

Pattern of Dental Procedures Done During Pre & Post Covid-19 Era in Dentistry Section of Benazir Bhutto Hospital Rawalpindi

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ABSTRACT

Objectives: To analyze the pattern of dental procedures reported during pre & post COVID-19 era in dentistry department of Benazir Bhutto Hospital Rawalpindi.

Materials & Methods: A cross-sectional descriptive hospital record-based study was carried out to determine the differences in number of dental diagnostic and curative procedures done during 2019 and 2020 at Benazir Bhutto Hospital Rawalpindi. The data was retrieved pertinent to all dental treatments and diagnostic radiographies from administrators of Benazir Bhutto Hospital through informed consent. The data was gathered regarding the frequency of dental filling, tooth extraction, scaling, removal of impacted tooth, gingivectomy etc. The data was analyzed by using Microsoft Excel 2010. Chi-square test was applied to determine the difference in frequency of dental filling and tooth extraction done in 2019 and 2020. P-value < 0.05 was taken as significant.

Results: Approximately 6,498 and 3,732 dental treatments were done during 2019 and 2020 respectively at Benazir Bhutto Hospital. Dental department remained closed from April-July 2020 on first lockdown imposition. Tooth extraction and dental filling were the most frequently executed procedures with comparatively higher propensity during 2019 than those of 2020 ($P < 0.001$). About 3057 and 1188 dental radiographies were done during 2019 and 2020 respectively.

Conclusion: COVID-19 had drastically lessened the frequency of dental procedures in tertiary healthcare facilities.

Keywords: Dental Procedures; COVID-19; Tooth Extraction; Dental Filling; Dental Radiographies

Abbreviations: BBH: Benazir Bhutto Hospital; CDC: Centers for Disease Control and Prevention; COVID-19: Coronavirus Disease of 2019; OPD: Out Patient Department; PHEIC: Public Health Emergency of International Concern; SOPs: Standard Operating Procedures; WHO: World Health Organization

Introduction

COVID pandemic has drastically affected the whole world. About 263,563,622 confirmed COVID-19 cases and 5,232,562 COVID related deaths are reported by World Health Organization (WHO) till 3rd December 2021 [1]. Approximately 1.29 million COVID-19 cases are revealed in Pakistan with 28,761 verified deaths [2]. COVID-19 is known to have profoundly crushed the capacity of healthcare systems in managing health problems across the globe. Continuation of preventive health programs apart from provision of curative services

became quite challenging [3]. COVID pandemic drastically affected the field of dentistry. The chances of getting exposed to droplets and aerosols of the patients while treating them pose dentists at high risk of acquiring SARS-CoV-2 infection [4]. Strict adherence to SOPs against COVID-19 infection by healthcare professionals became the need of time. Non-compliance to precautionary measures may disrupt the operations of healthcare facilities by increased vulnerability of health workforce to infection that may end either in their isolation or quarantine [5].

WHO gave some recommendations in order to curtail the spread of COVID-19 infection in dental clinics which encompass all healthcare professionals from dentists, lab technicians and all other staff related to healthcare in both public and private healthcare settings [6].

COVID pandemic has led many dental associations to take certain vital initiatives in order to arrest the dissemination of infection [7]. American Dental Association (ADA) endorsed to limit the dental practice to emergency treatment [8]. Disruption of dental healthcare services globally is primarily attributed to COVID-19 [9]. Moreover, dentists and their support staff are more prone to become carriers of SARS-CoV-2 which is even more lethal than infected individuals [10]. Dental services were sufficiently diminished across the world amidst COVID pandemic despite the confrontation of dental practitioners with financial catastrophe [11]. The purpose of the present study is to analyze the pattern of dental procedures carried out during pre-(2019) and post-COVID (2020) period for general public at Benazir Bhutto Hospital Rawalpindi. This research would enable our strategic planners not only to explore the effect of pandemic on the delivery of dental healthcare services but would also motivate them to think for implementable alternatives for managing the current situation.

Methods

A cross-sectional descriptive study based on hospital record was planned to scrutinize pattern of dental procedures done during pre and post COVID-19 period i.e; during 2019 and 2020 at Benazir Bhutto Hospital Rawalpindi. Benazir Bhutto Hospital (BBH) is a tertiary care government hospital that is housed by all the essential clinical departments. This healthcare facility is also academically linked with numerous international universities for two-way capacity building of healthcare professionals [12]. The data was collected about all dental treatments and dental X-ray for diagnosis of dental problems carried out during 2019 and 2020 from administrators of BBH through informed consent. The data regarding dental procedures done before 2019 and after 2020 was excluded from this study. The data was gathered pertinent to frequency of dental filling, tooth extraction, scaling, removal of impacted tooth, gingivectomy, alveolectomy, cystectomy and operlectomy.

Data Analysis

The data was analyzed by using Microsoft Excel 2010. Descriptive analysis of all variables was done. Chi-square test was applied to determine the difference in proportion of dental filling and tooth extraction accomplished in 2019 and 2020. P-value < 0.05 was considered significant.

Results

About 6,498 and 3,732 dental procedures were carried out during 2019 and 2020 respectively at BBH. The patients were not catered for their dental problems from April –July 2020. Patient load was greatest in January 2019 and October 2020 as depicted below in Table 1. Of the varied dental procedures carried out at BBH, tooth extraction

was done maximally even during COVID pandemic as illustrated below in Table 2. Difference in frequency of dental procedures done during 2019 and 2020 was determined to be statistically significant ($P < 0.001$) as shown in Table 3. Details of various types of dental filling, root canal treatment and tooth extraction are depicted below in Figures 1a-1c respectively. Figures 2 & 3 About 3,057 and 1,188 dental radiographies were done at BBH during 2019 and 2020 respectively as revealed in Figure 4.

Table 1: Month-wise distribution of dental procedures done during 2019 & 2020.

Months	2019	2020
January	673	602
February	613	525
March	558	286
April	634	0
May	479	0
June	509	0
July	634	0
August	520	224
September	562	509
October	353	681
November	445	457
December	518	448
Total	6498	3732

Table 2: Comparing the frequency of dental procedures at BBH.

Dental Procedures	2019	2020	Total
Dental filling	704	548	1252
Tooth extraction	5355	3052	8407
Scaling	290	86	376
Root canal treatment	29	21	50
Removal of impacted tooth	9	22	31
Cystectomy	56	0	56
Alveolectomy	33	1	34
Operlectomy	7	1	8
Gingivectomy	15	1	16
Total	6,498	3,732	10,230

Table 3: Comparison of frequency of dental procedures during 2019 and 2020 at BBH.

Dental Procedures	2019	2020	Total
Tooth extraction	5355	3052	8407
Dental filling	704	548	1288
$X^2 = 26.36, P < 0.001$			9695

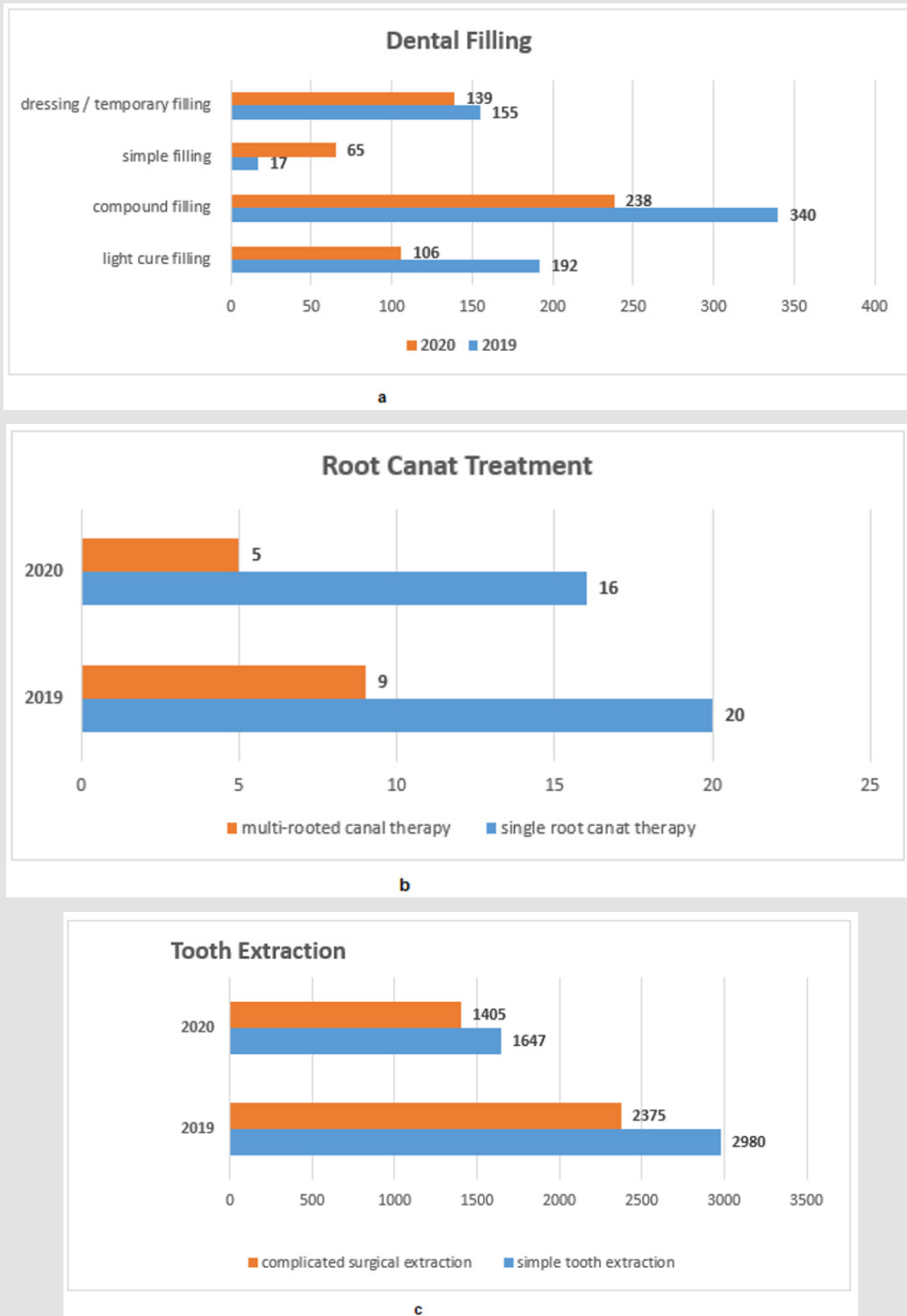


Figure 1:

- a. Various dental fillings done at BBH during 2019 & 2020.
- b. Frequency of different root canal treatments done during 2019 & 2020.
- c. Tooth Extractions at BBH in 2019 & 2020.



Figure 2: Intraoral X-ray film.

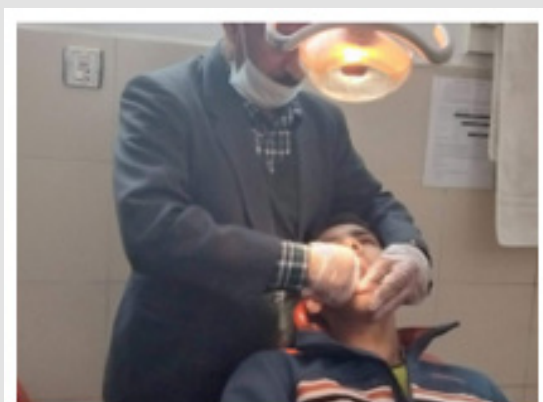


Figure 3: Patient undergoing dental extraction amidst COVID-19 pandemic.

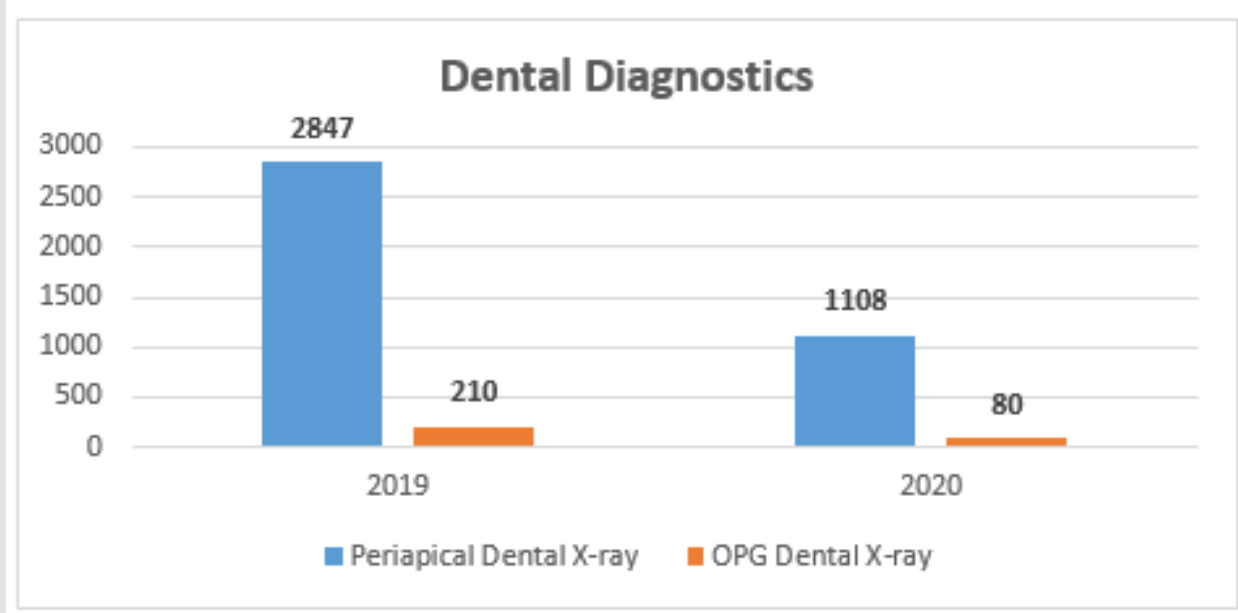


Figure 4: Dental X-rays at BBH.

Discussion

Dental practitioners prioritized to deal therapeutically only with critically ill patients since the lockdown imposition in response to COVID pandemic [13]. Government of Pakistan also issued guidelines for provision of dental healthcare amid COVID-19 with an objective to mitigate the disease spread [14]. About 6498 dental procedures were carried out at BBH during 2019 while almost 57% of this frequency was dealt with healthcare provision during 2020 (Table 1). Since the lockdown imposition on 1st April 2020 in response to COVID outbreak [15], dental services remained disrupted for a period of 4 months from April – July 2020. Similar research by Kamran R et al to determine the impact of COVID-19 on Pakistani dental surgeons

revealed that Centers for Disease Control & Prevention (CDC) guidelines for prevention of COVID among dental patients were known to most of our dentists; however, more than 70% of them were frightened of getting infected while dealing with patients. Even the dentists of Khyber Pakhtunkhwa desired to disrupt their practice amidst pandemic [16]. No doubt, panic and distress associated with COVID-19 was attributed to declaration by WHO about this menace as Public Health Emergency of International Concern (PHEIC). Vigilant observance of COVID related SOPs can facilitate a great deal in the normalization of scenario.

About 5,355 and 3,052 dental extractions were done at BBH during 2019 and 2020 respectively. Likewise, frequency of teeth scaling and

dental filling procedures was also tremendously reduced during 2020 as compared to those carried out in 2019 (Table 2). However, a study by Guo et al illustrated that urgent need for dental healthcare cannot be declined due to intermittent sharp shooting pain associated with toothache or dental pulpitis, therefore the requirement for dental care service was lessened only by 38% [17]. One of the reasons for disruption of dental healthcare across the globe was production of aerosol and respiratory droplets during dental treatment and viability of SARS-CoV-2 in these aerosols for minimally three hours [18]. Execution of dental procedures in tertiary care setting should be made possible with strict compliance to precautionary measures with prioritization of safety for both patient and dentist.

Dental X-rays done at BBH during 2020 (pandemic era) than those carried out during 2019 were determined to be sufficiently less (Figure 4). Some recommendations were also forwarded for infection control during execution of radiographic procedures amidst COVID outbreak due to high risk of acquiring infection without adequate disinfection [19]. Systematic review of relevant studies also suggested the postponement of elective non-urgent dental treatment for minimum 2 weeks among patients with suspected or verified COVID-19 infection [20]. Tele-dentistry services in response to COVID were commenced in some of the countries for continuation of dental healthcare in order to restrict person-to-person transmission of coronavirus and avoidance of patients' visit to dental OPD [21]. Many dental patients with severe unbearable dental pain and oral infections faced great difficulty due to closure of dental hospitals and set ups in response to COVID pandemic [22]. However dental healthcare facilities started to operate gradually with implementation of some standard guidelines for protection [23]. As eating and cleaning of mouth is compromised by dental pain, dental care of the patients should safely and aptly be managed in the good will of both patients and dental workforce.

Conclusion & Recommendations

The propensity of dental procedures and diagnostics was considerably reduced amidst COVID pandemic. Managing the provision of healthcare services via epidemic preparedness can be of great assistance to remove obstacles in continuation of healthcare during disasters.

Limitations of Study

Hospital record-based study.

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