

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