

EFFECT OF COVID-19 PANDEMIC ON OPHTHALMOLOGY RESIDENTS IN NORTH INDIA

Ophthalmology

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ABSTRACT

Purpose: Ongoing COVID-19 pandemic has globally affected training, skills and mental health of ophthalmology residents. This prospective, population based observational study was done to study the effect of COVID-19 on ophthalmology resident's education and mental health. **Methods and Materials:** 37-questions web-based survey was circulated amongst ophthalmology residents studying in North India between 1st to 30th April 2021. Questions comprised of their demographic profile, concerns regarding their training and skills and effect of COVID -19 on their mental health. The statistical analysis was performed using SPSS 27.0 for MAC (SPSS Inc.) Chi-square test was used to determine the level of significance. A p value of < 0.05 was considered statistically significant. **Results:** 52.1% of residents believed that COVID-19 had a severe impact on Post Graduate teaching program. 77.3% believed that appropriate measures were not taken to preserve effectiveness of their training. 94.7% of the residents opined that there was decrease in surgical exposure. 86.08% of residents thought there would be a dip in opportunities for international fellowships after finishing their course. 67.6% residents reported their deployment in COVID care wards out of which 73.9% residents had fear of getting infected with COVID-19. **Conclusion:** COVID-19 pandemic has significantly affected the personal and professional life of the ophthalmology residents. Their mental stress on variable issues needs to be addressed and solved on priority basis so that a healthier workforce is formed to fight against a pandemic like situation in future.

KEYWORDS

COVID-19, Ophthalmologist, Mental Health, Surgical exposure, Resident

INTRODUCTION

India witnessed the outbreak of COVID-19 virus (SARS) COV2 in the southern state of Kerala in January 2020. The World Health Organization declared a global emergency by COVID-19 virus on 12th March 2020. Around 10.2 million people were affected by corona virus in India in the year of 2020. This pandemic has had dramatic effects in every field including the health sector and lifestyle of people. Many countries, including India, had to take drastic measures to contain the infection. Government of India implemented a nationwide lockdown for about 70 days. As per government orders, all non-emergency outpatient departments (OPDs) in India were shut down in an attempt to decrease the spread of infection and all elective surgeries were deferred.⁴ These unprecedented circumstances not only posed a number of challenges for residents working in COVID-19 wards, but also significantly affected their professional time bound training in their specific fields.

Since Ophthalmology is both, an OPD based as well as surgical branch, training of residents in this field suffered a lot. Also, ophthalmology became a high-risk subspecialty due to risk of virus exposure to patient's conjunctival and respiratory secretions pertaining to close contact during ophthalmic examination. We conducted an online survey amongst the ophthalmology residents of North India to know how COVID-19 has affected their training, skills and mental health and what measures they have in their minds to tackle these problems. This study provides the pivot perspective of the resident regarding their professional life and their mental health.

MATERIAL AND METHODS

After taking necessary Institutional Ethical Clearance, a questionnaire based, cross sectional study was conducted amongst the ophthalmology residents studying in various medical colleges of North India from 1st April 2021 to 30th April 2021 by sharing web links via social networking sites, E-mail and messenger. The questionnaire was developed using Google forms and was validated by a pilot study on 10 participants. This questionnaire included their demographic profile, problems regarding their training and skills, their role in COVID-19, their mental health and various solutions to their problems.

Inclusion criteria: Ophthalmology residents irrespective of their year of residency from North Indian states were included in the survey.

Senior residents who have completed their residency were not included in the survey.

Statistical analysis: The data collected from the resident's feedback was calculated as frequencies and proportions. The statistical analysis was performed using SPSS 27.0 for MAC (SPSS Inc. Chicago, IL, United States). The categorical data was expressed as numbers with percentages and plotted as stratified bar charts wherever possible. Categorical data was evaluated using Chi-square test to determine the level of significance. A p value of < 0.05 was considered as statistically significant.

RESULTS

The questionnaire was sent to 150 ophthalmology residents of North India. A total of 115 residents (76.6%) responded to the request. The final analysis of all the responses was done in the form of proportions and frequencies. Considering demography aspect firstly, 70.4% (81) of the residents belonged to the age group of 26-29 years, 7.8% (9) belonged to the age group of 23-25 years and 21.7% were of age > 30 years. 42.6% of the residents were male and 57.3% were female. As residency period in India is of 3 years, 23.4% of the respondents were in their 1st year of residency, 40% of the respondents were in their 2nd year of residency, 36.5% were in their 3rd year of residency.

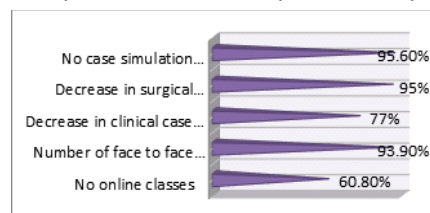


Fig. 1. Problems faced by residents in their training and skills

62.6% (75) of the residents informed that offline classes were taken before COVID-19 pandemic. 93.9% (108) of residents gave an account that the number of face-to-face classes had decreased during this pandemic (Fig. 1). This decrease in offline classes was significantly associated with the feeling of getting disqualified (72.17%) in the final examination ($p < 0.001$). Majority of the residents (60.9%) confirmed that their institution was not conducting online

classes and the remaining residents (39.1%) confirmed that their institution was conducting online classes. Out of these, 21.7% of residents were satisfied with this pattern of education and 17.4% of residents were not satisfied with the classes.

77.3% of the residents informed that there was a decrease in clinical case presentations in their department. 94.7% (109) of the residents were of the opinion that there was decrease in surgical exposure during COVID-19. This decrease in surgical exposure was associated with the feeling of decrease in confidence level (64.3%) amongst residents since the COVID-19 pandemic ($p < 0.001$) (Table 1).

Table 1. Association between different variables and their significance

Variables	P value
Redeployment of residents in COVID care wards AND Fear of getting infected with COVID-19	0.0012*
Reduction in number of face to face classes AND Fear of getting failed in final exams.	0.0046*
Decrease in confidence level during COVID-19 pandemic AND Decrease in surgical exposure during COVID-19	0.0011*

*Indicates P value < 0.005 (Significant)

95.6% (110) of residents reported that no case simulation techniques or cadaveric courses were done in their institution. Where 24.5% of residents had never ever attended any webinars or online Continuing Medical Education (CME), 34.7% (40) of residents had attended them both prior to and after COVID-19 outbreak. 27.8% of residents had attended them but only post COVID-19 outbreak and 7.8% of residents had attended them but only prior COVID-19 outbreak. 91.3% (105) of residents felt an increase in need for in person conferences/educational exposure outside the institution. 86.08% (99) of residents were of opinion that there would be a dip in opportunities for international fellowships. 52.1% of residents believed that this pandemic has had severe impact on Post graduate teaching program. 70.4% (81) of residents informed that they didn't get their monthly stipend on time.

Considering a resident's role in COVID-19 pandemic, 67.6% informed that they were availed or were going to be redeployed in COVID care wards. This was significantly associated with fear amongst residents (73.9%) that they would get infected with COVID-19 ($p < 0.001$) (Fig 2).

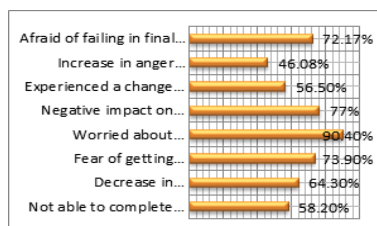


Fig. 2. Impact of COVID-19 on ophthalmology resident's mental health

A large proportion of residents (83.4%) stated that adequate measures were not taken by their institution for protection from COVID-19 infection. 58.2% of residents were quarantined at least once due to exposure to a COVID 19 positive patient. 22.6% of residents had been diagnosed with COVID-19. Majority of ophthalmology residents (73.04%) did not receive any training regarding donning and doffing technique of Personal protective equipment (PPE) kit. 41.7% of residents did not receive any training regarding management of patients infected with COVID-19. More than half (58.2%) of the residents believed that they would not be able to complete their thesis work on time. 90.4% were afraid that their family members would be infected with COVID-19 because of them. 76.5% of residents felt that this COVID situation has had a negative impact on their personal life too. 56.5% of residents had experienced a change in their sleep cycle. In comparison to the pre COVID era, an increase in mood swings or anger issues during this pandemic time was seen in ophthalmology residents (46.08%). 79.1% (91) of residents were stressed by thinking about the future opportunities being affected by this pandemic.

66.9% of the residents felt that residency exams should be removed during the COVID-19 pandemic (Fig 3.)

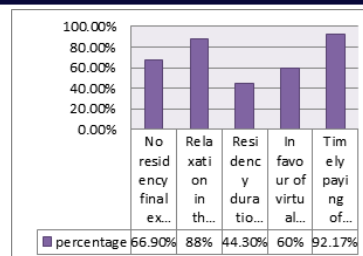


Fig. 3. Various solutions to the problems faced by ophthalmology residents

Most of the residents thought that there should be a relaxation in thesis sample size so that they could complete their thesis on time. 44.3% of residents in our survey felt that duration of their residency should be further extended. 60% of residents were in the favor of virtual case presentations during final exams. Majority of the residents (92.17%) thought that timely paying of monthly stipend to residents would decrease their stress level and 74.7% (86) felt that there was a need of regular psychiatric counseling of residents in need as they were under tremendous pressure. A large proportion of residents (77.3%) believed that appropriate measures were not taken by their institution to preserve effectiveness of their training.

DISCUSSION

This study highlights the problems and challenges that an ophthalmology resident is facing along with appropriate solutions related to these problems. This ultimately leads to better understanding of the drawbacks in the current protocols and will help in maintaining a healthier workforce against COVID-19.

To contain the spread of COVID-19, theoretical and practical classes were suspended in most of the institutes. As evident from our survey, no offline classes were conducted even before the pandemic which is a great matter of concern as COVID-19 has made the situation even worse. 62.6% of residents responded positively that offline classes used to happen even prior to COVID-19 pandemic and 93.9% informed that the number of classes had decreased. Institutes had turned onto online platforms to teach and train their residents but only about one-fifth of residents were satisfied with this online pattern of classes. 60.9% residents were not being provided with any sort of classes and teaching programs and 17.4% residents were not satisfied with the ones provided to them. Contrary to this, a study done in Saudi Arabia showed that majority of ophthalmology residents were satisfied with web based ophthalmic education⁷. Virtual learning systems have many advantages and disadvantages as discussed in a recently conducted study⁸. Virtual learning systems gives an opportunity to residents to attend classes in situations where they cannot attend offline classes. About 1/3rd of respondents in our study never attended any webinar or online CMEs, so there is a need to promote them as online CMEs and webinars proved to be a great source of learning especially for the budding ophthalmic surgeons. This way, residents also got an opportunity to learn from the best faculty. 27.8% residents started attending them only after COVID-19 pandemic. 91.3% residents expressed that there should be an increase in in-person conferences/workshops/educational exposure outside the institution. 77.3% residents stated that there was a significant decrease in clinical case presentations. Suspension of elective surgeries in almost every institute all over the world had decreased the chance of residents to learn surgical and clinical skills because surgery is something one learns and masters only by performing it.^{9,10} As an alternative, case simulation techniques and cadaveric courses can be implemented to learn surgical skills.¹¹ The Eyesi (VRmagic Holding AG, Mannheim, Germany), PhacoVision® (Melerit Medical, Linköping, Sweden), and MicroVisTouch™ (ImmersiveTouch, Chicago, IL, USA) are all cataract surgery simulators.¹² They are a safer option as there is no exposure to patients. But 95.6% of respondents informed that no case simulation techniques had been used in their institutes.

67.8% residents informed that they had been or were going to be redeployed in COVID care wards. Although, it was a necessary step to fight this pandemic, but it had negatively impacted on resident's training and exposure to ophthalmic procedures (Table 1). More than half of the residents (58.2%) were quarantined at least once due to exposure to a COVID-19 positive patient. According to our survey, 73.04% ophthalmology residents did not receive any training

regarding donning and doffing technique of PPE kit. In one of the studies conducted in India by Deepak et al, majority of residents responded that the protective equipment provided to them were inadequate.¹³ 41.7% of residents did not receive any training regarding management of patients infected with COVID-19. So, redeployment of residents without training adds to their problems.

According to our survey, they had been under a lot of stress due to multiple factors (Fig. 2). Nearly 2/3rd of total residents had a decrease in their confidence level due to prolonged period of decreased exposure to work related to ophthalmology. Many residents were not able to devote time to their families. Continuous and long odd duty hours along with disturbance to their sleep cycle had led to increase in mood swings and anger issues amongst many residents which is a matter of concern. There was a decrease in patient influx and cessation of elective surgeries. They were afraid that they would not be able to complete their thesis on time. They suggested universities should give some relaxation in their thesis work either by decreasing sample size or by increasing time period for their thesis so that they would be able to complete it on time. Consequently, 74.7% residents were in favor of regular psychiatric counseling of residents. As one third of the residents in our study are going to appear in their final exams in two to three months, about two-third of the respondents felt that final examinations should be cancelled. Residents had been burdened with the financial stress too by not being credited their monthly salary on time. According to 92.17% of residents, timely payment of monthly stipend would actually reduce their stress levels (Fig. 3).

LIMITATIONS

Our study like any other survey-based research has some limitations. Firstly, as the respondents were from different states of India, they might be working in different environment and facilities. Majority of the responses might be from a particular state thus not representing the nationwide response as a whole. Also, COVID-19 had affected different states differently. Secondly, all the residents from 1st, 2nd and 3rd year were asked to fill the questionnaire, therefore, residents of different year of residency might be dealing with different problems depending on the nature of their work

CONCLUSION

COVID-19 pandemic has majorly and evidently affected both, the personal and the professional life of ophthalmology residents. There is a decrease in post-graduation education for residents, including case presentations, offline classes and in person CMEs. Many residents have started using online platforms to gain knowledge by attending online classes, webinars and online CMEs but it is to no comparison to the hands-on approach. They have been allocated in COVID care wards and major steps should be taken to evolve the traditional teaching methods into modern ones. Majority of residents did not receive any training regarding PPE kits and management of corona virus positive patients which is a matter of concern. They have been under tremendous stress due to various factors which needs to be addressed on a priority basis, then only a healthier workforce can be formed to fight against such pandemic like situations in future.

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