

## Original Article

## Impact of Covid-19 on Training of House Officers and Post-Graduate Residents During 3<sup>rd</sup> & 4<sup>th</sup> Wave of Covid-19 Pandemic in a Tertiary Care Hospital

Ali Asad Khan,<sup>1</sup> Anam Ali,<sup>2</sup> Sohail Bashir Sulehria,<sup>1</sup> Muhammad Kamran Yousaf,<sup>1</sup>  
Sadiq Qayyum,<sup>3</sup> Sajid AbaidUllah<sup>1</sup>

<sup>1</sup>King Edward Medical University, <sup>2</sup>University of Child Health Sciences, <sup>3</sup>Akhtar Saeed Trust Hospital

### Abstract

**Objective:** To study the impact of covid-19 on training of house officers and post-graduate residents during 3rd & 4th wave of covid-19 pandemic in a tertiary care hospital.

**Methods:** A cross-sectional study was conducted with a sample of 82 participants. Participants included post-graduate residents and house officers working in tertiary care hospitals during the 3rd and 4th wave of Covid-19 pandemic. The participants were interviewed through a preset questionnaire and the responses were recorded for all the categories. The data was analysed using SPSS version 22.

**Results:** Out of 82 participants, 34.1% of the house officers (n = 50) and post-graduate residents (n = 32) reported one face to face class per week with lack of online classes by 76.8% of the doctors. Majority of the doctors (63.4%) recorded loss of regular face to face training and (67.1%) decrease in teaching sessions in addition to a predominant shift (79.3%) towards self-directed learning than supervised. Majority of the doctors in this study reported disruption to rotas (73.2%), increased number of on-call duties (62.2%) and increasingly busy shifts (63.4%).

**Conclusion:** The training programs have been impacted by the on-going Covid-19 pandemic due to a lack of traditional training and teaching methods in effect. This however, has been replaced by virtual training modules using social media platforms bringing more emphasis on self-learning. There is a need of integration of traditional and virtual learning methods to combat the forced circumstances during Covid-19 pandemic.

**Keywords:** COVID-19 pandemic, Post-graduate residents, House officers, Residency training

### How to cite this:

Khan AA, Ali A, Sulehria SB, Yousaf MK, Sadiq Qayyum, AbaidUllah S. Impact of Covid-19 on Training of House Officers and Post-Graduate Residents During 3rd & 4th Wave of Covid-19 Pandemic in a Tertiary Care Hospital. J Pak Soc Intern Med. 2022;3(1):41-44

**Corresponding Author:** Ali Asad Khan

**Email:** asad.kemcolian@yahoo.com

### Introduction

Covid-19, an infectious disease, is caused by novel Coronavirus SARS-CoV-2 with more than 349 million cases worldwide and 5.59 million deaths and the count is still rising.<sup>1</sup> Corona virus spreads after an infected person releases droplets through coughing, sneezing or exhaling contaminating the surfaces, floor and air.<sup>2,3</sup> Common symptoms include fever, cough, fatigue, body aches and loss of taste or smell. More serious symptoms include dyspnea, sore throat and diarrhoea.<sup>4</sup> Majority of the patients recover with treatment and isolation however an estimated 15% need hospitalization and oxygen supplementation while 5% need intensive care.<sup>5-8</sup>

There have been lockdowns of various kind (country-wide, provincial or city-based, smart and micro-lockdowns), curfews, work-from-home conditions and isolations/quarantines for diagnosed and suspected cases. This has resulted in an increased absence from work within the medical faculty, lack of clinical exposure due to the reduced patient turnover, a decrease in the number of training and theoretical sessions and grand rounds due to standard operating procedures related to Covid-19.<sup>9-11</sup>

A number of studies have been conducted on risk factors of covid-19 among doctors, nurses, psychologists<sup>12</sup> and general population.<sup>13,14,15</sup> The present study was conducted

to study the impact of Coronavirus pandemic on the flow of structured training programme for house officers and post-graduate residents working in a tertiary care hospital during the 3<sup>rd</sup> and 4<sup>th</sup> wave. The objective was to establish whether there has been reduced clinical exposure, lack of training opportunities and a relative lack of clinical rounds resulting in compromised training standards during the Covid-19 pandemic to stress the importance of alternate training methods and learning platforms. The findings will help to mark the areas that need to be focused on while dealing with the pandemic to maintain the standards of training.

## Methods

**Study Design:** A cross-sectional research design was used in the present study.

**Sampling Strategy:** Non probability purposive sampling

**Sample Size:** Sample of 82 doctors working as a house officer or post-graduate resident in Mayo Hospital, Lahore was collected. Sample size was calculated through WHO calculator. Participants from both gender who were having training of at least 6 months during period of COVID-19 were included in the study.

**Demographic questionnaire:** The demographic questionnaire includes participant's age, gender, level of training, number of online classes per week, number of physical classes per week, loss of regular face to face teaching, decrease in teaching sessions, availability of seniors during round, availability of seniors during class, more self-directed learning than supervised, disruption to rotas, impact on the number of on-call duties, increasingly busy shifts, exposure to patients, confidence in performing procedures, motivation towards learning, knowledge and skills to manage patients, etc.

**Procedure:** After taking permission from institutional review board, permission was taken for data collection. 82 doctors were enrolled in the study after taking informed consent. Participants were debriefed about purpose of the study. They were ensured about confidentiality of identity and responses. Demographic sheet was filled. All participants were asked to answer questions related to impact of Covid-19 on the flow of structured training programmes and scores were recorded. Individual administration was done. All doctors were given right to leave the study at any time or ask any question related to research.

**Statistical Analysis:** All the collected data was entered into SPSS version 23.0 and analyzed. The qualitative data like demographics (gender; male or female) was presented by frequency and percentage. Quantitative data like age (years) was presented by means and standard deviations.

## Results

Out of 82 participants, 33 were males and 49 were females with a mean age of 26.27 years (SD = 2.23). 34.1% of the house officers (n = 50) and post-graduate residents (n = 32) reported one face to face class per week during COVID-19 pandemic with a lack of online classes as reported by 76.8% of the doctors. Majority of the doctors (63.4%) recorded loss of regular face to face training and (67.1%) decrease in teaching sessions. Majority of participants confirmed the availability of seniors during rounds (74.4%) and classes (75.6%) however, this was contradicted with a predominant shift (79.3%) towards self-directed learning than supervised during COVID-19. Majority of the doctors in this study reported disruption to rotas (73.2%), increased number of on-call duties (62.2%) and increasingly busy shifts (63.4%) during COVID-19 pandemic. 67.1% of the doctors were satisfied with an adequate exposure to the patients and 43.9% had some degree of self-confidence in performing the procedures. Majority (47.6%) of doctors were motivated towards learning and 41.5% considered having the knowledge and the skills to manage patients in COVID-19 pandemic (see Table 1 & 2).

**Table 1:** Demographic Characteristics of the Sample (N= 82)

	F	%
<b>Gender</b>		
Male	33	40.2
Female	49	59.8
<b>Level of training</b>		
House officer	50	61.0
Post graduate resident	32	39.0
<b>No. of online classes/week</b>		
0	63	76.8
1	9	11
2	4	4.9
3	6	7.3
<b>No. of physical classes/week</b>		
0	20	24.4
1	28	34.1
2	13	15.9
3	8	9.8
4	3	3.7
5	1	1.2
6	9	11.0
<b>Loss of regular face to face teaching</b>		
Yes	52	63.4
No	30	36.6

<b>Decrease in teaching sessions</b>			
Yes	55	67.1	
No	27	32.9	
<b>Availability of seniors during round</b>			
Yes	61	74.4	
No	21	25.6	
<b>Availability of seniors during class</b>			
Yes	62	75.6	
No	20	24.4	
<b>More self-directed learning than supervised</b>			
Yes	65	79.3	
No	17	20.7	
<b>Disruption to rotas</b>			
Yes	60	73.2	
No	22	26.8	
<b>Impact on the no. of on-call duties</b>			
Decreased	31	37.8	
Increased	51	62.2	
<b>Increasingly busy shifts</b>			
Yes	52	63.4	
No	30	36.6	
<b>Exposure to patients</b>			
Inadequate	27	32.9	
Adequate	55	67.1	
<b>Confidence in performing procedures</b>			
Slightly	6	7.3	
Somewhat	36	43.9	
Very	27	32.9	
Extremely	13	15.9	
<b>Motivation towards learning</b>			
Slightly	8	9.8	
Somewhat	22	26.8	
Very	39	47.6	
Extremely	13	15.9	
<b>Knowledge and skills to manage patients</b>			
Slightly	6	7.3	
Somewhat	34	41.5	
Very	33	40.2	
Extremely	9	11.0	

**Table 2:** Mean Scores and Standard Deviations of Age of the participants (N=82)

	Min.	Max.	Mean	SD
<b>Age (in years)</b>	23	32	26.27	2.23
<b>Training covered (in months)</b>	6	48	19.39	14.42

## Discussion

Covid-19 pandemic had a significant impact on the daily routines and practices in the hospitals that included patient care as well as the training programmes for the junior doctors (house officers and post-graduate residents). There have been various strategies used to encounter the impact and the difficulties faced due to the paradigm shift in professional and social interactions enforced by the SOPs related to Covid-19 pandemic. The new practices included online classes using social media platforms (Zoom, Microsoft Teams), online quiz and assessments (Google Forms, Microsoft Office), videos detailing the skills, procedures, patient examination (Youtube, Whatsapp). The new strategies have been employed to fill the gaps in the training of doctors however, there have been discrepancies on different levels and the present study was used to investigate the effectiveness and impact of the new models of learning on the training.

During the study, number of physical classes varied from 0-1 (24.4% - 34.1%) per week during COVID-19 pandemic with a lack of online classes reported by 76.8% of the doctors. Majority of the doctors (63.4%) recorded loss of regular face to face training and (67.1%) decrease in teaching sessions. Multiple studies were conducted to investigate the effectiveness of online training sessions and classes and the acceptability among the students and found out that online sessions were an effective replacement of physical interactions however, the challenges remained around high-speed internet availability and connectivity, distractions in the form of social media and an increased lack of socialization leading to a lack of interest in online sessions.<sup>12-15</sup>

Majority of participants confirmed the availability of seniors during rounds (74.4%) and classes (75.6%) however, this was contradicted by a predominant shift (79.3%) towards self-directed learning than supervised during COVID-19. Similar findings were reported among other studies where Covid-19 related physical absence, psychological and emotional challenges were faced by teaching faculty and post-graduate students as well.<sup>16,17</sup> Majority of the doctors in this study reported disruption to rotas (73.2%), increased number of on-call duties (62.2%) and increasingly busy shifts (63.4%) during COVID-19 pandemic. This is similar to the findings reported by Razu SR et al where they showed an increase in the professional burden on senior and junior faculty along with an increase in number of duty hours and workload.<sup>18</sup>

67.1% of the doctors were satisfied with an adequate exposure to the patients and 43.9% had some degree of self-confidence in performing the procedures. Majority (47.6%) of doctors were motivated towards learning and 41.5% considered having the knowledge and the

skills to manage patients in COVID-19 pandemic. The impact of Covid-19 pandemic on the post-graduate training has been under investigation with controversial and conflicting results but the impact on workload, patient exposure for Covid-19 related symptoms and complications and the ability to handle the patients have been universally acceptable. This however, is in contrast with many studies reporting varying levels of satisfaction among post-graduate residents and confidence in their skills and clinical ability.<sup>19</sup>

The findings of the study are applicable to the current group of post-graduate residents and house officers who are undergoing their training programs. The findings can help design combative and effective strategies for lesson and training plans using social media platforms considering the forced breaks due to Covid-19 pandemic. The study was multicentre and involved participants from different training programs and in different years of residency however an objective assessment of competence of participants was not part of the study. On the basis of results of this study, further studies can be initiated while comparing teaching and training models in other groups as well as the effectiveness of social media platforms in comparison to the traditional modes of learning.

### Conclusion

The training programs have been impacted by the ongoing Covid-19 pandemic due to a lack of traditional training and teaching methods in effect. This however, has been replaced by virtual training modules using social media platforms bringing more emphasis on self-learning. There is a need of integration of traditional and virtual learning methods to combat the forced circumstances during Covid-19 pandemic.

**Conflict of Interest:** None

**Funding Source:** None

### References

- Dong E, Du H, Gardner L. An Interactive web-based dashboard to track Covid-19 in real time. *The Lancet Inf Dis.* 2020;20(5):533-4.
- Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. *Ann Intern Med.* 2020; 172(4):577-82.
- Dawood FS, Ricks P, Njie GJ, Daugherty M, Davis W, Fuller JA, et al. Observations of the global epidemiology of COVID-19 from the prepandemic period using web-based surveillance: a cross-sectional analysis. *Lancet Inf Dis.* 2020;20(11):1255-62.
- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020;395(4):497-506.
- Paules CI, Marston HD, Fauci AS. Coronavirus infections — more than just the common cold. *JAMA* 2020; 323(5):707-8.
- Kimball A, Hatfield KM, Arons M, James A, Taylor J, Spicer K, Bardossy AC, Oakley LP, Tanwar S, Chisty Z, Bell JM. Asymptomatic and presymptomatic SARS-CoV-2 infections in residents of a long-term care skilled nursing facility — King County, Washington, March 2020. *MMWR Morb Mortal Wkly Rep.* 2020; 69(13): 377-81.
- Wölfel R, Corman VM, Guggemos W, Seilmaier M, Zange S, Müller MA, Niemeyer D, et al. Virological assessment of hospitalized patients with COVID-2019. *Nature.* 2020;581(7809):465-69.
- Wang D, Hu B, Hu C. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *JAMA* 2020; 323(8): 1061-69.
- Servin-Rojas M, Olivas-Martinez A, Dithurbide-Hernandez M, Chavez-Vela J, Petricevich VL, Garcia-Juarez I, et al. Impact of the COVID-19 pandemic on the clinical training of last year medical students in Mexico: a cross-sectional nationwide study. *BMC Med Educ.* 2022;22(1):24-30.
- Patil A, Ranjan R, Kumar P, Narang H. Impact of COVID-19 Pandemic on Post-Graduate Medical Education and Training in India: Lessons Learned and Opportunities Offered. *Adv Med Educ Pract.* 2021;12(5):809-16.
- Yuen J, Xie F. Medical education during the COVID-19 pandemic: perspectives from UK trainees. *Postgraduate Med J.* 2020;96(3):432-33.
- Dost S, Hossain A, Shehab M, Abdelwahed A, Al-Nusair L. Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students. *BMJ Open* 2020;10(1):e042378.
- Sebbani M, Adarmouch L, Mansouri A, Mansoury O, Michaud S, Rhassane ElAdib A, et al. Implementation of Online Teaching in Medical Education: Lessons Learned from Students' Perspectives during the Health Crisis in Marrakesh, Morocco. *Edu Research Intl.* 2021. 554(7821).244-52.
- Shetty, S., Shilpa, C., Dey, D. et al. Academic Crisis During COVID 19: Online Classes, a Panacea for Imminent Doctors. *Indian J Otolaryngol Head Neck Surg.* 2022;74(1):45-9.
- Gupta S, Dabas A, Swarnim S, Mishra D. Medical education during COVID-19 associated lockdown: Faculty and students' perspective. *Med J Armed Forces India.* 2021;77(Suppl 1):79-84.
- Giordano L, Cipollaro L, Migliorini F, Maffulli N. Impact of Covid-19 on undergraduate and residency training. *Surgeon.* 2021;19(5):199-206.
- Gottenborg E, Yu A, Naderi R, Keniston A, McBeth L, Morrison K, Schwartz D, Burden M. COVID-19's impact on faculty and staff at a School of Medicine in the US: what is the blueprint for the future? *BMC Health Serv Res.* 2021.21(4):395-98
- Razu SR, Yasmin T, Arif TB, Islam MS, Islam SMS, Gesesew HS et al. Challenges Faced by Healthcare Professionals During the COVID-19 Pandemic: A Qualitative Inquiry From Bangladesh. *Front Public Health.* 2021;9(6):784-90.
- Patil A, Ranjan R, Kumar P, Narang H. Impact of COVID-19 Pandemic on Post-Graduate Medical Education and Training in India: Lessons Learned and Opportunities Offered. *Adv Med Educ Pract.* 2021;12(4):809-16