

Impact Of COVID-19 Pandemic On Ophthalmology Residency Training- A Cross-Sectional Survey Among Pakistani Residents

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Abstract

Background: The purpose of this study was to get an idea of the impact of COVID-19 on Ophthalmology post-graduate training.

Materials & methods: This cross-sectional questionnaire-based study was conducted at the College of Ophthalmology and Allied Vision Sciences/Eye Unit III (King Edward Medical University), Lahore from 01-03-2021 to 31-08-2021. A web-based close-ended questionnaire (Google form) was developed consisting of questions related to residency training in the wake of the COVID-19 pandemic. Eighty-one Ophthalmology residents from across the country participated in this survey. Based on the responses to 21 questions, percentages of various variables in questions were calculated. Data analysis was done on SPSS version 22. Responses to questions are mainly presented as percentages. A chi-square test was applied to see the significant difference in survey questions. For categorical variables, Fisher's Exact test was applied. P-value ≤ 0.05 is considered significant.

Results: Twenty-seven ophthalmology residents were 1st year residents 23 were 2nd year residents while 3rd and 4th year residents were 14 and 17 respectively. 33% of residents thought their surgical training was affected badly due to covid-19 pandemic while 55% of them were concerned about their basic cataract surgery skills. 67% of residents were in favour of their training extension for 6-12 months. The majority of residents stated that COVID-19 affected their training adversely ($p=0.000$) and cataract surgery training was the most affected one ($p=0.000$)

Conclusion: The COVID-19 pandemic has severely affected the clinical and surgical training of post-graduate ophthalmology residents. Formulation of institution-based & nationwide short and long-term strategies regarding web-based teaching, surgical simulation courses and necessary adjustments in curriculum are the need of the hour.

Keywords: Ophthalmology, COVID-19.

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1. Introduction

A peculiar case of pneumonia was observed in the Chinese city of Wuhan in late 2019 only to spread globally in the months to come. Soon after it was named severe acute respiratory syndrome coronavirus 2 also known as novel coronavirus 2019 (Ncov-19).^{1,2} In response to this global pandemic, multiple social, economic and therapeutic steps were taken worldwide. Various treatment regimens were developed which include the development of vaccines by various countries.³

With the advent of COVID-19, healthcare workers have been under immense stress both physically and psychologically. A significant proportion of them may have been working in the Ncov-19 screening counters or have been exposed to corona-positive patients during their routine clinical work. A major proportion of these healthcare workers are post-graduate residents working in different specialties in

tertiary care teaching hospitals across Pakistan. In addition to imposing smart lockdowns and timing restrictions on business, the Health authorities have suspended the outpatient activities and elective surgeries of some departments including ophthalmology.^{4,5,6}

During the literature search, a lot of literature is available on the impact of the COVID-19 pandemic on ophthalmology residents. The literature focuses on physical and mental health, Acquisition of knowledge, skills and attitudes and also the impact on the family.⁷ Based on these data, the residency program directors and decision makers have introduced new teaching methodologies i.e. webinars, online classes, one-to-one video calls, increasing use of surgical skills models etc. to reduce the negative impact of COVID-19 on residents. However, the authors did not find any study on the impact of this pandemic on ophthalmology residents

in Pakistan, which was the rationale for conducting this online questionnaire-based survey.

2. Materials & Methods

This cross-sectional questionnaire-based study was conducted after ethical approval at the College of Ophthalmology and Allied Vision Sciences/Eye Unit III (King Edward Medical University), Lahore from 01-03-2021 to 31-08-2021. An online survey form was created on Google Forms and was circulated among eye care workers (Residents) via a social media application (WhatsApp). An invitation was sent to participate in the survey, and upon consenting to participate survey form was offered to be filled by the participant. This descriptive survey was conducted from 1st March 2021 to 30th May 2021 during which responses were allowed. The survey form consisted of 21 questions with options for participants to enter their names and email addresses. Based on the responses, percentages of various variables in questions were calculated. Data analysis was done on SPSS version 22. Responses to questions are mainly presented as percentages. A chi-square test was applied to see the significant difference in survey questions. For categorical variables, Fisher's Exact test was applied. A P-value ≤ 0.05 is considered as significant.

3. Results

Of all the ophthalmologists who responded to the survey, 80% were postgraduate residents. 27 doctors were 1st year residents and 23 were 2nd year residents while 3rd and 4th year residents were 14 and 17 respectively. 33% of residents thought their surgical training was affected badly due to covid-19 pandemic while 55% of them were concerned about their basic cataract surgery skills. (Table 1)

The majority of ophthalmologists were not comfortable with telephone consultations and were not involved in any virtual ophthalmology practice. While 45% of ophthalmologists graded the impact of COVID-19 on their surgical/clinical training as severe, simulation-based tools were available to only 13% of them at their respective departments. Most importantly, 67% of residents were in favour of their training extension for 6-12 months. (Table 2)

5. Discussion

Silva N et al⁸ collected data on the effects of covid-19 pandemic on ophthalmology resident training in

Portugal. In this study, 99% of residents said that their mode of clinical practice has been altered, 87% were predominantly involved in emergency eye care, 25% did not participate in any outpatient activity, 36% did not participate in any surgical activity and 80% of the residents demanded an extension in the training period. Another study conducted by Mahmoud H⁹ also depicted similar results. 38.5% of specialists participated in answering the questionnaire, 61.1% being the residents. The majority (57%) of participants were of the view that COVID-19 negatively affected surgical skills acquisition. The results are consistent with our study in which 72% of trainees experienced deterioration in surgical skills. 86% of the participants suggested increasing online courses and webinars.

Erdem B et al¹⁰ carried out a study in Turkey involving ophthalmologists. 11.5% of ophthalmologists experienced severe anxiety during the lockdown and 15% of ophthalmologists said that they missed the diagnosis. The situation was even worse in case an infected patient was encountered. The impact of COVID-19 was studied by Woodfin MBS et al¹¹ in ophthalmology residents. More than half of the trainees said that they had been exposed to covid positive patients and 37% of them did not have the necessary protective gear. More than 70% of residents were afraid that less surgical exposure would affect their surgical skills beyond residency as more than 9% of them were clinically depressed in contrast to 55% of residents fearful of not developing adequate cataract surgical skills in our study.

If we compare the studies conducted in the region, Mashitha MS et al¹² evaluated the knowledge, skills and attitudes of ophthalmology residents during covid-19 pandemic. 82% of residents were of the view that covid-19 pandemic badly affected psychomotor skills (surgery). Szigiato AA et al¹³ in Canada collected the experiences of ophthalmology residents during covid-19 pandemic. More than 26% of them were of the view that there was an outbreak of SARS-CoV-19 in their department resulting in more than 31% of them being tested positive for COVID-19. 23.5% were of the view that their surgical skills would deteriorate and 34% were worried about finding a fellowship. Paco c et al¹⁴ obtained medical student perceptions on training in Canada. Before the pandemic, all programs taught pre-clerkship clinical skills in person.

Table-1

Sr No	Survey Question	N1	N2	N3	N4	P-Value-Chi square test
1	Are you a Fellow or a Resident?	Fellow	Resident			
		20 (19.8%)	81 (80.19%)			
2	If you are a resident, what is your year of training?	1 st Year	2 nd Year	3 rd Year	4 th Year	
		27/81 (33.33%)	23/81 (28.39%)	14/81 (17.28%)	17/81 (20.98%)	
3	How do you grade the impact of the COVID-19 pandemic on your training/practice?	Mild	Moderate	Severe		0.000
		12 (11.88%)	43 (42.57%)	46 (45.54%)		
4	How many days a week did you work during the COVID-19 lockdown?	3 Days	4 Days	5 Days	6 Days	0.246
		23 (22.72%)	26 (25.74%)	19 (18.81%)	33 (32.67%)	
5	How much your surgical activity/exposure has decreased during the COVID-19 pandemic?	Less than 25%	26-50%	51-75%	More than 75%	0.787
		19 (18.81%)	23 (22.77%)	26(25.74%)	33(32.67%)	
6	Which surgery do you think has been affected most during the COVID-19 pandemic?	Cataract	Strabismus/Oculoplastics	Vitreoretinal	Filtration surgery	0.000
		56 (55.44%)	28 (27.72%)	12 (11.88%)	7 (6.93%)	
7	How much your clinical activity has decreased during the COVID-19 pandemic?	Less than 25%	26-50%	51-75%	More than 75%	0.083
		24 (23.76%)	28 (27.72%)	26 (25.74%)	23 (22.77%)	

Currently, 4 of the 11 (36.4%) have moved online, 2 (18.2%) continue in-person teaching, and 5 (45.4%) were unsure how pre-clerkship clinical skills will be delivered. An editorial written by Srinivasan S¹⁵ reflects upon the negative effects of lockdown on ophthalmology trainees. The most important concern was a lack of cataract surgery training. This finding in the editorial is consistent with our study results in which the majority of residents were worried about not having the necessary cataract surgery expertise. The author insists upon a system of triage to screen out urgent cases.

Khan MA and associates¹⁶ have studied the perceptions of vitreo retina speciality fellows during covid-19 pandemic. 98% of fellows reported a decrease in surgical case volume with one-fifth of trainees having clinical exposure to COVID-19-positive patients. A survey was conducted in Saudi Arabia to gather resident perceptions of COVID-19 about their ophthalmology practice, by Alahmadi AS et al¹⁷. The majority of participants expressed their concern about the decline in surgical procedures while 70.5% stated that covid-19 negatively affected their mental health.

Table-2

Sr No	Survey Question	Yes	No	P-value Fischer exact test
1	Are you comfortable with telephone consultation?	13 (12.87%)	88 (87.12%)	0.098
2	Are you involved in any virtual clinic/Telemedicine?	21 (20.79%)	80 (79.20%)	0.567
3	Does the emergency duty compensate for the routine (Learning)?	9 (8.91%)	92 (91.08%)	0.849
4	Is there any simulation-based training tool available in your department?	13 (12.87%)	88 (87.12%)	0.718
5	Do you think simulation-based training is useful?	39 (38.61%)	62 (61.38%)	0.800
6	Have you experienced a gap in your training/learning during COVID-19 Lockdown?	72 (71.28%)	29 (28.71%)	0.788
7	Have you been attending web-based teaching programs during the COVID-19 lockdown?	46 (45.54%)	55 (54.45%)	0.000
8	Do you think web-based teaching is better than traditional teaching?	30 (29.70%)	71 (70.29%)	0.062
9	Does watching web-based surgical videos improve your surgical skills?	63 (62.37%)	38 (37.62%)	0.302
10	Do you think telemonitoring of surgery can be beneficial?	14 (13.86%)	87 (86.13%)	0.469
11	Do you think post-graduate training should be extended for 6-12 months?	33 (32.67%)	68 (67.32%)	0.113

Under the umbrella of the Brazilian Council of Ophthalmology, a study was conducted by Gondim MPDMC and associates¹⁸ asking 96 ophthalmology training facilities about the impact of COVID-19. 23% of centers reported a decrease in outpatient load and 7% reported a decrease in elective surgery. Elective outpatient and elective surgery remained suspended in 31% & 54% of centres respectively.

A comprehensive survey was done in India concerning the ophthalmology training programs in COVID-19. Almost 24% of residents had to perform COVID-19 screening duties. 80% perceived that their surgical training has declined while 54% reported increased stress during a pandemic.¹⁹ Lo C and colleagues²⁰ have

studied the change in medical student attitudes who were applying for ophthalmology residency, about covid-19. The majority of the responders in this survey thought that COVID-19 has drastically reduced the chances of matching in an ophthalmology residency program. The major theme which was identified was the proposal of one-to-one video calls between director and resident to counteract the negative impacts of COVID-19.

In a study conducted in Poland²¹. 88% of trainees were of the view that their surgical training had been negatively impacted but 99% of the responders had positive views about online teaching and training programs in the wake of covid-19 pandemic. A similar

online survey was conducted among residents across thirty-two countries. A good number of trainees (74.6%) reported a decrease in surgical activity while 97% thought that web-based clinical teaching and discussions on surgical videos should be included in the training program.²²

In addition to hurting training, COVID-19 has drastically impacted the psychological health of ophthalmologists and residents alike. In a survey conducted in India, 32% of participants reported depression as a consequence of COVID-19 and 4% of them reported the severity of depression as severe.²³ In an online survey conducted in the United Kingdom, 39% of residents were redeployed to other specialities. Out of those, 86% were worried about the negative impact of their duties on clinical and surgical training.²⁴

5. Conclusion

The covid-19 pandemic has severely affected the clinical and surgical training of post-graduate ophthalmology residents. Formulation of institution-based & nationwide short and long-term strategies regarding web-based teaching, surgical simulation courses and necessary adjustments in curriculum are the need of the hour.

CONFLICTS OF INTEREST- None

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Contributions:

M.S - Conception of study

M.S, A.R - Experimentation/Study Conduction

A.R - Analysis/Interpretation/Discussion

A.R - Manuscript Writing

M.S - Critical Review

M.S, A.R - Facilitation and Material analysis

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