



POSTGRADUATE EDUCATION AND TRAINING OF ANAESTHESIOLOGY RESIDENTS DURING COVID 19 CRISIS –A QUESTIONNAIRE BASED STUDY

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ABSTRACT

Background: The COVID 19 pandemic has caused a great impact on the entire medical fraternity and more so on anaesthesiology. There has been a major interruption in postgraduate learning ,teaching and research .This study was aimed to finding the cause of these interruptions ,their consequences and finding ways to adapt to these changes .

Objective: To find the causes ,effects and possible interventions on teaching ,learning and quality of work environment amongst anaesthesiologists during the pandemic.

Methodology: This study was conducted on 65 Anaesthesiology postgraduate students across South India undergoing training.

Results: We observed that in our survey , completion of thesis, stressful workload, disrupted OT rotations and absence of quarantine period supplemented to stress during learning period. Possibility of extension of course, infecting family and friends were the other concerns that were looked upon. This led to significant disarrangement in the pre existing pattern of postgraduate training and teaching. For certain postgraduates this period was advantageous in the form of more lectures and research related to the pandemic.

Conclusion: We concluded that, even though there has been a significant change in postgraduate teaching due to the untimely pandemic period, reorganization and well being programs provide a good solution for the existing problems.

KEYWORDS : Anaesthesiology residents, Covid 19 crisis , Postgraduate training

INTRODUCTION:

COVID 19 outbreak has dramatically impacted the healthcare systems, forcing the government to adopt emergency nationwide measures to contain the spread of the virus .The lockdown has disrupted medical education in turn revealing the various strengths and weaknesses in the Indian medical education.

As a result ,medical students in most countries were excluded from routine clinical rotations and in person classes .Instead ,all resources were diverted in managing the outbreak by involving medical students in management of COVID 19 patients ,cancelling elective surgical procedures and in person classes.¹ Thus internships and educative programmes had to advance from in person classes to remote learning.²

METHODOLOGY:**Study type and setting**

The study was a cross sectional study conducted on 65 Anaesthesiology postgraduate students across South India undergoing training.

Study duration

The duration of the study was 15 days (from 1st August 2021 to 15th August 2021) after the ethical committee approval.

Sampling method

The Convenience sampling method was used to derive the samples.

Study instrument and data collection

A standardized pretested validated structured questionnaire was administered as the study instrument. The data collection was done through online survey after registration.

Statistical Analysis

The data was entered in Microsoft excel and analysis was done in Statistical Package for Social Sciences (SPSS IBM) 22.0 and R environment ver.3.2.2 was used for analysis of the data and Excel was used to generate graphs, tables etc.

The descriptive data were expressed in frequency and percentages and the association was done using Pearson Chi-Square test, and P value less than 0.05 was considered significant.

Ethical consideration and confidentiality

All participants were informed regarding the purpose of study, benefits, procedure, and confidentiality of the research study. The study was undertaken after getting informed consent from the participants using the pretested, validated structured questionnaire.

RESULTS:

The response was received from 65 anaesthesiology postgraduate students across South India. Majority of the study participants were third year postgraduate trainees, females and belonged to private institutes.

Table 1: Educational Tool Employed In Institute To Impart Medical Education During Pandemic

Educational Tool	Year of Graduation			Total
	1 st Year	2 nd Year	3 rd Year	
Interactive E-learning	10(71.4%)	5(45.5%)	17(42.5%)	32(49.2%)
Lectures	2(14.3%)	3(27.3%)	10(25%)	15(23.1%)
Small group discussion	2(14.3%)	2(18.2%)	8(20%)	12(18.5%)
Workshops	0(0%)	1(9.1%)	3(7.5%)	4(6.2%)
Nil	0(0%)	0(0%)	2(5%)	2(3.1%)
Total	14(100%)	11(100%)	40(100%)	65(100%)

Table 2: Cause of apprehension during pandemic

Biggest Concern	Year of Graduation			Total
	1 st Year	2 nd Year	3 rd Year	
Completion of thesis	7(50%)	2(18.2%)	17(42.5%)	26(40%)
Decline in competency level	1(7.1%)	3(27.3%)	7(17.5%)	11(16.9%)
Delay in obtaining certificates and graduation	2(14.3%)	1(9.1%)	5(12.5%)	8(12.3%)
Extension of stipulated course	3(21.4%)	2(18.2%)	10(25%)	15(23.1%)
No concerns	1(7.1%)	3(27.3%)	1(2.5%)	5(7.7%)
Total	14(100%)	11(100%)	40(100%)	65(100%)

Table 3: Working schedule during pandemic

Variables	Year of Graduation			Total	P Value
	1 st Year	2 nd Year	3 rd Year		
Do you feel that senior consultants tend to take over COVID 19 cases in OT?					
• No	10(71.4%)	6(54.5%)	28(70%)	44(67.7%)	0.654
• Yes	4(28.6%)	5(45.5%)	12(30%)	21(32.3%)	
Was there any well being program (eg: support groups) organised to alleviate stress in this crucial period?					
• Heard of other colleges organising such a program but not being conducted in my institute	2(14.3%)	4(36.4%)	6(15%)	12(18.5%)	0.047*
• No	7(50%)	6(54.5%)	31(77.5%)	44(67.7%)	
• Yes	5(35.7%)	1(9.1%)	3(7.5%)	9(13.8%)	
Have exams for final year postgraduates been postponed?					
• No	1(7.1%)	0(0%)	3(7.5%)	4(6.2%)	1.000
• Yes	13(92.9%)	11(100%)	37(92.5%)	61(93.8%)	
Has the curriculum and training for the calendar year covered all domains in pandemic period?					
• No	5(35.7%)	2(18.2%)	27(67.5%)	34(52.3%)	0.013*
• Not sure	4(28.6%)	2(18.2%)	4(10%)	10(15.4%)	
• Yes	5(35.7%)	7(63.6%)	9(22.5%)	21(32.3%)	
Have the OT rotations schedule been the same or are there more number of rotations in COVID ICU and COVID wards?					
• OT rotations unaltered	3(21.4%)	1(9.1%)	4(10%)	8(12.3%)	0.705
• Rotations are disrupted and more postings in COVID ICU and wards	11(78.6%)	10(90.9%)	33(82.5%)	54(83.1%)	
• Some rotations have been entirely dropped	0(0%)	0(0%)	3(7.5%)	3(4.6%)	
Is there quarantine period after COVID postings in your institute?					
• No	8(57.1%)	8(72.7%)	29(72.5%)	45(69.2%)	0.430
• Rules tend to change often so sometimes quarantine period is present	1(7.1%)	1(9.1%)	6(15%)	8(12.3%)	
• Yes	5(35.7%)	2(18.2%)	5(12.5%)	12(18.5%)	
Have elective surgery OTs been cancelled?					
• No	5(35.7%)	3(27.3%)	19(47.5%)	27(41.5%)	0.427
• Yes	9(64.3%)	8(72.7%)	21(52.5%)	38(58.5%)	
Total	14(100%)	11(100%)	40(100%)	65(100%)	

Table 4 : Individual experience related to work during COVID 19

Variables	Year of Graduation			Total	P Values
	1 st Year	2 nd Year	3 rd Year		
Best way to make use of pandemic period especially during quarantine?					
• E-learning and webinars	5(35.7%)	4(36.4%)	14(35%)	23(35.4%)	0.504
• Handling emergency cases alone	2(14.3%)	2(18.2%)	11(27.5%)	15(23.1%)	
• Self study	7(50%)	4(36.4%)	9(22.5%)	20(30.8%)	
• Taking part in research activities	0(0%)	1(9.1%)	6(15%)	7(10.8%)	
Has the pandemic generated interest in you to track more research articles on COVID 19 and do research on the same?					
• No	2(14.3%)	2(18.2%)	20(50%)	24(36.9%)	0.031*
• Not sure, need to explore yet	4(28.6%)	6(54.5%)	8(20%)	18(27.7%)	
• Yes	8(57.1%)	3(27.3%)	12(30%)	23(35.4%)	
Has the workload in COVID times increased despite decrease in elective OTs?					
• No	0(0%)	1(9.1%)	8(20%)	9(13.8%)	0.112
• Workload is almost the same as before the pandemic	3(21.4%)	2(18.2%)	2(5%)	7(10.8%)	
• Yes	11(78.6%)	8(72.7%)	30(75%)	49(75.4%)	
Have you shared your working experience in pandemic time with postgraduates from other colleges and had a healthy discussion regarding schedules , workload and training?					
• No	1(7.1%)	1(9.1%)	17(42.5%)	19(29.2%)	0.013*
• Yes	13(92.9%)	10(90.9%)	23(57.5%)	46(70.8%)	
Have ISA guidelines on COVID 19 been followed as a protocol in your institute?					
• Institute has its own protocol which is being followed	1(7.1%)	1(9.1%)	14(35%)	16(24.6%)	0.083+
• No	2(14.3%)	1(9.1%)	8(20%)	11(16.9%)	
• Yes	11(78.6%)	9(81.8%)	18(45%)	38(58.5%)	
Total	14(100%)	11(100%)	40(100%)	65(100%)	

DISCUSSION:

Anesthesiologists are the frontline workers in times of pandemic providing their extensive knowledge and expertise in patient care both in operation theatres(OT) and Intensive care units(ICU).³

Teaching by the operating table and hands on experience on live patients was the conventional technique to gain experience and skills.³Due to the rules of social distancing , daily face to face learning was no longer feasible. Hence attempts in learning was made through virtual platforms such as Zoom platform.⁴ In our

study, the most employed educational tool during the pandemic was through interactive E-learning and lectures.

To encourage more attendance, a teaching hospital in the United Kingdom provided weekly schedule emailed in advance. Through a planned schedule and reconstitution of clinical work during the second wave, the educational programme went on to function smoothly throughout the academic year. In our institute too, an organised timetable was set up that helped postgraduates to achieve their academic goals.

Simulation based learning has been widely implemented in skill training bearing many advantages in lifesaving emergency procedures and mastering the art of difficult airway management.⁵ Similarly our institute too had simulation based training that included difficult airway management, reduction in aerosol generating procedures such as bag and mask ventilation and encouraging use of regional techniques, videolaryngoscopy and rapid sequence intubation.

Quarantine was an inevitable part of the schedule for teams involved in COVID 19 task force. Such restrictions have interrupted the usual training activities and academic schedule. The American Board of Anaesthesiology had clarified that quarantine will be counted as clinical hours in order to ease attendance for residents.³ In contrast, there appeared to be no quarantine period after COVID postings in most institutes in South India due to the increase in caseload and lesser availability of anaesthesiologists in ICUs.

As the focus in pandemic time is on procedural skills associated with difficult airway management, vascular access and regional techniques all in less exposure time, it is natural that the responsibility is borne by the senior members of the anaesthesiology team. This led the postgraduates to believe that there is a compromise in their procedural skills as supported by our study.³

The pandemic has provided a chance for postgraduates to use time efficiently in developing leadership qualities, preparedness for disaster management.³ It was noticed in our study that the best way to make use of pandemic period was through E-learning, webinars and self study. The pandemic had generated interest in some and not in some others to track more research articles on COVID 19 and do research on the same.

Saudi Arabia residency program has identified root causes and the solution to the disruption in teaching and learning activities due to which the Continuous Medical Education (CME) was briefly stopped and resumed in lockdown in the form of Tele and video-conferences.⁶ Video-conferences, E-learning, simulation based skill learning were the adaptations which was similar in our study.

Reallocation of resources and clinical services to COVID ICUs have caused obvious change in monthly academic schedule, postponement of examinations and timely completion of training program that was also noted in our study.⁶ A greater number of students were unable to meet target sample size for their dissertation due to lesser elective OTs. This becomes crucial as completion of thesis is a vital element of MD syllabus.³

In Saudi Arabia, anaesthesia residents were encouraged to complete an online COVID 19 Critical Care Crash Course (5C Course) by the Saudi Commission for Health Specialities to teach basics of caring for COVID 19 patients.⁶ Comparably, as per our study, specific COVID 19 Airway training was conducted in majority of institutes across South India.

Stress factors like possibility of infecting others, workload, thesis completion were identified in the Saudi Arabian residency programme. The biggest concern for the trainees happened to be in completion of thesis followed by extension of stipulated course.⁶ Our study too identified same stress factors. Elective surgery OTs were cancelled in most institutes and despite this, the workload was reported to be more.

According to a study by Goh S et al, for judging core knowledge, summative assessments can be done using online platforms.⁷ A holistic approach has to be employed by authorities to assess trainees especially in times of disruption. The key to ensuring competency of the trainee is by evidence from outside the norm of the curriculum. Institutes must be flexible in assessing competency and at the same time be responsible to maintain standards.⁸ It was noted that in most institutes in South India, an objective structured clinical examination was conducted.

By modifying the rotation of trainees, conducting examinations and focusing on research, residency can function smoothly despite crisis. If in future any similar situation arises it will keep the young anaesthesiologists well prepared.⁹ Likewise, our study reported that OT rotations were rescheduled with more number of rotations in COVID ICU and wards. Unlike other countries, the curriculum and training for the calendar year could not be covered in all domains as per the study.

Preventing burnout is crucial in practicing physicians as it has several negative psychological effects.¹⁰ The seismic changes of pandemic have significant consequences on mental health of clinicians.¹¹ Peer support programs, well being programs, weekly check-ins with advisors and prioritizing family connections are certain strategies to prevent burnout.⁸ As per our study, majority of students had no well being programs being held in their workplace. To alleviate stress during the pandemic, trainees had shared their working experience with postgraduates from other colleges regarding schedules, workload and training.

The Indian Journal of Anaesthesia has published detailed guidelines on perioperative and critical care.^{12,13} ISA guidelines on COVID 19 had been followed as a protocol in most institutes as per our study.

Limitations:

Our survey has some questionable limitations. Despite our maximum efforts and repeated reminders, the response rate was much less than expected despite the large number of postgraduates undergoing training across South India, hence a clear picture of the adversities faced overall was not well defined. Duration of survey was only 15 days which might have garnered lesser responses. As the survey was conducted after the lockdown period, there might have been recall bias among the interviewees and this may have altered responses.

Strengths:

The questionnaire incorporated some issues that were previously unaddressed by the teaching faculty and in other studies. Such repeated periodic assessment and planning of teaching activities will be a boon for the Indian medical education system.

CONCLUSION:

The COVID 19 pandemic has conferred a great number of challenges to the clinical leads in maintaining effective medical education amongst anaesthesiology postgraduates. We conclude in our study that by employing technology for teaching and training programs, modification of examinations, reorganisation and rotation of the trainees and most importantly inclusion of well being programs, may ensure smooth functioning of residency during the crisis situation. As anaesthesia trainees are the current inspiration and future colleagues, in case of a future pandemic, these changes

maybe adopted to ensure safe anaesthesia practices amongst anaesthesiologists.

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