

Adapting to a Post-Pandemic Era: The Impact of COVID-19 on Dental Practices and Professionals

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Abstract: The COVID-19 pandemic necessitated significant modifications in dental practices to mitigate the risk of virus transmission. This editorial explores the multifaceted impacts of these changes, focusing on the adoption of enhanced Personal Protective Equipment (PPE), intensified sterilization procedures, and reorganization of clinic layouts to facilitate social distancing. Dental practices also implemented pre-screening protocols and adjusted scheduling to minimize in-clinic transmission. Despite these measures, dental professionals faced high levels of anxiety due to the proximity required in their work, leading to concerns over personal and family health. This stress was exacerbated by uncertainties regarding the adequacy of infection control measures at their workplaces. The pandemic also had a profound economic impact on dental practices, influencing patient volumes, operational costs, and financial stability. To cope with these challenges, practices adopted new technologies like teledentistry, which helped maintain care continuity while reducing transmission risks. This editorial highlights the dual challenge faced by dental professionals during the pandemic: ensuring both the safety of care delivery and the mental well-being of providers. It underscores the need for ongoing support and intervention to address these challenges, emphasizing the importance of sustaining dental services and the well-being of both providers and patients.

Keywords: Dental Practice Adaptations; Mental Health of Dental Professionals; Economic Impact and Teledentistry.



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Dear authors,

During the COVID-19 pandemic, dental practices underwent extensive modifications to address the elevated risks of virus transmission in such high-contact environments. A major component of these changes involved the comprehensive use of Personal Protective Equipment (PPE). N95, FFP2, and KN95 respirators became standard equipment, chosen for their high filtration efficacy which is crucial in controlling the spread of aerosols during dental procedures [1]. Sterilization practices also saw significant enhancements. The protocols for cleaning and disinfecting surfaces were intensified, and there was widespread adoption of pre-procedural mouth rinses to reduce microbial load in aerosols produced during treatment [2]. Moreover, the layout of clinics was often reorganized to facilitate social distancing, with modifications such as plexiglass barriers and removal of shared items in waiting areas to minimize cross-contamination [3].

To further minimize the risk of in-clinic transmission, dental practices shifted towards pre-screening patients for COVID-19 symptoms and potential exposure prior to appointments. The scheduling of patients was strategically planned to reduce waiting times and limit the number of individuals present in the clinic at any given time [2].

These adaptations were not only aimed at protecting patient health but also at safeguarding dental health professionals from the heightened exposure risks inherent to their procedures. The effectiveness of these measures has been underscored by the ongoing adjustments and recommendations for continued vigilance as the pandemic evolves [1].

As the COVID-19 pandemic prompted substantial modifications in dental practices, including enhanced PPE usage, intensified sterilization, and clinic reorganization to prevent virus transmission, it also significantly affected the mental health of dental professionals. Facing high risks of infection due to close patient contact and aerosol exposure, many dental workers experienced profound anxiety about their own health and the safety of others, underscoring the dual challenge of safeguarding physical health while managing psychological stress in high-risk healthcare environments. Thus, the COVID-19 pandemic has significantly impacted the physical and psychological health of dental professionals, mirroring the challenges faced by many healthcare workers globally.

Dental professionals have been identified as a group at high risk due to their close proximity to patients and exposure to aerosols during treatments, which intensifies their fear of infection for themselves and concerns about transmitting the virus to others. Research conducted among dental health personnel in Norway highlighted that a large majority of dental professionals expressed substantial fear regarding COVID-19, affecting their mental well-being. Many reported fears of being infected, infecting others, and concerns about their family members becoming infected. This anxiety persisted across different phases of the pandemic and was evident even among those who were fully vaccinated. The study underscored the psychological burden carried by dental professionals during such infectious disease outbreaks, indicating persistent fears related to personal and family health risks [4, 5].

Additionally, the responses from dental professionals revealed concerns about the adequacy of infection control measures and equipment at their workplaces, which significantly contributed to their stress levels. Despite some feeling that their workplaces were well-prepared, there remained a considerable proportion who were uncertain about their safety and the effectiveness of the measures in place to prevent the spread of COVID-19 [5]. Overall, these findings underscore the need for ongoing support and interventions aimed at addressing the mental health and safety concerns of dental professionals, ensuring they have access to adequate protective measures and mental health resources. This support is crucial not only for their own health but also for the safety and confidence of the patients they treat.

While the COVID-19 pandemic heightened concerns among dental professionals about the adequacy of infection control and contributed to stress over workplace safety, it also inflicted a profound economic impact on dental practices worldwide. These dual pressures highlight the critical need for comprehensive support systems that address both the economic challenges and the mental health and safety concerns of dental professionals, ensuring the sustainability of dental services and the well-being of both providers and patients.

The COVID-19 pandemic has had a profound economic impact on dental practices globally, affecting various aspects such as patient volumes, operational costs, and the financial stability of practices. A survey conducted in Germany revealed that one-third of the predominantly self-employed dentists experienced a collapse or had to implement quarantine measures. Small practices were found to be less affected compared to larger ones, and there was a notable increase in average monthly costs across all practice structures due to the pandemic [6]. In the United States, the American Dental Association's Health Policy Institute (HPI) conducted regular polls to gauge the economic conditions facing dentists during the pandemic. These surveys illustrated a significant reduction in patient volume initially, though levels began to stabilize by late 2021. Around this time, patient volumes were reported to be at approximately 90% of pre-pandemic levels. Despite these challenges, by October 2021, three-quarters of dentists expressed confidence in the recovery of their practices. To manage financial sustainability, about one in five dentists raised fees, and others changed dental material suppliers or labs [6].

Furthermore, the economic relief measures, such as government support, played a crucial role in helping dental practices navigate the financial hardships brought on by the pandemic. Many practices received aid that helped them cover the increased costs of PPE and adapt to new safety protocols, which were essential for continuing operations during the health crisis. Overall, while the dental sector experienced significant economic strain during the peak periods of the pandemic, there are signs of recovery and adaptation as practices adjusted operations and financial strategies to meet the ongoing challenges.

As government support helped dental practices manage financial hardships and increased costs for PPE during the pandemic, there was also a significant acceleration in adopting new technologies such as teledentistry. This shift not only helped maintain continuity of care with minimal virus transmission risk but also facilitated the sector's adaptation and recovery by integrating innovative operational strategies and financial planning to overcome ongoing challenges.

The COVID-19 pandemic has significantly accelerated the adoption of new technologies in dental practices, particularly tele-dentistry. This adoption facilitated remote consultations, pre-screening of patients, and even some aspects of dental treatment planning and follow-up care. A variety of studies have evaluated the effectiveness and patient acceptance of these new technologies. Teledentistry has proven to be a valuable tool in maintaining continuity of care while minimizing the risk of virus transmission. It has been widely used for patient triaging, dental consultations, and treatment planning. Research indicates that tele-dentistry is effective in improving access to dental care and maintaining the quality of services provided. For instance, in Ontario, Canada, about half of the dentists surveyed during the pandemic reported using teledentistry, with the technology primarily employed for patient triaging and follow-up care. Despite some challenges, the majority acknowledged teledentistry's reliability for these purposes [7, 8].

Moreover, systematic reviews have shown that teledentistry has been beneficial across various dental practices, enhancing access to care and reducing related costs [9]. In the ASEAN region, tele-dentistry has been applied in diverse ways, including teleconsultation, tele-diagnosis, and tele-education, with tele-diagnosis being the most common use. This broad application highlights the versatility and adaptability of teledentistry in addressing different dental care needs [10]. Despite the technological advances and the integration of teledentistry into dental practices, there remain barriers and challenges to its broader adoption. These include technological infrastructure limitations, billing issues, and the need for greater acceptance among dental professionals [10, 11]. Nevertheless, the overall response to teledentistry has been positive, demonstrating its potential to transform dental care delivery effectively and efficiently. These findings underscore the importance of continuing to develop and refine digital health strategies within the dental sector to ensure they can meet the needs of both practitioners and patients in a post-pandemic world.

The COVID-19 pandemic has significantly influenced patient attitudes and behaviors towards dental care. Patients have become more cautious about their health, particularly in the context of dental visits, due to concerns about virus transmission in dental settings. This shift has been marked by increased anxiety about the potential for COVID-19 infection during dental appointments, which has led some patients to delay or avoid non-urgent dental care. A systematic review revealed that the pandemic led to a sudden suspension of elective dental treatments and a slow resumption, affecting patient perceptions significantly. Many patients avoided dental visits unless necessary, driven by fear of infection. This trend has implications for dental health, as delayed care can lead to worsening conditions [12].

In Australia, a study conducted in a university dental clinic explored how socio-economic status influenced patients' perceptions of risk associated with dental visits during the pandemic. It was found that individuals from lower socio-economic groups were less influenced by pandemic-related fears compared to those from higher socio-economic groups, who exhibited more caution [13]. Moreover, research conducted in the U.S. showed that chief patient concerns included contracting COVID-19 from other patients

or dental staff, as well as from aerosols produced during dental procedures. Patients suggested improvements such as not scheduling multiple patients in the waiting area simultaneously to reduce perceived risks. These studies highlight the need for dental practices to adapt their procedures and communication strategies to address patient fears and encourage safer, more confident access to necessary dental care during and beyond the pandemic era.

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