

## Impact of Covid-19 Pandemic on Teaching and Training of Orthopaedic Resident in Medical College

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### Abstract

**Background:** Many elective surgeries are getting postponed which directly affect the learning of surgical skill in resident. Various teaching activity such as OPD and bed side teaching also reduced because of decrease load and social distancing. Purpose of the study is to analyse the impact of this pandemic on orthopaedic education of resident in medical college.

**Material and Methods:** A questionnaire was prepared on Google form for online survey. Total 74 residents responded, in which JR-1 (26), JR2 (24), JR-3 (19) and SR (5) participated. This study is an observational study in which we analysed the impact of this pandemic on orthopaedic teaching and training of resident in medical college.

**Result:** In this pandemic clinical work in the form of OPD, IPD, no. of surgery (both elective and emergency) observed, assisted, independently performed significantly reduced. This directly affected the skill development of growing orthopaedic surgeon. Classroom teaching and bed side teaching were grossly affected. Some online platforms were used to teach the resident, but they are not as effective as conventional methods. Because of decrease clinical workload resident's thesis and research work also affected which is an essential part of resident education.

**Conclusion:** In summary, the results of this online survey on residents showed that there significant impact of the COVID-19 pandemic on teaching and training of orthopaedic resident in government medical colleges of central India.

**Keywords:** COVID-19, Residents, Training

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## Introduction

Corona virus disease (COVID-19) is a severe acute respiratory syndrome, a new type of Corona virus, which was declared a pandemic by the world health organization on March 11, 2020 [1]. Large numbers of examinations of medical students are postponed restricting the spread of the infection. Classroom teaching is also suspended in almost all medical colleges, and even regular research is also affected [2,3]. All type of orthopaedic procedures were reduced in these lockdowns. Many elective surgeries are getting postponed which directly affect the learning of surgical skill in resident. Various teaching activity such as OPD and bed side teaching also reduced because of decrease load and social distancing.

Purpose of the study is to analyse the impact of this pandemic on orthopaedic education of resident in medical college.

## Material and Methods

This study is an observational study in which we analysed the impact of this pandemic on orthopaedic teaching and training of resident in medical colleges. With the approval of institutional ethics committee, a web-based survey was

conducted on the orthopaedic resident of government medical college of the state Madhya Pradesh.

A questionnaire was prepared on Google form (freely available) for online survey. Set of questions was reviewed and verified by all the investigators. This questionnaire includes about the changes in departmental policy, comparison of pre and post covid workload in the department, pre and post covid educational activity. We have individually sent the link of google form to near about 120 orthopaedics residents through whatsapp out of which 74 responded. In 74 residents, JR-1 (26), JR-2 (24), JR-3 (19) and SR (5) participated. Depending upon responses statistical analysis was carried out.

## Result

This survey out of 74 resident 69 % says that hospital has selectively restricted the elective surgery in period of lockdown.

Before the lockdown most of resident were treating almost more than 50 patients a day in OPD but in covid time numbers reduced to upto to <50 and in some place, it is < 10 patients per day.

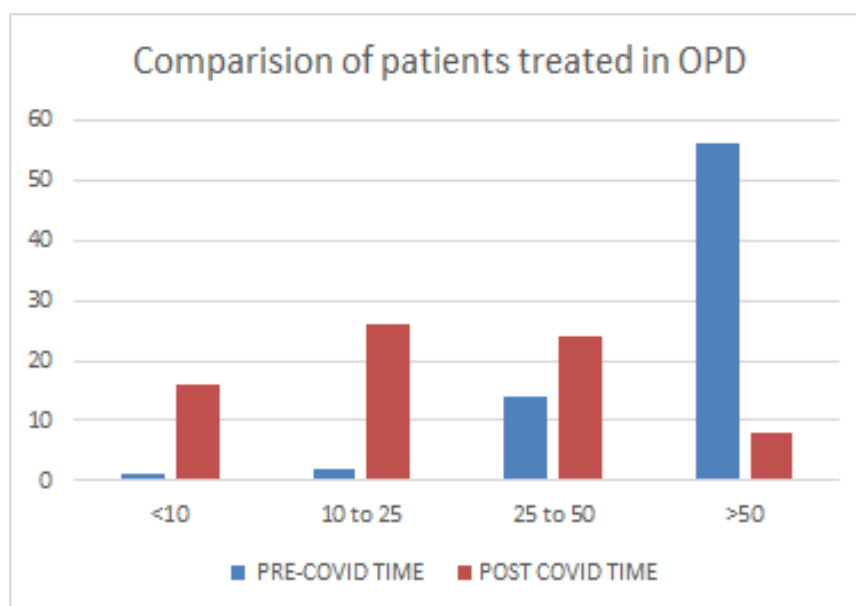
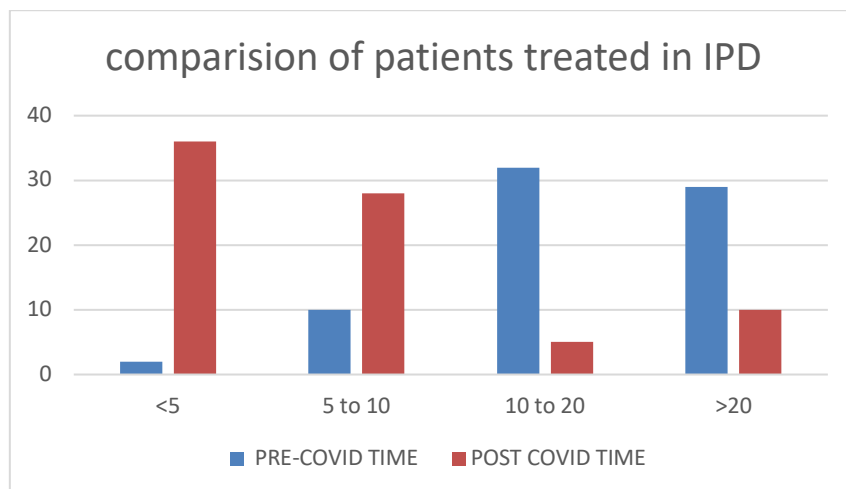


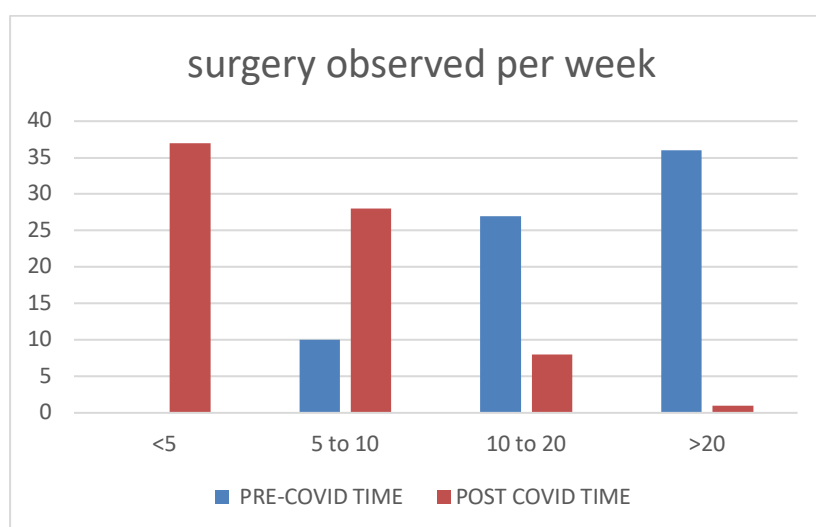
Figure 1: Bar diagram showing comparison of patients treated in OPD

Number of indoor patients also reduced according to most of the resident no. of indoor patients they were treating in pre-covid time were >20 per day but in covid time number reduced to <5.



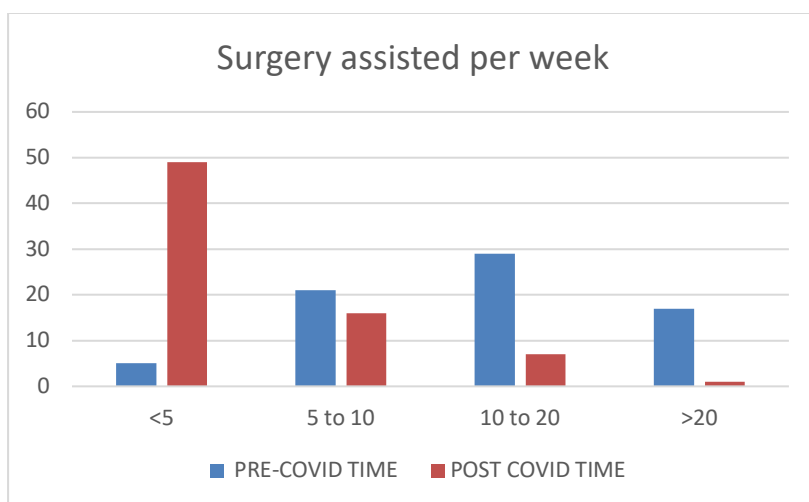
**Figure 2: Bar diagram showing the comparison of patients treated in IPD**

Number of surgery observed per week reduced to <5 from >20.



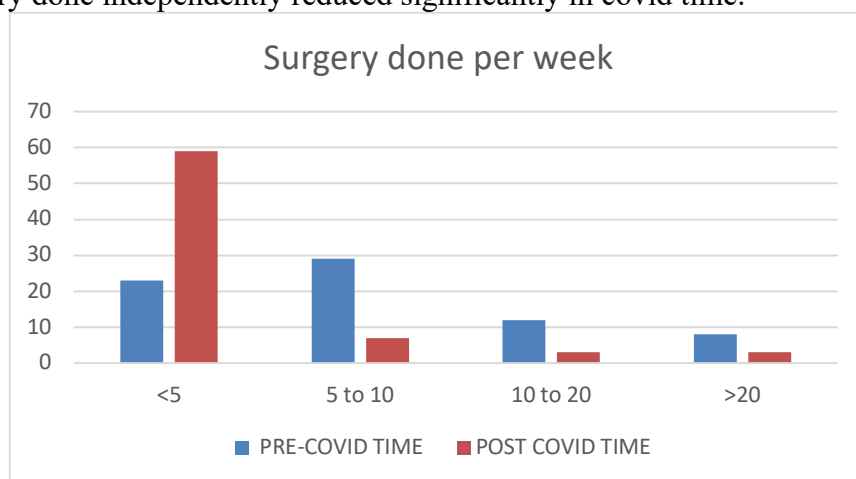
**Figure 3: Bar diagram showing number of surgeries observed per week**

No. of surgery assisted per week reduced to <5 from >10.



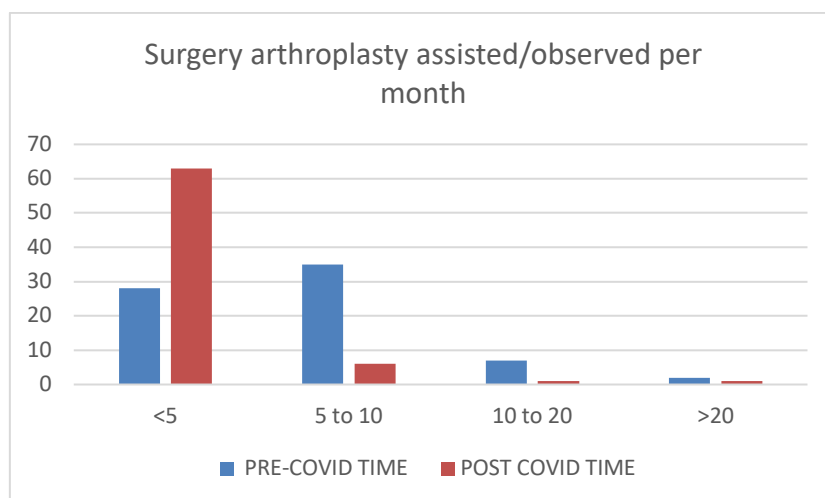
**Figure 4: Bar diagram showing number of surgeries assisted per week**

No. of surgery done independently reduced significantly in covid time.

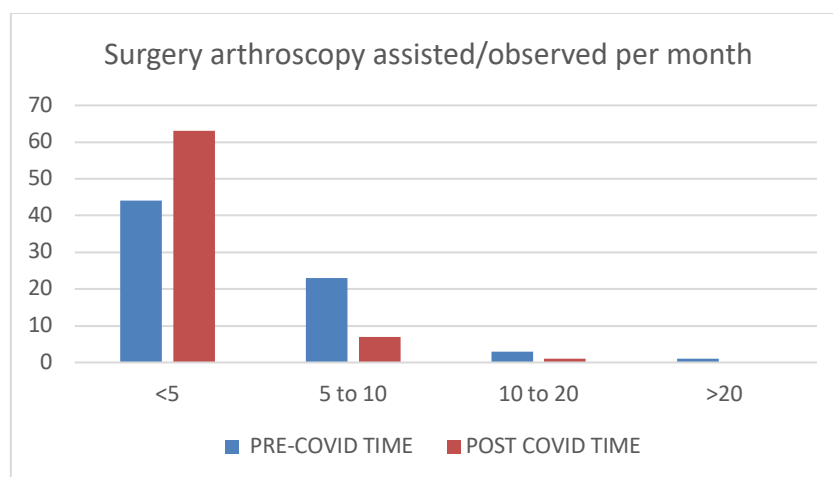


**Figure 5: Bar diagram showing number of surgeries done per week**

No. of elective surgery like arthroplasty, arthroscopy per month which was done 10-20 per month reduced up to 0.



**Figure 6: Bar diagram showing number of arthroplasty assisted per month**



**Figure 7: Bar diagram showing number of arthroscopy assisted per month**

Because of lockdown, decrease clinical work and social distancing bedside clinical teaching, research work and thesis were affected. More than 50 % of residents says that their bed side teaching and thesis work drastically affected. In this pandemic, colleges have used various online platform for teaching but according to most of the residents (>57%) online teaching is not effective as classroom teaching, according to 12 % resident it is not effective at all. Covid pandemic affected there learning capacity, according to the many residents pandemic increase their stress level and they are worrying about skill learning and their future. In this pandemic according to most of the resident (>47%) percentage of scheduled teaching is 100%.

### Discussion

This pandemic affected all the medical departments and dramatically affected patients care, and also had far reaching effect on surgeon education and training especially young growing orthopaedic surgeon [4-7]. Most of the medical colleges changes there plan for elective surgical care, teaching and training of these residents. Orthopaedic surgery residents were being posted to manage covid patients. In addition to that majority of conferences, training programmes and workshops were being postponed or cancelled [8-12]. New delivery system for education has emerged in the form of various online platform but it was not

effective as regular teaching and training in covid time. Therefore, this study to determine the impact of this pandemic on teaching and training of orthopaedic residents.

In the form of clinical work, number of OPD, IPD treated by resident significantly reduced. This directly affect the skill development programme of the orthopaedic resident. They will not be able to develop the various clinical skill in managing the patients and surgical skill in different orthopaedic surgery like trauma, arthroplasty and arthroscopy.

As far as teaching is concerned, because of social distancing and lockdown bed side teachings on ward round and classroom teaching both are directly affected.

### Conclusion

In summary, the results of this online survey on residents showed that their significant impact of the COVID-19 pandemic on teaching and training of orthopaedic resident in government medical colleges of central India. Technology reduces the impact of pandemic in the form of online teaching platform, but they are not effective as physical classroom teaching. For future there is a need to develop some other form of non-contact education programme for skill development as well; the learning must go on.

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