



## A COMPARATIVE RETROSPECTIVE STUDY TO EVALUATE THE IMPACT OF COVID-19 ON DENTAL IPD IN CHHATTISGARH INSTITUTE OF MEDICAL SCIENCES, BILASPUR, CHHATTISGARH

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### ABSTRACT

**Background:** Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) is an emerging contagious pathogen that has caused community and nosocomial infections in many countries. The World Health Organization declared a Public Health Emergency of International Concern regarding COVID-19 on 30 January 2020, and later declared a pandemic on 11 March 2020. As of 28 May 2021, more than 168 million cases have been confirmed, with more than 3.51 million confirmed deaths attributed to COVID-19, making it one of the deadliest pandemics in history. The first case in Chhattisgarh state was found in capital Raipur on 19<sup>th</sup> March 2020. The first case in Bilaspur was reported on 23<sup>rd</sup> March 2020. During the pandemic health services were affected heavily all branches of medical sciences were included in this calamity including dentistry. Covid-19 infection causes problems for the diagnosis, treatment and follow up of dental patients mostly due to nationwide lockdown. **Objective:** To evaluate the impact of Covid-19 on dental IPD in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh during Covid-19 pandemic **Method:** This retrospective comparative clinical study is conducted in the department of Dentistry, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. The 1 year IPD data from 20 March 2019 to 20 March 2020 is compared with the data from Covid-19 era from 20 March 2020 to 20 March 2021. Frequency tables are used to evaluate and measure the data from the study to describe the impact of Covid-19 on dental IPD. **Result:** The total Dental IPD registered in Pre Covid-19 yr was 161 i.e. from 20 March 2019 to 20 March 2020, we found in our study that during covid-19 pandemic the patients of 18-45 year age group were increased by 6.21% while IPD of >45year age group was decreased by 7.46%. IPD of male patients were increased in covid-19 pandemic than female and during the pandemic the patients of lower socioeconomic strata were increased by 6.21%. In Covid-19 pandemic year the total dental IPD registered was only 46, amongst them 36 were of mandible fracture, 4 of comminuted fracture, 3 patients were operated for maxillary bone fracture. No cases of oral cancers and jaw cysts were reported whereas cases reported under others category were 6.5%. **Conclusion:** We observed in our study that in comparison to Pre Covid-19 yr there is 74% decrease in total no. of IPD during Covid-19 pandemic year. During covid-19 pandemic the patients of 18-45 year age group were increased by 6.21%, Lower SES patients were increased by 6.21% during Covid-19 pandemic; most of the surgical procedures were not performed due to less number of IPD and reassignment of health care staff for covid-19 management.

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### INTRODUCTION

COVID-19 is the disease caused by a new corona virus called SARS-CoV-2. WHO first learned of this new virus on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China.<sup>[1][2]</sup> The most common symptoms of COVID-19 are fever, dry cough, fatigue other symptoms that are less common and may affect some patients include loss of taste or smell, nasal congestion, sore throat, headache, muscle or joint pain, different types of skin rash, nausea or vomiting, diarrhoea, chills or dizziness.<sup>[3][4]</sup> Stay safe by taking some simple precautions, such as physical distancing, wearing a mask, especially when distancing cannot be maintained, keeping rooms well ventilated, avoiding crowds and close contact, regularly cleaning your hands, and coughing into a bent elbow

or tissue.<sup>[5][6]</sup> As of 28 May 2021, more than 170 million cases have been confirmed, with more than 3.51 million confirmed deaths attributed to COVID-19, making it one of the deadliest pandemics in history.<sup>[7]</sup> The first case in Chhattisgarh state was found in capital Raipur on 19<sup>th</sup> March 2020.<sup>[8]</sup> The first case in Bilaspur was found on 23<sup>rd</sup> March 2020. The emergence of the novel virus SARS-CoV-2 has caused morbidity, mortality and societal disruption on a global scale. The use of hand pieces and ultrasonic instruments during dental procedures unavoidably results in the generation of blood and saliva droplets consequently; these droplets could contaminate the dental instruments and the office environment.<sup>[9]</sup> Hence, both dental practitioners and patients could be at risk of being infected with microbial pathogens. In this regard, researchers mentioned that dental clinics might be a possible

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transmission source of viruses such as human immunodeficiency virus (HIV) and hepatitis B virus (HBV); these viruses could transmit during dental practice to the patients and also the practitioners.<sup>[10]</sup> The main concern is that health services have been partially or completely disrupted in many countries and states. Overall 46% for dental management is disrupted by covid-19 the key reasons behind it are the reassignment of health staff from their primary service to support COVID-19.<sup>[11]</sup> But the most common reasons for discontinuing or reducing services were cancellations of planned treatments, a decrease in public transport available and a lack of staff because health workers had been reassigned to support COVID19 services. In one in five countries (20%) reporting disruptions, one of the main reasons for discontinuing services was a shortage of medicines, diagnostics and other technologies. Unsurprisingly, there appears to be a correlation between levels of disruption to services for treating dental patients and the evolution of the COVID-19 outbreak in a country. Emergency health care services become increasingly disrupted as a country moves from sporadic cases to community transmission of the corona virus. Alternative strategies for continuing care being implemented like telemedicine to replace in-person consultations.

**Objective:** To evaluate the impact of Covid-19 on dental IPD in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh during Covid-19 pandemic.

## MATERIAL AND METHOD

**Method:** This retrospective comparative clinical study is conducted in the department of Dentistry, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. The 1 year pre Covid-19 IPD from 20 March 2019 to 20 March 2020 is compared with the data from Covid-19 era from 20 March 2020 to 20 March 2021. Frequency tables, comparative charts are used to evaluate and measure the data from the study to describe the impact of Covid-19 on dental IPD.

### Major Variables

1. Age
2. Gender
3. Socioeconomic status
4. IPD data of pre Covid-19 year
5. IPD data of Covid-19 year

## RESULTS

This retrospective observational clinical study involved the dental IPD data of pre Covid-19 year from 20 March 2019 to 20 March 2020 and data of first year of Covid-19 pandemic from 20 March 2020 to 20 March 2021. This study is conducted in department of Dentistry, CIMS hospital, Bilaspur Chhattisgarh. All IPD data from both years were thoroughly evaluated and studied. The results are as follows:

### Age

In Pre Covid-19 yr i.e. from 20 March 2019 to 20 March 2020, 109 out of 161 dental patients (67.7%) belonged to 18-45 years age group followed by 29.19% in >45 year group and only 4.3% of IPD were below 18 yrs of age. Whereas in Covid-19 yr i.e. from 20 March 2020 to 20 March 2021, 73.91% patients were in 18-45 year age group followed by 21.73% in >45 years age group and only 1.5% patients were below 18 yrs. This data shows that during covid-19 pandemic the patients of

18-45 year age group were increased by 6.21% while IPD of >45year age group was decreased by 7.46%.

**Table 1** Age wise distribution of IPD patients

Age Range(yr)	< 18	18-45	>45	Total
Pre Covid-19 yr	5(3.1%)	109(67.7%)	47(29.19%)	161
Covid-19 yr	2(4.3%)	34(73.91%)	1272(21.73%)	46

### Gender

115 out of 161 (71.42%) dental IPD patients were male in Pre Covid-19 yr whereas female IPD patients were 28.47%, no patients of transgender community was reported. During Covid-19 pandemic year males were predominant in IPD i.e. 73.91% whereas female IPD population was 26%, no patients of transgender community was reported. This data revealed that IPD of male patients were increased in covid-19 pandemic than female.

**Table 2** Gender wise Distribution of IPD patients

Gender	Male	Female	Total
Pre Covid-19 yr	115(71.42%)	46(28.47%)	161
Covid-19 yr	34(73.91%)	2145(26%)	46

### Socio-economic status

In Pre Covid-19 yr, 109 out of 161 (67.70%) patients of lower socioeconomic strata came to dental IPD, on the other hand 30.43% patients were of middle class economy status and only 1.8% belonged to upper class. Whereas in Covid-19 pandemic year lower class patients reported was 74% and middle class were 23.91%. This data clearly showed that during the pandemic year the patients of lower socioeconomic strata were increased by 6.21%.

**Table 3** Socio-economic status wise distribution of patients

SES	Lower Class	Middle Class	Upper Class	Total
Pre Covid-19 yr	109(67.70%)	49(30.43%)	3(1.8%)	161
Covid-19 yr	34(73.91%)	11(23.91%)	1(2.17%)	46

### Total IPD data from 20 march 2019 to 20 march 2020

In Pre Covid-19 yr i.e. from 20 March 2019 to 20 March 2020 the total IPD registered in Dentistry department, CIMS was 161, 98 out of 161(60.86%) patients had mandibular fractures which were treated by open reduction and internal fixation followed by closed reduction, 8.6% patients were admitted and treated for comminuted (maxillary, zygomatic, frontal bone) fractures, oral cancers were diagnosed and treated in 7.4% patients and jaw cyst was operated in among 4 cases. TMJ Ankylosis, facial asymmetry, oral maxillofacial reflection, jaw tumour and other diagnosis constituted the 13% of cases they were managed by various surgical procedures.

**Table 4** Total IPD data from 20 March 2019 to 20 March 2020

Mandible fracture	Comminuted fractures	Oral cancers	Maxillary bone fracture	Jaw cyst	others	Total
98	14	12	12	4	21	161
60.86%	8.6%	7.4%	7.4%	2.4%	13%	100%

### Total IPD data from 20 march 2020 to 20 march 2021

In Covid-19 pandemic year the total dental IPD registered was only 46, amongst them 36 were of mandible fracture, 4 of comminuted fracture, 3 patients were operated for maxillary bone fracture. No cases of oral cancers and jaw cysts were

reported whereas cases reported under others category were 6.5%.

**Table 5** Total IPD data from 20 March 2020 to 20 March 2021

Mandible fracture	Comminuted fractures	Oral cancers	Maxillary bone fracture	Jaw cyst	others	Total
36	4	0	3	0	3	46
78.26%	8.6%	0%	6.5%	0%	6.5%	100%

## DISCUSSION

The corona virus pandemic has disrupted all forms of health care services including communicable and non communicable diseases and patients seeking treatment for oral health diseases. In Chhattisgarh state the first case of Covid-19 was found in AIIMS, Raipur on 19<sup>th</sup> March 2020. The first case in Bilaspur was found on 23<sup>rd</sup> March 2020. The country has experienced the first nationwide lockdown from 24 March 2020 for 21 days limiting the movement of entire population as a preventive measure against the Covid-19 pandemic.<sup>[12]</sup> The lockdown continued in different phases till 31 May 2020. During this time the movement of entire population was limited which resulted in postponement and delaying of many health care services including dental care. Consequently the deterioration of health status of dental patients occurred. Many patients reached the hospital amidst pandemic and benefited, Overall 46% for dental management is disrupted by covid-19 the key reasons behind it is the reassignment of health staff from their primary service to support COVID-19 services.<sup>[11]</sup> As the time passes the city Bilaspur chhattisgarh was also burdened with infected covid-19 positive patients, thus Medical College Hospital was transformed to Covid-19 isolation Centre later on Covid-19 Dedicated centre, entire staff from medical college and hospital was rearranged for the covid-19 care services which included the dental care staff also which further aided the disruption of dental care services in our centre. Meanwhile Dental IPD and ward was functioning well despite the reduced manpower and skilled staff. **Ahmadi, H., Ebrahimi, A. et al** found in their study in Iran that 70% of emergency dental procedures are interrupted or cancelled during the pandemic; similarly in our study we observed that 74% of dental procedures are interrupted during the pandemic.<sup>[13]</sup> **American Dental Association** in their survey among 19000 dentists reported that 76% of IPD patients are affected during the pandemic and 19% of dentists are not coming to their clinics in fear of Covid-19 infection. Occupational Safety and Health Administration has mentioned that using remote dental consultations should be considered for the non-emergent cases during the pandemic.<sup>[14]</sup> Additionally, before the current pandemic, remote consultation was found to have sufficient quality for oral treatments. The telehealth-based delivery of dental services seems to be an attractive and flexible concept, especially during these unprecedented times. Despite this, most clinics do not have the proper equipment such as network infrastructures and adequately trained staff to provide telehealth services.<sup>[15]</sup>

## CONCLUSION

We observed in our study that in comparison to Pre Covid-19 yr there is 74% decrease in total no. of IPD during Covid-19 pandemic year.

During covid-19 pandemic the patients of 18-45 year age group were increased by 6.21%, Lower SES patients were increased by 6.21% during Covid-19 pandemic; most of the surgical procedures were not performed due to less number of IPD and reassignment of health care staff for covid-19 management.

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