

Original Article

# Experiences of Dental Surgeon in Providing Dental Health Care during Covid-19 Pandemic

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**Abstract:** The COVID-19 pandemic has presented unprecedented challenges to healthcare systems worldwide, including dental healthcare. This study investigates the experiences and challenges encountered by physicians providing dental healthcare during the pandemic in Bangladesh. Conducted as a descriptive cross-sectional study among 171 dental surgeons at Dhaka Dental College Hospital, data were collected via structured questionnaires covering demographic characteristics, clinical experiences, infection control measures, and mental health impacts. Results reveal significant challenges, including inadequate personal protective equipment, increased workload, and concerns about viral transmission. Despite these challenges, positive coping strategies and recommendations for improvement were identified. Strengthening infection control measures, providing mental health support, and enhancing waste management practices emerged as crucial steps to ensure the safety of both patients and healthcare professionals. Collaboration between healthcare authorities, educational institutions, and healthcare professionals is essential to effectively implement these recommendations. This study contributes valuable insights into the specific challenges faced by physicians providing dental healthcare during the COVID-19 pandemic in Bangladesh, highlighting the need for targeted interventions to address these challenges and enhance preparedness for future outbreaks.

**Keywords:** COVID-19, dental healthcare, physicians, Bangladesh, pandemic

## 1. INTRODUCTION

The severe acute respiratory syndrome coronavirus 2 (SARs-CoV-2) has been spreading globally since late December 2019, raising the possibility of Coronavirus disease 2019 (COVID-19), a global public health emergency [1, 2]. Globally, the illness has impacted millions of people. Iran had more than 7.5 million confirmed cases of COVID-19, making it one of the most impacted countries [3]. To stop the spread of COVID-19, public spaces, especially dentistry offices and faculties, were temporarily closed in Iran and many other nations [4]. However, because there is a chance of serious problems, dental care cannot be put off for an extended length of time [5]. Therefore, recognizing the flaws in a dental care system is essential to addressing current oral health issues during the COVID-19 pandemic and getting ready for future

international issues [6]. Because they work with patients and human fluids, as well as because they produce large amounts of droplets and aerosols, dental practitioners have been exposed to a number of airborne diseases, including COVID-19 [7, 8]. Numerous investigations have been carried out about the measures implemented in dental clinics to reduce the spread of infections, with an emphasis primarily on infection control [9]. Studies have documented the shortcomings and obstacles associated with the provision of dental treatment, however. According to a Polish survey, dental professionals' concern and the decline in dental procedures were caused by inadequate personal protective equipment (PPE), poor coordination of pandemic-related health services, and a shortage of PPE [10]. In another study, decreasing patient engagement was the consequence of higher treatment expenses brought on by the increased use of protective measures [11]. Dental healthcare has encountered particular difficulties among the impacted healthcare fields because of the fundamental characteristics of dental treatments, which frequently entail intimate patient contact, direct contact with blood and saliva, and the production of aerosols [12]. Because of this increased risk of viral transmission, dental healthcare workers have to take extra precautions to prevent infection and make adjustments to their clinical practices to lessen the possibility of Covid-19 spreading [13]. Similar to numerous other nations, Bangladesh has been battling the effects of the COVID-19 pandemic on its healthcare system [14]. The dental healthcare industry, which consists of a network of hospitals and dental clinics owned by the government and the private sector, has been especially susceptible to the difficulties brought about by the pandemic [15-17]. One of Bangladesh's top dental healthcare facilities, Dhaka Dental College Hospital, has been at the forefront of providing dental care services despite the epidemic, despite many difficulties and complexity particular to the country. The experiences of doctors who treated patients for oral conditions during the COVID-19 pandemic in Bangladesh provide important insights into the larger difficulties faced by medical practitioners in environments with inadequate resources. It is essential to comprehend these experiences in order to develop evidence-based solutions that will improve future pandemic and public health emergency preparedness, resilience, and response [16]. This study examines the challenges faced by dental healthcare professionals in Bangladesh, focusing on demographic characteristics, clinical experiences, infection control measures, and mental health impacts. It aims to identify opportunities for improvement in clinical practice and healthcare policy, and inform evidence-based interventions to strengthen resilience in resource-limited settings. The study also contributes to global efforts to strengthen dental healthcare systems' preparedness and response to pandemics, highlighting the importance of robust healthcare systems and effective infection control measures. So the current study aims to explore the experiences, challenges, and coping strategies of physicians providing dental healthcare facilities during the COVID-19 pandemic.

## 2. MATERIALS & METHOD

This study adopted a descriptive cross-sectional design to explore the experiences, challenges, and coping strategies of physicians providing dental healthcare services during the COVID-19 pandemic. The cross-sectional approach allowed for the collection of data at a single point in time, providing a snapshot of the study population's characteristics and experiences. Institutional Review Board (IRB) approval was obtained from the National Institute of Preventive and Social Medicine (NIPSOM). The study was conducted at Dhaka Dental College Hospital, Dhaka, Bangladesh. Data collection occurred over a period of one year, from January to December 2021. However, due to the emergence of the third wave of the COVID-19 pandemic, the data collection period was extended to include data collected from December 22, 2021, to January 11, 2022. The study population consisted of physicians involved in the provision of dental healthcare services at Dhaka Dental College Hospital. This included both male and female physicians who had been practicing

dental healthcare for a minimum of six months. Physicians providing dental healthcare services for at least six months and physicians who provided informed written consent to participate in the study were included in study after calculation, the desired sample size was determined to be 384.16, rounded up to 384. To account for non-respondents, the sample size was increased by 10% to 422. However, within the data collection period, data were obtained from 171 respondents. Convenient sampling technique was employed for this study, allowing for the selection of participants based on their availability and willingness to participate. Data were collected using pretested structured questionnaires and an observational checklist. The questionnaires were designed to gather information on physicians' demographic characteristics, clinical experiences, infection control measures, and mental health impacts. The study commenced with a comprehensive literature review followed by the development and finalization of the research protocol. Subsequently, the questionnaire was finalized, and data collection was conducted at Dhaka Dental College Hospital. Before data collection, the questionnaire underwent pre-testing among physicians at Said Suhrawardy Medical College, Dental Unit. Necessary modifications were made based on the findings of the pre-testing phase. Written permission was obtained from the Director of Dhaka Dental College Hospital prior to data collection. Informed written consent was obtained from the participants, and questionnaires were distributed to eligible physicians. Multiple visits were made to ensure adequate questionnaire distribution, and reminders were sent to encourage participation. Following data collection, the collected data were checked for accuracy and completeness. Editing, compiling, coding, and categorizing were performed to ensure data quality and relevance. Subsequently, the data were entered into a computer for analysis, error detection, and consistency maintenance. Data were analyzed using IBM SPSS version 23 and Microsoft Excel. Descriptive statistics such as frequency and percentage were employed to summarize the data. Statistical tests including Pearson's chi-square  $\chi^2$  were conducted to determine statistical significance. Additionally, observational checklists were completed by the researcher.

### 3. RESULTS & DISCUSSION

The study analyzed various demographic and professional characteristics of physicians providing dental healthcare during the COVID-19 pandemic.

**Demographic Characteristics:** The respondents were primarily within the age groups of 20- 30 years (38.0%) and 31-40 years (47.9%). The majority were female (57.8%) and Muslim by religion (93.5%). Most respondents were married (56.8%) and belonged to nuclear families (74.3%). Regarding educational qualification, 68.6% were graduates, and 31.4% were postgraduates.

**Professional Characteristics:** In terms of employment status, 58.9% of respondents were trainees, and 41.1% were employed in hospitals. Among them, 30.3% worked in the Oral Surgery department, followed by 20.5% in Conservative, 14.1% in Orthodontics, and 11.4% in Prosthodontics department.

**Work Environment and Practices:** Respondents reported varying durations of total job experience, with 45.7% having 6 months to 2 years of experience. Regarding current job duration, 53.0% reported working in their current hospital for 6 months to 1 year. The majority (60.2%) reported having 5 to 10 doctors working in their department.

**COVID-19 Pandemic Response:** During the pandemic, 35.1% of respondents performed overloaded work, and among them, 87.5% tested positive for COVID-19, indicating a significant association ( $p < 0.001$ ). Additionally, 85.4% provided only emergency services during the pandemic.

**Infection Prevention and Control Measures:** Regarding infection prevention and control, 96.7% of respondents used disinfectant solutions for surface cleaning, while 88.3% used color-coded bins for waste collection. However, only 9.9% segregated waste according to the color of the bin.

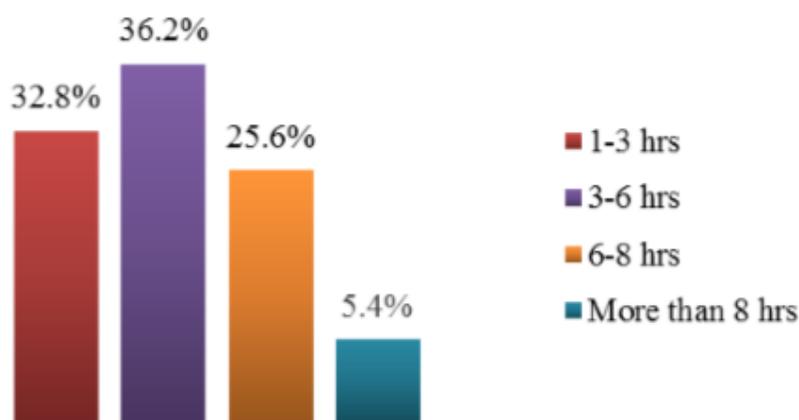
**Personal Protective Equipment (PPE) Use:** The majority of respondents reported using masks (67.4%) and gloves (66.3%) as part of their PPE. However, only 44.2% used gowns, and 25.4% used face shields. Figure 1 show the duration of wearing PPE by the respondents. 36.2% of the respondents wore PPE for 3 to 6 hours, 25.6% for 6-8 hours and 5.4% for more than 8 hours.

**Challenges and Preparedness:** Respondents faced challenges during the pandemic, including difficulties in transportation (75.4%) and wearing PPE (66.5%). Most respondents (94.7%) expressed fear of being infected, while 83.0% had to go for self-isolation due to potential exposure.

**Tele-Dentistry and Hospital Supervision:** During the pandemic, 85.9% of respondents provided tele-dentistry services, and 91.2% reported regular monitoring and supervision by hospital authorities.

**Observation Checklist Findings:** Observations revealed various measures implemented by hospitals, such as hand hygiene facilities (100%), patient registration (100%), and disinfection booths at entrances (100%). However, there was a lack of separate entrances for suspected COVID-19 patients and segregation of waste according to color-coded bins.

Overall, the study provides valuable insights into the demographic characteristics, professional practices, and challenges faced by physicians providing dental healthcare during the COVID-19 pandemic, highlighting the importance of implementing adequate infection prevention and control measures and ensuring the availability of appropriate PPE.



**Figure 01:** Distribution of the respondents according to duration of wearing PPE (n-171)

Table 01: Findings of observation checklist

Status/Conditions	Yes	No
Separate entrance for suspected COVID-19 patient		✓
Disinfection booth at entrance		✓
Restriction of entry without mask		✓
Hand washing facility	✓	
Proper signage system	✓	
Registration of the patient	✓	
Maintaining social distance in waiting area		✓
Patient using mask in waiting area	✓	
Poster regarding COVID-19 awareness	✓	
Well-equipped consultation room for doctors	✓	
Doctor use PPE	✓	
Restriction of attendance	✓	
COVID-19 related history prior to service	✓	
Body temperature measurement facility	✓	
Precaution to prevent cross infection		✓
Cleanliness of the environment		✓
Color coded bin	✓	

## DISCUSSION

The findings of this study align with previous research conducted in similar contexts, highlighting consistencies and disparities in demographic and professional attributes [17]. The prevalence of certain demographic characteristics underscores the diverse backgrounds and social contexts of healthcare professionals, influencing their experiences and coping mechanisms during the pandemic [18]. Comparisons with studies conducted in Dhaka and other regions provide insights into the profile of healthcare providers engaged in dental services during this critical period [19]. Additionally, the study elucidates the impact of the pandemic on clinical practices and infection prevention measures adopted by physicians, corroborating findings from previous literature [20]. The observations regarding hospital preparedness and infection control measures underscore the importance of robust institutional protocols and regulatory oversight [21]. Addressing gaps in infrastructure, training, and compliance is imperative for enhancing pandemic preparedness and response within healthcare settings. Comparisons with similar studies conducted in Dhaka and other regions reveal both consistencies and disparities in demographic and professional attributes, possibly influenced by variations in sample size, geographical context, and healthcare infrastructure. Notably, the prevalence of certain demographic characteristics such as marital status, family composition, and residential arrangements underscores the diverse backgrounds and social contexts of healthcare professionals, which may impact their experiences and coping mechanisms during

the pandemic. The professional characteristics highlighted in the study, including educational qualifications, employment status, departmental affiliations, and clinical experience, offer valuable insights into the composition and distribution of healthcare providers within the dental healthcare system. The predominance of graduates and trainees, along with the distribution of respondents across different departments, reflects the multifaceted nature of dental care delivery and the specialized expertise required to address diverse patient needs. The study also elucidates the impact of the pandemic on clinical practices and infection prevention measures adopted by physicians. The shift towards emergency services, the implementation of precautionary measures such as patient screening and infection control protocols, and the utilization of tele-dentistry highlight the adaptive response of healthcare providers to mitigate the risk of COVID-19 transmission while ensuring continuity of care. However, the challenges encountered in maintaining adequate PPE supplies, ensuring adherence to safety protocols, and addressing logistical constraints underscore the systemic vulnerabilities and resource constraints faced by healthcare institutions amidst the pandemic. The findings pertaining to physicians' perceptions of risk, fear of infection, and psychological distress underscore the profound psychosocial impact of the pandemic on frontline healthcare workers. The prevalence of anxiety, depression, and concerns about personal and familial safety underscores the need for comprehensive support mechanisms, including mental health interventions and institutional support structures, to address the emotional and psychological well-being of healthcare professionals. Furthermore, the observations regarding hospital preparedness, waste management practices, and infection control measures highlight the importance of robust institutional protocols and regulatory oversight to ensure the safety and well-being of both healthcare providers and patients. The identification of gaps in infrastructure, training, and compliance underscores the imperative for continuous quality improvement initiatives and capacity-building efforts to enhance pandemic preparedness and response within healthcare settings.

#### 4. CONCLUSIONS

During this pandemic, physicians Bangladesh. As unique characteristics of dental procedures involve close proximity with patients, direct contact with saliva and blood, and the production of aerosol/droplets, the risk of contagion increases significantly. The study found insufficiency of medical staff as well as medical equipment was common. Apart from this, shortages of PPE, fear of being infected, social exclusion, and mismanagement contributed further to putting healthcare professionals in adversity. However, positive emotions and coping strategies were also identified. Although the National Health Policy of Bangladesh recommends enhancing skilled manpower and logistic support, the actual scenario was different during the COVID-19 outbreak. Lack of a standardized protocol for the dentistry profession to manage COVID-19 patients kept physicians under constant risk of infection and mental pressure. The results emphasize the importance of a safe working environment and the implementation of proper infection control measures. This may help target specific areas that need to be addressed to reduce the psychological impact on dental professionals and prepare them better for future outbreaks.

#### 5. RECOMMENDATIONS

The study concludes that healthcare professionals need to be supported with adequate resources. There are some recommendations e.g., specialized Training Programs should be arranged. Develop and implement specialized training programs for dental practitioners focused on patient management during pandemics, emphasizing infection control measures and safety protocols; Institute should strengthen infection control measures; Hospital authorities should organize training sessions on proper donning and

doffing procedures for PPE to ensure effective protection and minimize the risk of contamination. Prioritize Mental Wellness: Place greater emphasis on the mental wellness of healthcare professionals, providing access to resources and support services to address psychological distress and promote resilience. By implementing these recommendations, stakeholders can contribute to strengthening the resilience of dental healthcare systems, safeguarding the well-being of healthcare professionals, and enhancing the quality and safety of patient care during pandemics and beyond. Further research is needed to deepen our understanding of these issues and inform evidence-based strategies for future pandemic preparedness and response efforts.

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