

From Lockdown to Slow Release: Pediatric Dental Services during COVID-19 Pandemic—Emergency Preparedness and Impact on Future

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ABSTRACT

Introduction: The emergence of novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causing coronavirus disease 2019 (COVID-19) has led to global pandemic raising significant challenges to the healthcare professionals due to its high transmission rate via droplet spread or direct contact. Pediatric dentists play an important role in the healthcare system by managing dental emergencies in children while taking special measures to practice universal infection control in this COVID-19 pandemic. However, data are limited pertaining to the prevalence, etiology, and treatment provided to children at pediatric dental emergency services during the COVID-19 lockdown period.

Aim and objective: To assess the effect of the COVID-19 pandemic lockdown period on Pediatric Dental Emergency Services.

Materials and methods: A retrospective study was conducted using data of patients aged 0–14 years who visited the Pediatric Dental Emergency Services, during the COVID-19 lockdown period from March 23, 2020, to August 31, 2020. Information regarding age, gender, time of presentation, chief complaint, and treatment were collected and analyzed.

Results: This study revealed that dental emergencies in the pediatric dental services were predominantly related to dental pain (54.49%) followed by an abscess (12.35%), traumatic dental injuries (8.42%), and swelling (8.42%). A 5-year-old was the most prevalent age-group who reported dental emergencies.

Conclusion: Dental pain was the most common chief complaint of patients reporting during the COVID-19 pandemic. However, the recent state of affairs obligates the need to strike a balance between the safety of the healthcare professionals and providing optimum dental care to the patients requiring emergency intervention. While dental emergencies are unforeseeable, increasing community awareness about proper at-home care routines and utilizing regular dental preventive measures can potentially reduce the number of emergency visits.

Keywords: Coronavirus disease 2019, Emergency management, Lockdown, Pediatric dental emergency services.

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INTRODUCTION

The whole world has witnessed the treacherous spread of coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from the beginning of the year 2020. Initially, the outbreak occurred in China, which expeditiously encroached the whole world. The World Health Organization (WHO) therefore declared it as a global pandemic on the recommendation of the International Health Regulations (2005) Emergency Committee on March 11, 2020.¹ This infectious disease has led to countries undergoing a lockdown, subsequently leading to a restriction on mass gathering, shutting down of businesses, closure of schools and universities, and thus a full scale down in the worldwide economy.

Due to the COVID-19 pandemic, a multinational lockdown has raised inevitable challenges in the routine procedures for dentists and has brought palliative care and telemedicine to the forefront.² The Centers for Disease Control and Prevention (CDC) had released guidelines in April 2020 which states, whenever possible, if dental treatment can be delayed, offer patients with detailed homecare instructions and appropriate medications. It had also recommended that patients with active COVID-19 infection be seen in dental settings and referred for emergency medical care.³ The recommendation from all global healthcare authorities is to triage dental patients using the latest concepts like teledentistry.⁴

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The Indian Society of Pedodontics and Preventive Dentistry (ISPPD) had also recommended an advisory for pediatric dentists using the acronym CORONA which comprised of C (clean, cover, and confine), O (observe, online, or telephonic consultation as possible), R (restrict to emergency treatment only and all elective treatment to be postponed as far as possible), O (obey), N (no aerosol), and A (avoid).⁵ These guidelines were strictly followed by the Maulana Azad Institute of Dental Sciences (MAIDS), a premiere top-ranking dental institute in the capital city of India to provide emergency dental services to the needful.⁶ Hence, the present study was

conducted to assess the effect of the COVID-19 pandemic lockdown period on Pediatric Dental Emergency Services.

MATERIALS AND METHODS

Pediatric dental services focused on emergency treatment during COVID-19 pandemic lockdown in India. A retrospective cohort study was conducted from March 23, 2020, to August 31, 2020, in the Department of Pediatric and Preventive Dentistry, Maulana Azad Institute of Dental Sciences, New Delhi, to assess the effect of the COVID-19 pandemic lockdown period on Pediatric Dental Emergency Services. Nationwide lockdown in India was declared on March 23, 2020, till the end of May, allowing only emergency services to function, followed by the unlocking phase from June 1, where relaxation to various activities was done in a graded manner. Data from each patient record sheet, including date of visit, age, gender, the reason for an emergency visit, and treatment rendered, were collected. Nature of emergency visit was recorded from the retrospective data as dental pain, abscess, swelling, traumatic dental injuries, tooth eruption/exfoliation problems, loss of restoration, removable appliance follow-up, gingival problems, and ulceration. Similarly, treatment rendered to patients was recorded, which were extraction, root canal access opening, trauma management, medical management, irrigation and dressing of root canal, and atraumatic restorative treatment. Data were numerically coded and analyzed using the Statistical Package for Social Sciences 21.0 (SPSS Inc., Chicago).

RESULTS

A total of 356 patients, out of which 57.58% (205) males and 42.41% (151) females, reported to the Pediatric Dental Emergency OPD during the COVID-19 pandemic (Fig. 1). There was a gradual increase in OPD from March to August, which can be attributed to complete lockdown from late March to May, followed by relaxation in restrictions during the unlocking phase (Fig. 2).

Most children seeking dental emergency services were of age 5 years (13.5%). The age distribution for children visiting Pediatric Emergency Dental OPD is presented in Figure 3. Reasons for seeking emergency dental treatment included dental pain 54.49% (194), abscess in 12.35% (44) cases, traumatic dental injuries in 8.42% (30) cases, swelling in 8.42% (30) cases, loss of restoration in 6.46% (23) cases, tooth exfoliation or eruption problems in 4.77% (17) cases,

and others which included aphthous ulcers in 1.68% (6) cases, appliance activation in 1.40% (5) cases, follow-up visits of surgery in 1.12% (4) cases, and gingival problems in 0.842% (3) cases as shown in Figure 4.

The management for dental emergencies mostly included medical treatment (mainly analgesics and antibiotics) for pain and infection control in 39.09% (147) of all patients. Extraction as a treatment modality was carried out in 17.28% (65), root canal access opening was done in 15.42% (58), irrigation and dressing of root canal were done in 11.7% (44), and atraumatic restorative treatment was carried out in 8.51% (32) of total OPD. Trauma management was carried out in 7.97% (30) of total cases (Fig. 5).

DISCUSSION

The COVID-19 pandemic has drastically affected the lives of people of all age-groups around the globe in the past few months. The alarming rate of increase in cases of COVID-19 led to immediate implications, which compelled the governments to take stringent steps of lockdown. This further exacerbated the situation as it impacted not only the daily activities but also the emergency services of various countries. It also led to high levels of fear among people producing adverse health outcomes, causing emotional and physical damage by hindering people from naturally performing their daily activities. The concerns of parents/caregivers regarding COVID-19 may be severe, which led them to postpone their required dental treatment and follow-up; hence, the main reason for the dental visit was restricted to emergency/urgent dental care.

In the present study, it was noted that there was a gradual increase in OPD from mid-March to August. This can be attributed to the nationwide lockdown from late March to May, which included stay-at-home instructions for the people until there was an emergency. However, the unlock phase from June 1 led to a sudden increase in the inflow of patients as the restrictions were uplifted. Therefore, the hospital emergency developed a screening method for determining true dental emergencies, triaging emergency care, and prioritizing patients who needed urgent dental care. This helped in providing timely intervention to the children with urgent dental care.

Patients mostly reported emergencies to the pediatric dental services during the COVID-19 pandemic. This can be attributed to strict stay-at-home instructions, travel restrictions, and also fear

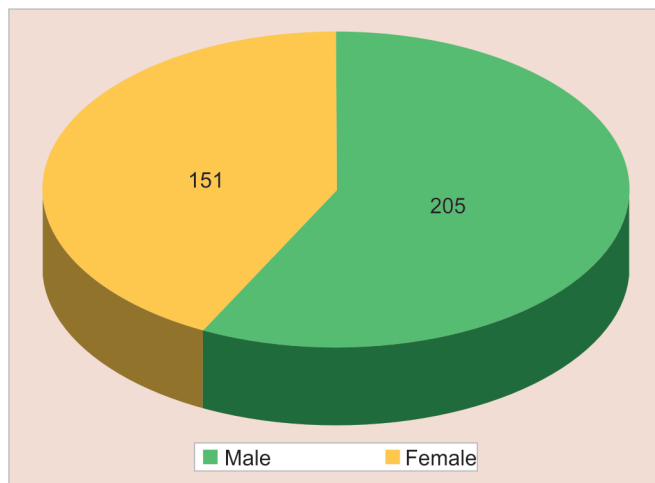


Fig. 1: Distribution of patients according to gender

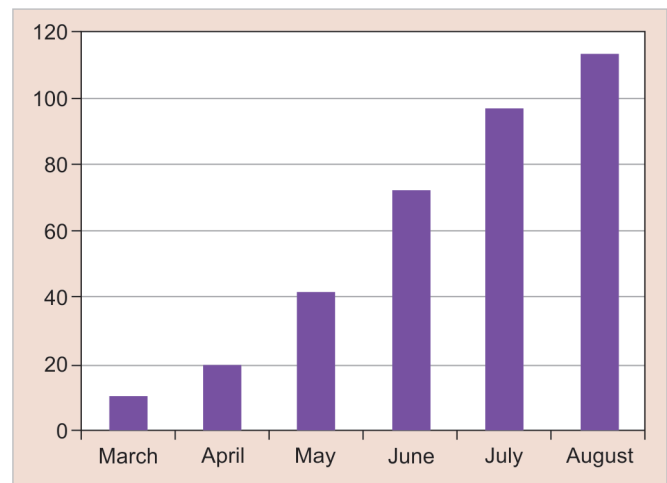


Fig. 2: Total OPD from late March to August

among parents of contracting COVID-19 disease while seeking dental treatment. A similar study by Campagnaro et al. among parents to assess oral health perception during the COVID-19 pandemic concluded that there was a significant association between the level of fear, the local number of cases, and parents seeking dental care. This study revealed that parents would take their children to the dentist only in case of dental urgencies.⁷

In this study, 57.58% (205) boys and 42.41% (151) girls reported for the emergency procedures, thus showing male predilection. Similarly, in a study by Martens et al. among pediatric patients to characterize the type of dental emergency and treatment provided, it was seen that males (56.1%) reported more than females (43.9%) for pediatric emergency services.⁸ Another study by Rowley et al. investigating dental emergencies treated at a hospital clinic and emergency department reported similar findings, with males (59%) being a predominant group when compared with females (41%).⁹

The maximum number of patients reporting to the pediatric dental emergency in the present study was of 5 years (13.5%). In a study by Shqair et al. to assess the reasons for seeking dental care and the treatment provided in a pediatric dental emergency, it was observed that the most common age-group of emergency was 7–9

years, followed by 4–7 and >10 years. Children with the age-group of 0–3 years had the least number of emergencies.¹⁰ In another study by Martens et al., the maximum emergencies were seen in the 6–12-year age-group followed by the 3–6-year age-group, and 0–3 years of children had the least number of emergencies.⁸ It was observed in the present study that the main reason for reporting to pediatric dental emergency in the age-group of 0–3 years was only for trauma. In a study by Martens et al., similar results were seen as the trauma was reported as the most common type of emergency in the 0–3-year age-group.⁸ This implies that younger children are more prone to trauma as they crawl, stagger and fall before being able to walk as a part of their development.

It was concluded in the present study that the chief complaint about the emergency visit was pain in 54.49% (194) cases, which was the highest. Similar to this, a study by Shqair et al. also reported that the most common reason for seeking dental treatment was pain (82.03%).¹⁰ Pain is the most common consequence of caries; therefore, it is the major chief complaint among children. The second most common chief complaint was an abscess (12.35%), which can be due to a lack of timely intervention during the lockdown phase in the COVID-19 pandemic. This resulted in

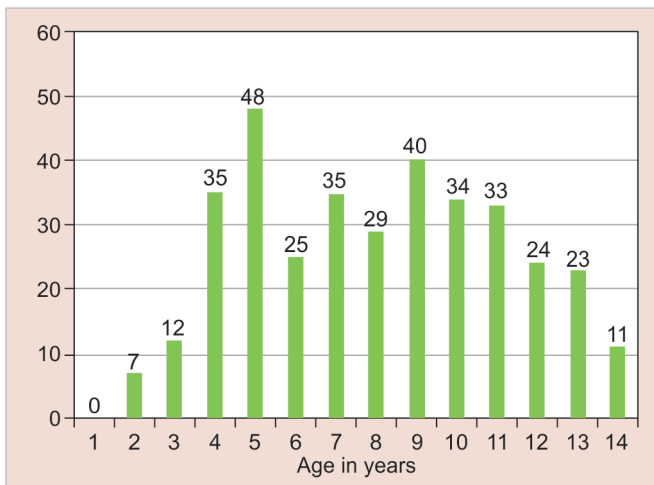


Fig. 3: Distribution of patients according to age

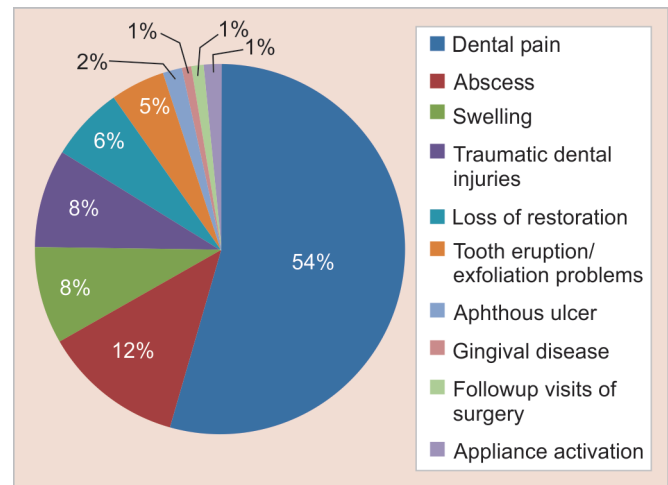


Fig. 4: Chief complaints of pediatric patients reported during COVID-19 pandemic from late March to August

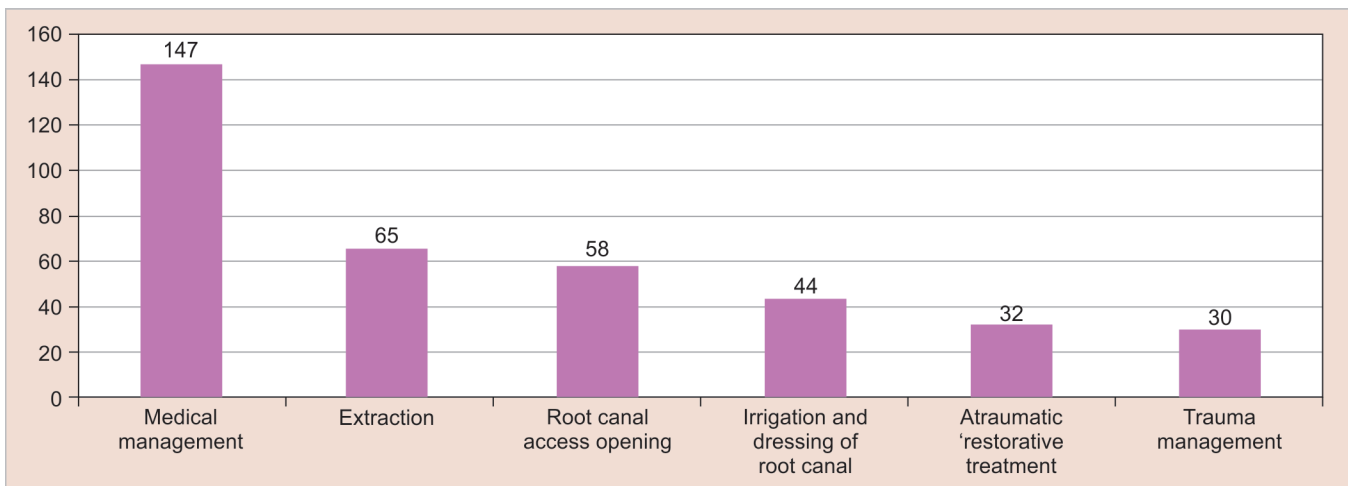


Fig. 5: Frequency of various treatment modalities done in COVID-19 pandemic from late March to August

uncontrolled progression of caries and thus acute exacerbation of the chronic disease. The other chief complaint observed were traumatic dental injuries (8.42%) and swelling (8.42%). In another study conducted by Martens et al., orodental-trauma (47.1%) was the most prominent chief complaint reporting to a pediatric dental emergency, which is in contradiction to our study.⁸ Shqair et al. also concluded that pain was followed by traumatic dental injuries as a chief complaint in their study.¹⁰ The less prevalence of traumatic dental injury in the present study can be attributed to restricted outdoor activities among children due to lockdown. The literature revealed main chief complaints about reporting to pediatric dental emergencies were pain and trauma; however, in our study, the pain was followed by the abscess.

The patients reporting to pediatric dental services during the COVID-19 lockdown period were managed using various treatment modalities depending on their chief complaint while adhering to universal infection control protocols. The aim was to alleviate their pain and discomfort to improve oral health-related quality of life. Most cases were managed pharmacologically using analgesics and antibiotics (39.09%). This was followed by extraction in 17.28% (65) cases, manual root canal access opening using spoon excavator in 15.42% (58) cases, irrigation and dressing of root canal in previously initiated pulpectomy in 11.7% (44) cases, caries excavation, and restoration using atraumatic restoration treatment (ART) in 8.51% (32) cases, and trauma management in 7.97% (30) cases. The findings were similar to a study by Patel et al. among adults during the COVID-19 pandemic period, the principal management for dental emergencies was prescribing medication (mainly analgesics and antibiotics) (75%) for pain and infection control, followed by extraction (7.1%).² It can be attributed to performing procedures with no aerosol generation due to the risk of the spread of COVID-19. This was in accordance with guidelines issued by various Indian and International associations. The recommendations for not performing elective and planned treatment were issued by the Indian Dental Association (IDA).¹¹ The Dental Council of India (DCI) has also added that it is necessary to telephonically appoint patients and triaging them according to their level of dental care, i.e., emergency, urgent and elective care, and elective care should be deferred.¹² The guidelines issued by various international organizations like American Dental Association (ADA)¹³ and the American Dental Hygienists' Association (ADHA)¹⁴ suggest postponing all elective dental procedures.

The highest proportion of children in this study presented mainly with caries leading to pulpitis, abscess, and swelling, thus causing pain. It reflects the need for the implementation of preventive measures so that dental caries does not exacerbate to become an emergency.¹⁵ It also highlights the importance of screening and triaging to provide well-timed treatment to children with emergency/urgent dental care. There is an utmost need to focus specifically on the pediatric dental emergency even in the post-COVID period. The required workforce, along with a highly equipped facility, should be set up to meet the needs of the children requiring emergency dental care.

CONCLUSION AND IMPORTANCE OF THE STUDY

The present study depicted that there was a gradual increase in cases reporting to pediatric dental emergency services during the COVID-19 pandemic from mid-March to August. Boys (57.58%) were having a greater need for emergency dental care when

compared with girls (42.41%). Dental caries was the primary oral health problem among these children who reported in a dental emergency, with pain being the major chief complaint of the patients (54.49%). Traumatic dental injuries were seen high in very young children (0–3 years). Since it was the peak of the COVID-19 pandemic, there was anxiety regarding the transmission of the COVID-19 virus, and hence, treatment modalities were at a halt, and mainly medical management (39.09%) was being done. This was in adherence to the treatment protocol given by various healthcare associations advising the use of non-aerosol generating procedures as it reduces a transmission risk significantly. Although some dental emergencies are unavoidable dental caries are preventable and can be dealt with by increasing knowledge and awareness about proper at-home instructions. This can help in reducing the high frequency of pediatric dental emergency visits. The newer methods like teledentistry and the use of the digital platform for virtual dental consultation will be the emerging healthcare practices in the post-COVID era.

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