

# Impact of COVID-19 pandemic on doctors' clinical practice



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## ABSTRACT

**Background:** The pandemic of COVID-19 has affected doctors, nurses, patients, and people working in hospitals. **Aims and Objectives:** This study aims to study the trends in doctors' clinical practice during COVID-19 pandemic. **Materials and Methods:** The study conducted at SDMCMS&H, Dharwad, includes questionnaire on the impact of COVID-19 pandemic on doctors' clinical practice. The experience of doctors between May 2020 and June 2021 working in SDM University is considered in this study. **Results:** The number of non-COVID patients in OPD and IPD has reduced. The time spent in clinical examination is reduced, reliability on investigations has increased. The use of telemedicine is increasing. **Conclusion:** The impact of COVID-19 on clinical practice and doctors is multifactorial. The doctors and other health care workers can modify the COVID-19 impact on clinical practice by continuing to deliver the services as during pre-pandemic.

**Key words:** Clinical; COVID; Pandemic; Practice; Telemedicine

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## INTRODUCTION

A cluster of "atypical viral pneumonia" cases was diagnosed in Wuhan City, China, in December 2019. By January 9, 2020, Chinese authorities found that the cause of the outbreak was a novel coronavirus – later named COVID-19 which was later called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).<sup>1,2</sup>

The World Health Organization declared an international public health emergency. The countries across the world commenced national lockdown, travel ban, schools, colleges, and universities were indefinitely closed and recommended that health care workers observe physical distancing, wear personal protective equipment, and use

telephone triage and appointments to reduce face-to-face contact.<sup>1,2</sup>

India reported the first case of this coronavirus disease (COVID-19) on January 30, 2020, in Kerala, where a student with a history of travel to Wuhan presented with respiratory symptoms.<sup>2</sup>

The proposed modes of human to human transmission in SARS-CoV-2 were through droplets, fomites, and contacts. The manifestations are fever, cough, sore throat, fatigue, dyspnea, diarrhea, and vomiting, and in select group, it may lead to acute respiratory distress syndrome, septic shock, multiorgan failure, and death.<sup>2</sup>

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The pandemic has affected the hospital functioning and patient care.<sup>1-4</sup>

Doctors and health care workers are the frontline workers in the battle against ongoing pandemic. We conducted this survey to study the impact of COVID-19 pandemic on doctors' clinical practice.

### Aims and objectives

This study aims to study the trends in the clinical practice of doctors due to COVID-19 pandemic.

## MATERIALS AND METHODS

This study is conducted at Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital, Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India.

It is a cross-sectional qualitative study.

### Inclusion criteria

The participants of this study are consultant doctors and resident doctors of all the medical and dental clinical branches working in Shri Dharmasthala Manjunatheshwara University, Dharwad.

### Exclusion criteria

The doctors of preclinical and paraclinical departments working in Shri Dharmasthala Manjunatheshwara University, Dharwad.

One hundred and eighteen doctors are participants of this study. The study period is from May 2020 to June 2021. The experiences in clinical practice during this period are considered.

### Materials

The study includes the questionnaire on the impact of COVID-19 pandemic on doctors' clinical practice.

### Method of data collection

The questionnaire "Clinical practice patterns during COVID-19 pandemic – a study" was given to all participants in the form of hard copy and the responses were noted down. The questionnaire included 25 questions with multiple options. The consent form for the same was given with the questionnaire.

### Ethics

Ethical committee clearance was obtained from the Institutional Ethics Committee of SDMCMS&H, SDM University, Dharwad [Ref: SDMIEC/2021/01 Date: 15/07/21].

### Statistical method

Data were entered into the Excel spreadsheet. Descriptive statistics of the explanatory and outcome variables were calculated by mean, standard deviation for quantitative variables, frequency, and proportions for qualitative variables.

## RESULTS

Our study noted the responses of 118 doctors. Sixty-four (54.2%) were female respondents and 54 (45.8%) were male.

The doctors included were from various clinical specialties from medical college, dental college, and physiotherapy college of SDMCMS&H, SDM University, Dharwad. Fifty-two doctors (44.1%) were from surgical branches. Sixty-six doctors (55.9%) were from medical branches.

The doctors of all cadres were included in the study – professors, associate professors, assistant professors, senior residents, junior residents, and interns. The participants were 68 junior residents (57.6%), 6 (5.1%) senior residents, 20 (16.9%) assistant professors, 5 (4.2%) associate professors, and 11 (9.3%) were professors.

The average number of OPD cases seen by doctors pre-pandemic and during pandemic is shown in the following Table 1.

The average number of cases seen by doctors in IPD pre-pandemic and during pandemic is shown in the following Table 2.

The cases seen by doctors, in their concerned departments, during the pandemic are shown in the Table 3.

**Table 1: The average number of OPD cases seen by doctors' pre pandemic and during pandemic**

OPD cases per week	Pre-pandemic	During pandemic
<20	6 (5.1%)	48 (40.7%)
20–50	23 (19.5%)	46 (39%)
50–100	33 (28%)	22 (18.6%)
More than 100	53 (44.9%)	1 (0.8%)

**Table 2: The average number of cases seen by doctors in IPD pre pandemic and during pandemic**

Cases – IPD per week	Pre-pandemic	During pandemic
<20	21 (17.8%)	68 (57.6%)
20–50	52 (44.1%)	32 (27.1%)
50–100	15 (12.7%)	12 (10.2%)
More than 100	25 (21.2%)	6 (5.1%)

The time given by doctors to the patients during this pandemic in OPD and IPD is shown in the following Table 4.

The time given by doctor to the patient during the pandemic (OPD and IPD): Table 5.

The changes noted in procedures or surgeries by doctors during this pandemic, in comparison to pre-pandemic, are shown in the following Table 6.

Telemedicine advice given doctors during the pandemic: Table 7.

The doctors' opinion on telemedicine is shown in Table 8.

The type of personal protection measures used by doctors during the pandemic is shown in the Table 9 (OPD and IPD).

**Table 3: The cases seen by doctors, in their concerned departments, during the pandemic**

Cases seen in pandemic	n
SARI/COVID related emergency	51 (43.2%)
Referrals	23 (19.5%)
Cross-consultations	14 (11.9%)
Same as pre-pandemic	12 (10.2%)
	18 (15.3%)

**Table 4: The time given by doctors to the patients during this pandemic in OPD and IPD**

Time spent with patients [minutes]	OPD	IPD
Less than 5	49 (41.5%)	29 (24.6%)
5–10	44 (37.3%)	46 (39%)
10–15	9 (7.6%)	32 (27.1%)
More than 15	13 (11%)	4 (3.4%)
Not applicable	3 (2.5%)	7 (5.9%)

**Table 5: The time given by doctor to the patient during the pandemic (OPD and IPD)**

Time dedicated to patients	n
Same as pre-pandemic	12 (10.2%)
Increased	19 (16.1%)
Reduced	61 (51.7%)
Depends on case	25 (21.2%)

**Table 6: The changes noted in procedures or surgeries by doctors during this pandemic, in comparison to pre pandemic**

Changes in procedures or surgeries	n
Same as before	20 (16.9%)
Reduced number of elective procedures/surgeries	39 (33.1%)
Only emergencies or acute care	32 (27.1%)
Variable	26 (22%)

Health care worker at risk for COVID-19 infection is shown in Table 10.

The impact of COVID-19 pandemic in clinical practice over long term is shown in Table 11.

The concerns of doctors about the COVID-19 pandemic on the clinical practice are shown in Table 12.

The aspect of doctors' life that is affected by the COVID pandemic on the clinical practice is shown in Table 13.

Doctors posted in COVID/triage area on rotation: Table 14.

**Table 7: Telemedicine advice given by doctors during the pandemic**

Telephone consultations per day	n
<5	85 (72%)
5–10	19 (16.1%)
10–20	6 (5.1%)
>20	3 (1.5%)

**Table 8: Table showing the doctors' opinion on telemedicine**

Telemedicine usefulness	n
Helpful in manageable cases	49 (41.5%)
Difficult to analyze over phone	42 (35.5%)
In addition OPD evaluation must	10 (8.5%)
Rarely opine/donot give opinion	15 (12.7%)

**Table 9: The type of personal protection measures used by doctors during the pandemic**

Personal protective measures	n
Only face shield/mask	26 (22%)
Face shield/mask with gloves	70 (59.3%)
Face shield/mask with gloves with surgical gown	14 (11.9%)
Full PPE	6 (5.1%)

**Table 10: Opinion of doctors about risk of contracting COVID infection at the workplace**

Place of work and risk	n
Same for all and everywhere in hospital	37 (31.4%)
Triage	36 (30.5%)
COVID/SARI	32 (27.1%)
Surgeries/procedures	12 (10.2%)

**Table 11: The impact of COVID-19 pandemic in clinical practice over long term**

Impact	n
Negative	46 (39%)
Revert to pre-pandemic	35 (29.7%)
Impossible to return to pre-pandemic	21 (17.8%)
Positive	16 (13.6%)

**Table 12: Table showing the concerns of doctors about the COVID-19 pandemic on their clinical practice**

Primary concern	n
Financial problems	11 (9.3%)
Problems in handling complicated cases	15 (12.7%)
Patient care is affected	31 (26.3%)
Multifactorial	60 (50.8%)

**Table 13: Table showing the aspect of doctors' life that is affected by the COVID pandemic**

Aspect of life affected	n
Family life	23 (19.5%)
Lifestyle/habits	28 (23.7%)
Psychological distress/perceived well-being	37 (31.4%)
Patient doctor relationship and security	30 (25.4%)

**Table 14: Table showing the Doctors postings in COVID/triage area on rotation**

Postings	n
Based on the surge in cases	48 (40.2%)
Monthly	34 (28%)
Weekly	15 (12.7%)
Never worked	21 (17.8%)

The risk of COVID-19 infection exposure risk for the doctors is shown in Table 15.

The opinion of doctors on patients/attendees following the COVID-19 protocol [masks and social distancing] during pandemic: Table 16.

The COVID pandemic impact on clinical examination technique during the pandemic in practice is shown in Table 17.

The COVID-19 protection protocol followed by doctors during the surgeries/procedures: Table 18.

The follow-up advice given to the patients (general cases, post-operative, and any chronic case) by doctors: Table 19.

The opinion of doctors on the use of investigations during the pandemic in their clinical practice is shown in Table 20.

The behavior of patients/attendees during pandemic is shown in Table 21.

In our study, 46 doctors (39%), the participants of the study, were not infected with COVID-19 infection during and till the study period, whereas remaining 61% were infected one time or the other since the onset of pandemic. Forty-four doctors (37.3%), the participants,

**Table 15: Table showing COVID-19 infection exposure risk, as opined by the doctors**

Risk	n
Some risk	13 (11%)
Avoidable using PPE	65 (55.1%)
High if managing the COVID patients even with PPE	19 (16.1%)
High in non-COVID side	21 (17.8%)

**Table 16: Table showing the opinion of doctors on patients/attendees following the COVID-19 protocol [masks, social distancing] during pandemic**

Protection measures followed by patients/attendees	n
Partially	50 (42.4%)
Ignorant	32 (27.1%)
Never	18 (15.3%)
Strictly	18 (15.3%)

**Table 17: Table showing the COVID pandemic impact on clinical examination technique during the pandemic in practice**

Clinical examination technique	n
Same as pre-pandemic	16 (13.6%)
Only essential examination is done	78 (66.1%)
Avoid touching the patients	14 (11.9%)
Only vitals are examined	6 (5.1%)

**Table 18: COVID-19 protection protocol followed by doctors during the surgeries/procedures**

Opinion	n
Follow in all cases	64 (54.2%)
Selected cases	21 (17.8%)
While managing in COVID cases	13 (11%)
Not using	8 (6.8%)
Not applicable	11 (9.3%)

**Table 19: Table showing the follow up protocols followed by the doctors**

Follow-up advice changes in clinical practice	n
No change in comparison to pre-pandemic	22 (18.6%)
Reduced number of follow-up visits	63 (53.4%)
Teleconsultation	23 (19.5%)
Follow-up with a doctor near home/local	7 (5.9%)

opined that the infection was contracted during the clinical practice. Nine (7.6%) doctors believe probably the source of infection was outside the clinical practice/hospital (social gatherings, market, etc.). Nineteen (16.1%) doctors though infected are not sure about the probable place/source of contracting COVID-19 infection.

**Table 20: Table showing the opinion of doctors on the use of investigations during the pandemic in their clinical practice**

Use of investigations in comparison to the pre pandemic, in clinical practice	n
Unchanged	13 (11%)
Use and reliability on investigations has increased	80 (66.8%)
Use and reliability on investigations has decreased	17 (14.4%)
Only reliability has increased	8 (6.8%)

**Table 21: The behavior of patients/attendees during pandemic**

Behavior of patients/attendees	n
Unaltered	30 (25.4%)
Polite	21 (17.8%)
Aggressive	44 (37.3%)
Casual	22 (18.6%)

## DISCUSSION

Our study shows a significant reduction in non-COVID cases seen by doctors in the OPD during the pandemic in comparison to the pre pandemic. A study by Homeniuk and Collins noted more than half of practices saw a reduction in the non-COVID-related consultations.<sup>1</sup> A German study with 1095 general practices (GPs) and patients aged 65 or older found that there was a 14% decrease in consultations in May 2020 compared with the same time in 2019.<sup>1</sup> Another article says that there was a decrease overall in GP appointments (GPs and practice nurses) in the early days of the pandemic. This is similar to reports in the UK from data taken from March 2020, where the National Health Service has noticed a 30% decrease in the number of GP appointments compared with previous data.<sup>5</sup> An online survey by Keshav et al., with respect to Indian orthopedic practice during the COVID-19 pandemic, noted that the routine OPDs were shut down in most of the states, more than half of practicing surgeons noted fall in OPD numbers by 90%, reasons for fall in OPD patients numbers – doctors did not take risk in seeing cases without screening for COVID, patients' fear of contracting infection, inability to reach the hospital due to cancellation of public transportation, and older people with chronic comorbidities willing to take over the counter medications staying at home.<sup>3</sup>

Our study noted a reduction in the number of non-COVID IPD cases during the COVID pandemic in comparison to the pre-pandemic IPD cases. Beshyah et al., study has reported a significant reduction in inpatient admissions during the pandemic period compared to pre-pandemic time resulting in a flat rate

for empty beds and reduced hospital revenue.<sup>6</sup> A study by Birkmeyer et al., noted hospital admissions fell precipitously with the onset of COVID-19 pandemic in the US in March 2020, with hospital admissions <50% of the capacity. It was hypothesized that many patients did not seek medical care out of fear of contagion, stay at home orders, or concerns about access at COVID-19 overrun hospitals.<sup>7</sup>

In our study, doctors from various specialties were managing COVID/SARI-related cases during the pandemic. The other cases that were seen by doctors during this pandemic were emergencies concerned to their specialty, cases referred from other hospitals for further management, and increase in cross consultations. It was noted in the Nair AG study that most of the ophthalmologists working in large institutes and government hospitals were still seeing and operating cases. Majority of the private practitioners had closed their practices and were not actively involved in direct patient care.<sup>2</sup> While emergencies such as trauma and other conditions that qualified for emergent care remained the most common procedures still being performed.<sup>2</sup>

In our survey, 43.2% of doctors were managing SARI/COVID-related cases during the pandemic, 19.5% say that they were engaged in managing acute cases of their specialty. A survey by Keshav et al., noted, emergency cases as a result of orthopedic trauma have reduced in this pandemic due to reduced road traffic accidents. One thing which is followed in pandemic is to get RT-PCR COVID testing for patients and take for surgery or managing the cases conservatively till the report is negative.<sup>3</sup>

In our study, all the doctors utilized telemedicine during the pandemic. The majority of these limited the teleconsultations to <5 per day. The doctors opinion, 41%, in our survey opine telemedicine is helpful in manageable cases, however, one-third opine it is difficult to analyze over phone. A study by Homeniuk and Collins states that the rapid national adoption of telemedicine consultations as well as electronic prescribing in Ireland has presented an opportunity; however, GPs are concerned that without as much face-to-face contact, critical non-verbal communication is missing from consultations, and in some cases, telephone consults are insufficient to address patient concerns.<sup>1</sup> The telemedicine may have negative impact on delivering the health care to those people who have poor computer proficiency, the elderly, and the people from lower socioeconomic strata.<sup>1</sup>

In our study, majority of the doctors used face mask and gloves in their clinical practice. A study by Keshav *et al.*, says that all the surgeries should be done wearing PPE kits.<sup>3</sup> A study by Nasta *et al.*, noted that 56.9% of doctors would use PPE in all cases.<sup>4</sup>

In our study, 56.8% of doctors believe that the pandemic will have negative impact on the practice and it may not be possible to revert to pre-pandemic practice. A study by Homeniuk and Collins noted the changes adopted during this pandemic accelerated the digitalization of healthcare and it is likely that the way GP is delivered will not return to as it was before the COVID-19 pandemic and increased telemedicine can be expected.<sup>1</sup> An article by Rubin mentions after the ease of lockdown physicians practice is somewhat improving but it is still well below pre-COVID-19 pandemic levels and is expected to stay that way, at least as long as social distancing is required. The observed declines in vaccination coverage, during the pandemic, might leave young children and communities vulnerable to diseases such as measles which are vaccine preventable.<sup>8</sup>

In our study, majority of the doctors' concern in clinical practice due to pandemic effect is multifactorial: Finances, patient care, etc. During the pandemic, the economic growth of country is negative. These changes have affected the surgeons' income.<sup>3</sup> A study by Nasta *et al.*, states a drop of more than 75% of their monthly income experienced by 52% of surgeons, while 22% faced 50–75% reduction.<sup>4</sup> Health authorities and scientists have warned that widespread misinformation about COVID-19 is a serious concern causing xenophobia worldwide.<sup>4</sup>

Our study has noted that the pandemic impact on practice has affected doctors' family life, lifestyle, well-being, and the patient-doctor relationship. A survey by Keshav *et al.*, noted most of the surgeons stopping elective surgeries, leading to patients getting profoundly affected.<sup>3</sup> de Sutter *et al.*, study noted the challenges in times of COVID-19 pandemic: Shortage of personnel and equipment, stress, loneliness, insecurity, distress, fear for one loved ones, and personal health issues during treating patients.<sup>9</sup> Psychological distress and well-being in doctors have been the subject of numerous studies done during the COVID-19 pandemic.<sup>10</sup> An article by Rubin says that the pandemic has affected the smaller clinical practices to close, significant income reduction in clinical practice and hence reduced salary to the nurses working in these clinics.<sup>8</sup>

In our survey, the risk of HCW getting infected with COVID-19 infection is same for all and risk is everywhere in the clinical practice. However, 57.6% of doctors in our study believe that it is more for HCW working in triage or SARI or COVID area.

In our study, 40.7% of doctors work in COVID or triage area on a weekly or monthly rotation basis during the pandemic. In our study, two-thirds of the doctors belonged to junior cadre. An article on COVID-19 impact on medical trainees states that the number of patients attending the clinics was reduced, and therefore, the opportunities for trainee engagement in the outpatient environment were significantly less. The medical trainees were reassigned from team-based specialty rotations to non-specialty specific general medicine wards.<sup>11</sup>

In our survey, majority of the doctors opined that the COVID-19 infection in clinical practice is avoidable using PPE. Our survey has noted down that 54.2% of doctors follow COVID-19 protection protocol for all cases during the procedures/surgeries, 28.8% say that they follow only in selected cases. A study by Keshav *et al.*, mentions considering the fact that RT-PCR has a false-negative rate of almost 20%, all the surgeries should be done wearing PPE kits.<sup>3</sup>

In our study, one-third doctors opined that the number of elective surgeries are reduced during the pandemic. The next common change observed during the pandemic is managing only acute cases. The pandemic has made an impact on follow-up of patients too, 79% of doctors' advice the patients to follow-up less frequently or advise telemedicine or the patients are advised to follow-up in a local hospital. A survey on orthopedic practice in pandemic reported significant cancellation of orthopedic surgical activities including emergency and trauma surgeries. Other reports from urology specialties also documented progressively reduced interventions, changes in patients' and surgical scheduling, cancellation of elective surgeries, and staff recruitment from different medical and surgical specialties in managing and treating COVID-19-infected patients.<sup>6</sup>

The pandemic has made an impact on clinical examination pattern in clinical practice. In our survey, two-third of the doctors opined only the essential examination is carried out. The use and reliability on investigations in this pandemic have increased as per 66.8% of the doctors in our study. In our survey, 51.7% of doctors have opined that the time dedicated to the patients in OPD and IPD during the pandemic in comparison to pre-pandemic has

reduced. Beshyah et al., article states before the pandemic, an average of 30 patients in a 24h period was referred for evaluation. The majority (93.3%) of these resulted in hospital admission. During the COVID-19 pandemic, an average of 52 patients was assessed per 24h period, mostly with respiratory symptoms; fewer assessments resulted in admission (53.8%).<sup>6</sup>

In our survey, 57.7% of doctors opined that patient and their attendees partially followed or never follow the COVID-19 protection protocol. The behavior of the patients and their attendees during the pandemic has been aggressive as 37.3% of doctors opined. Bhat et al., article on dental practice during the pandemic, mentions the guidelines to be followed by patients: Hand hygiene, cough etiquette, social distancing in waiting area, face mask, and designated waste disposal area in hospital.<sup>12</sup>

In our study, majority of the doctors opined that they contracted infection during the clinical practice. An eye clinic is a high-risk environment for both: The examining doctor and the patient.<sup>2</sup>The majority of orthopedic procedures are aerosol generating, could be a potential source of infection to the surgeons in OT.<sup>3</sup>

### Limitations of the study

The limitations of our study are it includes the clinicians working in medical and dental college, doctors in private practice are not included. The study was done during the later phase of the second wave of COVID-19. The study cannot comment on the clinical practice trends after the second wave.

### CONCLUSION

The COVID-19 pandemic impact on clinical practice is varied. The number of non-COVID patients both in OPD and IPD in all specialties has reduced. The doctors from various specialties are involved in managing cases out of their specialty and have noticed reduced number of elective surgeries, however, acute care of the cases remains same. The observed changes in clinical examination pattern are as follows: Reduced time spent with patients, cutting down the detailed examination pattern, and increase in use and reliability on investigations. The pandemic has affected doctors in their family and personal life, patient-doctor relationship, and has affected perceived well-being. The use of telemedicine can be helpful. The points learned from this survey are health care workers should continue to use personal protection measures as per the guidelines and same should be emphasized persistently to the patients and their attendees. The time is bad during the pandemic,

it can be overcome by following the pre-pandemic clinical practice principles.

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**Authors Contribution:**

Dr Naveen S Kulkarni contributed by formulating the concept and design of the study, acquisition of data, analysis and interpretation of the results. He was also actively involved in drafting the article, revising it critically and final approval of the manuscript. Dr Neelakanth S Patil contributed in collection of data, analysis and interpretation of results and drafting the article. Dr Vishalakshi was involved in the planning of study design, questionnaire, acquisition of data, critically reviewing the article and in final approval. Dr Asha Bullappa, Dr Subhashree Mishra and Dr Hithashree Shriyan were actively involved in data acquisition, analysis of results, statistical analysis, interpretation of results, critical review of the article from time to time.

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