

Effect of Coronavirus Disease 19 on Surgical Residents

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Abstract

Introduction: Coronavirus disease 19 (COVID 19) is considered as the greatest challenge faced by mankind since the Second World War in 1939. COVID 19 was declared as a pandemic by the WHO on March 11, 2020. Because of COVID 19, surgical residents have been uniquely affected.

Aim and Objectives: The aim of the study was to assess the effect of COVID-19 on surgical residents with respect to their clinical schedules, operative load, and educational curriculum.

Materials and Methods: We conducted a cross-sectional survey from September 2020 to December 2020 using a questionnaire.

Results: Out of 127 participants, most of them are males and are final year residents. About 90% of them worked in COVID wards. About 94% felt that, their curriculum was effected by COVID-19. More than 60% of the residents missed their duties for more than or equal to 5 days. Operative load has been decreased drastically. Transmitting COVID to family and friends seems to be the most common fear among residents.

Discussion: Surgical profession demands a lot from an individual and most surgeons face difficulty in balancing between professional and private life. Surgical demand is significant all over the world and in India. Surgical demand was changed drastically after COVID pandemic, as most institutes were turned to COVID centers and residents irrespective of their specialty were sent to COVID wards.

Conclusion: COVID 19 has effected the training of surgical residents in clinical aspects, operative volume, and educational curriculum. Most of the residents felt that they could not utilize these online classes to the full extent.

Key words: COVID 19, Pandemic, Surgical residents

INTRODUCTION

Coronavirus disease 2019 (COVID 19) is considered as the biggest challenge faced by mankind since the Second World War in 1939.^[1] COVID 19 was declared as pandemic on March 11, 2020. The starting point of this pandemic was, when china informed cases of pneumonia of unknown etiology in Wuhan city in December 2019.^[2] India noted its first case on January 27, 2020, in Thrissur, Kerala.^[3,4] To

prevent the rapid spread of COVID 19, Government of India has announced a nationwide lockdown on March 24, 2020, which was extended till May 3, 2020.^[5] COVID-19 has led to significant worldwide change in surgical practice.^[5]

Surgical trainees have been uniquely affected by changes occurred due to COVID-19 which includes suspension of all elective surgeries, reduction in patients walking into the clinics, educational curricula moved toward completely online platform to avoid large gatherings, etc.^[2] Most of the surgical residents were sent COVID wards to care for COVID patients and COVID suspected patients.^[6] Dr. Daniele Macchini, a surgeon in Italy after seeing changes in surgical fraternity due to pandemic described it as "There are no more surgeons, urologists, orthopedists, we are only doctors who suddenly become part of a single team to face this Tsunami that has overwhelmed us."^[7]

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Aim and Objectives

The aim of the study was to assess the effect of COVID-19 pandemic among surgical residents related to their

1. Clinical schedules
2. Operative volume and
3. Educational curriculum.

MATERIALS AND METHODS

This is a cross-sectional survey done during the period of September 2020 to December 2020.

Inclusion Criteria

All the surgical residents who are willing to participate in our study were included in the study.

Exclusion Criteria

We excluded those who are not willing for the study.

Data are collected through questionnaire which was circulated through Google forms through WhatsApp and other means of social media. Our questionnaire consists of 22 questions which include basic information of a resident, questions related to effect of COVID 19 on their academic/clinical curriculum, operative volume, problems, and fears faced by them during COVID period.

RESULTS [TABLE 1]

A total number of residents responded were 127. Among them, 90 (71%) are males and 37 (29%) are females. Fifty (44%) are final year residents. 115 (91%) of the study population said that their institute was a COVID center [Figure 1] and 113 (88.9%) residents had worked in COVID wards [Figure 2]. 120 (94%) individuals felt that their academic/clinical curriculum was effected by COVID [Figure 3]. 59 (46%) residents opted that their curriculum was completely changed to online. 81 (64%) of them could not utilize these online classes to full extent [Figure 4] with most common reason stating that online classes are not interesting 37 (47%), followed by no time due to work load 17 (21%). 1–2 online classes per week seems to be ideal/feasible for residents. 85 (67%) missed their duties for more than or equal to 5 days per month. There were more online conferences/symposiums/online classes compared to previously according to 74% of the residents.

Majority of the residents said that both emergency (65%) and elective surgeries (98%) were reduced. Laparoscopic surgeries were decreased (75%) or completely stopped (24%) in some institutes. Hands on experience of the

Table 1: Response and analysis of questions

Questions	Yes (%)	No (%)
COVID Centre or not	115 (91)	12 (9)
Worked in COVID wards?	113 (89)	14 (11)
Curriculum affected by COVID?	120 (94)	7 (6)
Utilized online classes to full extent	46 (36)	81 (64)
Decrease in surgical load	110 (87)	17 (13)
Operated on COVID patients	78 (61)	49 (31)
Postgraduation course to be extended	38 (30)	89 (70)
Tested positive for COVID	44 (35)	83 (65)
Discriminated by non-medical	71 (56)	56 (44)

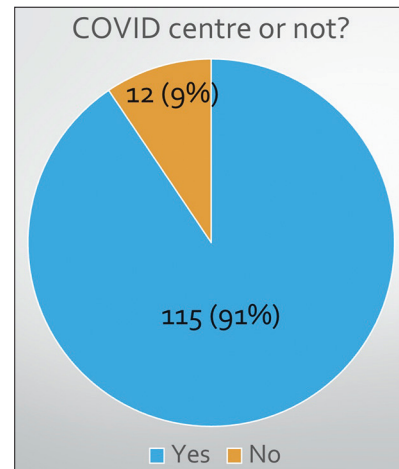


Figure 1: COVID centre or not?

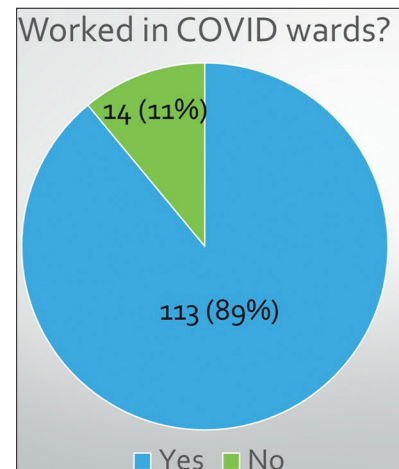


Figure 2: Worked in COVID wards?

residents were reduced (76%) in response to decreased surgical load. Only 31 (24%) residents felt that their institutes have taken measures to compensate the loss of hands on experience of residents by giving them more chances on limited patients (65%) and starting of simulation/skills lab (35%). 78 (61%) operated on COVID patients and 124 (98%) felt that pre-operative work up of a patient is more difficult compared to non COVID days.

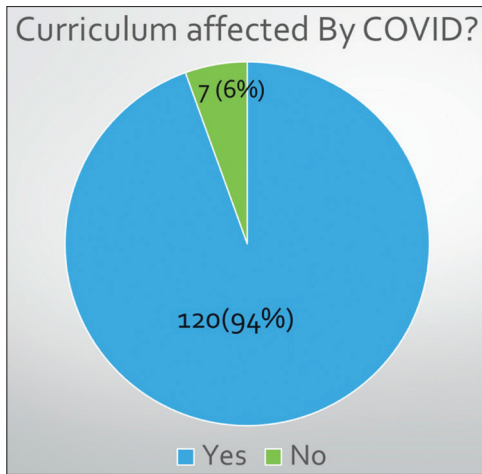


Figure 3: Is educational curriculum affected by COVID?

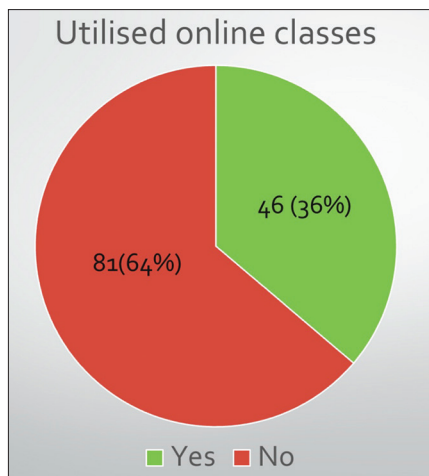


Figure 4: Have you utilized online classes to full extent

There were 38 (30%) residents who wanted their course to be extended for 3–6 months (75%). 44 (35%) residents were tested positive for COVID-19 and most of them (71%) were satisfied with the quarantine facilities provided by their institutes. Difficulty in operating with PPE kits (84%) and vision issues due to fogging of spectacles (83%) seemed to be the most common problems faced. Transmitting COVID to family and friends (91%), followed by increased stress about getting themselves sick (44%), was common fears among residents [Figure 5]. 60 (47%) felt that there was more time for self-study and 57 (44%) were more stressed about uncertainty of their exams. 56 (44%) were discriminated by non-medical people as they were avoided by their neighbors and their relatives.

DISCUSSION

Surgery is a complex profession that demands a lot from an individual both during and post-training. Most of surgeons have difficulty in balancing professional and private life

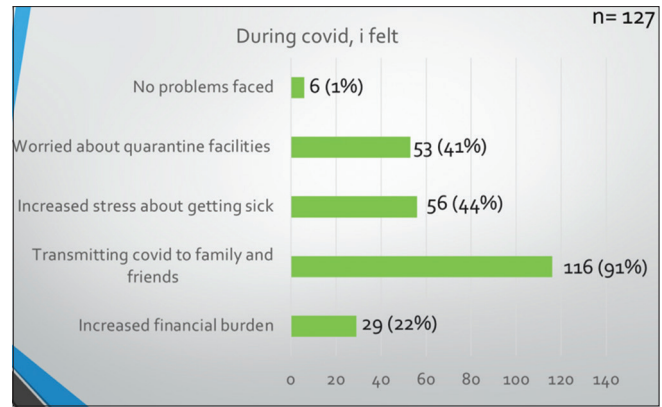


Figure 5: Problems faced by residents during COVID

and no time in taking part in extracurricular activities due to high workload and long working hours.^[4] Surgeons not only perform surgeries but are also responsible for patient care before, during, and after surgery.^[8] It is estimated that around 300 million operations takes place per year all around the world.^[9] Surgical demand in India is estimated to be 3646 surgeries per 100,000 Indian population per year. Out of 3646 surgeries, 26% are general surgical procedures followed by obstetrics and gynecological and ophthalmological surgeries.^[10] This surgical demand in India and all around the world was changed when WHO has declared COVID-19 as a pandemic.

To accommodate the increasing cases of COVID in India, most of the institutions were turned to COVID centers and all the residents irrespective of their specialty were posted in COVID wards. In our study, 88.9% surgical residents worked in COVID wards compared to 70.4% seen in a study done by Aziz *et al.*^[2] among residents in united states.

Clinical/Academic curriculum was negatively effected due to COVID as 94% said so in our study compared to 86% seen Dharini *et al.*^[11] study. To compensate this effect, online curriculum was started in 46% institutions seen in our study which was about 80.6% in Aziz *et al.*^[2] study. The amount of online classes/symposiums/conferences was increased compared to previously as 74% of our study population felt the same which was about 41.3% in Aziz *et al.*^[2] study. About 47% of the residents felt these online classes were ineffective compared to 62% seen in Dharini *et al.*^[11] study.

In our study, 67% of the residents missed their surgical duties due to COVID compared to 65.5% seen in Aziz *et al.* This can be co-related as 40% of the residents were not allowed to operation theatres to observe procedures as compared to 40.6% seen in Aziz *et al.* study.^[2] About 87% of the study population felt surgical load was decreased compared to 75% seen in Dharini *et al.*^[11] study.

Some of the residents (47%) felt that there was more time for self-study during COVID period as compared to Dharini *et al.*^[11] (20%). Operating in PPE kits seems to be the most common issue faced by residents in our study (84%) compared to 46.2% seen in Dharini *et al.*^[11] To compensate the loss of the surgical education during COVID 30% of the residents felt that extending course would be ideal when compared to 62.5% in Huamanchumo-Suyon *et al.*^[6] Transmitting COVID to family and friends (91%) and contracting to COVID infection to self (44%) seems to be the most common fears among residents compared to 72.7% and 55% in Aziz *et al.*^[2]

Even though educational curriculum was being maintained by online platform, from our study, we found that there is a necessity of streamlining of online classes, that is, organizing classes at timings feasible for the residents and limiting the classes to 1–2 classes per week. Including videos on operative planning and surgeon's experience would be helpful for the residents in watching the missed important surgeries during COVID. Starting a skills lab or simulation lab would also help in improving surgical skills of the residents.

CONCLUSION

Our study concludes that COVID 19 has effected the training of surgical residents in clinical aspects, operative load to a major extent and to a minor extent on educational curriculum as it is being balanced through online platform but most of the residents could not utilize these online classes to the full extent due to more online classes and conferences.

QUESTIONNAIRE

Name: Age: Sex:

Institute Name:

Email Id:

1. Is your institute a COVID center? a. Yes b. No
2. Did you work in COVID wards? a. Yes b. No
3. Do you think your clinical/academic curriculum effected by COVID-19?
a. Yes b. No
4. Was your educational curriculum changed to online program during COVID period?

- a. Yes b. Partly online and partly classroom teaching
c. Only classroom teaching d. No classes
5. Do you think, you have utilized these online classes to full extent?
a. Yes b. No
If no, reason? _____
6. How many online classes are ideal/feasible for residents according to you?
a. 1–2 classes per week
b. 3–4 classes per week
c. Daily classes
7. How many days of duty, you missed during COVID period?
a. <4 days per month b. 5–7 days per month
c. 8–10 days per month d. >10 days per month
8. Effect of COVID on amount of lectures, conferences, and symposiums compared to previously?
a. More b. Less
9. During COVID, I felt (Academic point of view) (Multiple options can be selected)
a. More time for self-study/More time for catching up on research
b. Reduced work related stress
c. Patient counseling skills deteriorated
d. More stressed about uncertainty of exams
10. Emergency cases operated during COVID period compared to before
a. Increased
b. Decreased
c. Remained same
11. Elective cases operated during COVID period compared to before
a. Increased
b. Decreased
c. Remained same
12. Laparoscopic surgeries done during COVID period compared to before
a. Increased
b. Decreased
c. Totally stopped
13. Do you think your institution has taken any measures to compensate residents reduced hands on exposure during COVID?
a. Yes b. No
If yes, what measures they took? _____

14. Have you operated on COVID 19 patients?
a. Yes b. No
15. Hands on experience for residents during COVID period?
a. Increased
b. Decreased
c. Totally stopped
16. Do you think COVID has changed anesthetists approach to accepting cases for operation theatres?
a. Yes b. No
17. Problems faced while doing procedures during COVID period (Multiple options can be selected)
a. Difficult to operate with PPE kits
b. Vision issues due to fogging of spectacles
c. Not allowed to operation theaters to observe surgeries
d. No problems faced
18. Do you think extending your residency course would be ideal for residents to cover the loss during COVID?
a. Yes b. No
If yes, for how long? _____
19. Have you tested positive for COVID (RAT/RT-PCR)/ tested positive for antibodies of COVID?
a. Yes b. No
20. Did your institute provide adequate facilities when you/your colleagues were infected with COVID 19?
a. Yes b. No
21. During COVID, I felt (Multiple options can be selected)
a. Increased financial burden
b. Stress about potentially transmitting COVID 19 to family and friends
c. Increased stress about taking more time off if i get sick
d. Worried about quarantine facilities
e. No problems faced
22. Have you faced any discrimination from non-medical people when you said that you are a doctor working in COVID 19 wards?
a. Yes b. No
If yes, describe. _____

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