

All India Ophthalmological Society Financial Impact Survey on ophthalmology practice in India during COVID-19

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Purpose: A survey was conducted by the All India Ophthalmological Society (AIOS) to document the initial coronavirus disease 2019 (COVID-19)-related financial impact on ophthalmology practice in India. It also assessed various measures taken by ophthalmologists and the possible role of AIOS in mitigating the economic crisis. **Methods:** An online questionnaire-based cross-sectional survey was conducted among its registered members from July to August 2020. The prevalidated questionnaire contained 25 items related to the impact of COVID-19 on patient volume, the extent of financial distress faced by the ophthalmologists, and various proactive measures taken by them. All valid responses were tabulated and analyzed. **Results:** Out of 1,026 respondents, more than 90% ophthalmologists faced a 25% or more reduction in outpatient and surgical volume. Nearly 59% reported that they can suffer from serious financial distress in near future due to COVID-19 pandemic-related losses. Those who are young ($P < 0.0005$), salaried ($P < 0.0005$), and practicing in private sector ($P < 0.0005$) and Tier 1 cities ($P < 0.0005$) are reported to be more vulnerable to become financially unstable. The major concerns were revenue losses (70%), preexisting debts (39%), and increased operating costs (27%). The majority (90%) believed that AIOS can help in alleviating the distress. There was also hesitancy regarding the adoption of teleophthalmology and home-based care. **Conclusion:** COVID-19 has significantly affected the financial sustainability of ophthalmologists practicing in India. Identification of vulnerable groups and timely advocacy efforts by AIOS can help in mitigating this financial crisis.

Key words: Coronavirus, COVID-19 lockdown India, COVID-19, economic impact, financial distress, ophthalmologists, ophthalmology, SARS CoV-2

The novel coronavirus disease 2019 (COVID-19) has paralyzed the world in all spheres of life. Medical practice in India is facing one of the biggest financial crises ever due to COVID-19-related impacts and restrictions.^[1-4] Unfortunately, although most industries and businesses have repeatedly publicized figures and values of the extent of financial loss they have suffered, and in some cases have successfully lobbied for loan restructuring, financial packages, and softer terms, the medical field continues to be ignored. There is lack of acknowledgment of the dire financial impact of the pandemic on the medical fraternity and the severe challenges that they are facing when trying to resume normal practice in the COVID-19 era.^[5]

The All India Ophthalmological Society (AIOS) has conducted this present survey to document the initial COVID-19-related financial impact on ophthalmology practice in India. It also aimed to study the interim impact on patient load, finances, staffing, and long-term practice changes, if any, on eye care delivery in India.

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Methods

AIOS conducted a questionnaire-based cross-sectional survey among its registered members across India from July 1, 2020, to August 15, 2020, when the nationwide COVID-19 lockdown of the first COVID-19 wave eased. The study adhered to the tenets of the Helsinki Declaration. An online prevalidated questionnaire containing 25 items was mailed to all the members using Google forms (Alphabet Inc., USA) [Supplementary Table 1].

The questionnaire was designed after an extensive review of literature of previous studies published in the same context. The items in the questionnaire pertained to sociodemographic details, area of practice, experience in the field, the impact of COVID-19 on patient volume, the extent of financial distress faced by the ophthalmologists, and various proactive measures taken by them at the personal and organizational levels. The face validity was ascertained by four independent senior ophthalmologists from tertiary eye care hospitals. Pilot testing of the questionnaire was done among 20 registered ophthalmologists. An anonymous online survey was sent to the members through email, phone messages, and WhatsApp

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Messenger. The participants filled their responses through a web-based system.

The data collected through Google Forms (Alphabet Inc., USA) was exported as an Excel sheet. The data sheet was cleaned, the relevant sociodemographic details were coded, and the responses were scored. The coded data was subsequently analyzed using IBM® SPSS® Statistics Version 20.0 software. The continuous data were evaluated and compared between the groups using two-sample unpaired *t* test (parametric test) and Mann–Whitney *U* test (nonparametric test). The categorical data were analyzed using the Pearson Chi-square test and Fisher's exact test. Univariate and multivariate analyses were also done for identifying potential risk factors for causing serious financial distress. A *P* value ≤ 0.05 was deemed statistically significant.

Results

A total of 1,026 unique responses were recorded in the present survey. This included all spectrums of ophthalmologists – solo and group practice, practicing in rural and urban areas, and working in public and private sectors across India.^[6,7]

Baseline sociodemographic details of participants

The detailed baseline demographic details of the respondents are given in Table 1. Most of the participants were middle-aged, and 46% of the respondents fell in the 50 to 65 years age group and 37% in the 35 to 50 years age group, respectively. Nearly 83% of the participants were male. Around 52% of the respondents were engaged in solo private practice and 32% were salaried employees in private/charitable/nongovernmental organizations (NGOs) eye care setups. Around 4% worked in government setups and 2% were trainees/residents. About 48% were practicing in metropolitan/Tier 1 cities, whereas 33% were based in Tier 2 cities. The majority of the respondents were practicing in the anterior segment subspecialty. Nearly 48% were providing their services in comprehensive ophthalmology and cataract, whereas 19% were also practicing refractive surgery. The majority of the respondents had work experience of more than 10 years (52% had >20 years of experience) [Table 1].

Effect of COVID-19 on ophthalmic outpatient services and surgical volume

Around 97% (993/1026) of the respondents experienced more than 25% reduction of volume in their regular outpatient department (OPD) services. About 42% (425/1026) believed that their volumes were significantly reduced to 10% to 25% of pre-COVID-19 times, and 21% (224/1026) were severely hard-hit with more than 90% reduction in patient volume when compared with pre-COVID-19 times.

The surgical load also followed a similar trend. Around 93% (957/1026) of the respondents experienced more than 25% reduction of their regular surgical volume. About 38% (387/1026) believed that their volumes were significantly reduced to 10% to 25% of pre-COVID-19 times, and 34% (352/1026) faced more than 90% reduction in the number of surgical procedures when compared with pre-COVID-19 times.

Extent of financial distress faced by Indian ophthalmologists

About 59% (605/1026) of the respondents believed that COVID-19 pandemic will cause serious financial distress in

Table 1: Baseline characteristics of participants

Parameter	Baseline characteristics (n=1,026), n (%)
Age group	
<35 years	110 (10.8%)
35-50 years	377 (36.7%)
50-65 years	472 (46%)
>65 years	67 (6.5%)
Gender	
Male	852 (83%)
Female	174 (17%)
Type of practice	
Solo private practice	538 (52.4%)
Group private practice	90 (8.8%)
Salaried - Private hospital chain/Charitable organizations/NGO hospital	325 (31.7%)
Government employee	44 (4.3%)
PG resident/fellow	22 (2.1%)
Unemployed	7 (0.7%)
Area of Practice ^[6,7]	
Metropolitan/Tier 1 city	488 (47.6%)
Tier 2 city	342 (33.3%)
Tier 3 city	148 (14.4%)
Rural area	43 (4.2%)
Intercity travel	5 (0.5%)
Type of Subspecialty	
Comprehensive ophthalmology and cataract	498 (48.5%)
Cataract and refractive surgery	197 (19.2%)
Cornea, cataract, and refractive surgery	81 (7.9%)
Glaucoma	25 (2.4%)
Retina and/or uvea	182 (17.7%)
Pediatric ophthalmology and strabismus and/or neuro-ophthalmology	17 (1.7%)
Oculoplasty and/or ocular oncology	19 (1.9%)
Community ophthalmology	7 (0.7%)
Number of years into practice	
<5 years	124 (12.1%)
5-10 years	90 (8.8%)
10-20 years	274 (26.7%)
>20 years	538 (52.4%)

NGO=Nongovernmental organization, PG=Postgraduate

their lives if the current situation stays till the end of the year or longer. Around 54% (552/1026) would still be capable of continuing their practice, but 5% (53/1026) had planned to close down. They believed that it would be difficult to continue their operations till the situation normalizes. Nearly 33% (340/1026) believed that COVID-19 has reduced their practice volume.

Taking serious financial distress (based on subjective assessment of financial distress by the individual ophthalmologist) as the primary outcome, we tried to predict the various risk factors responsible for serious financial distress by comparing it with those who did not report serious financial distress and were able to continue their practice [Table 2]. On univariate analysis, serious financial distress showed statistically significant association with younger age (< 50 years; $P < 0.0005$), private sector practice ($P < 0.0005$), salaried personnel ($P < 0.0005$), and practice in Tier 1 city ($P < 0.0005$).

On logistic regression, private sector job scored the highest odds ratio (OR = 4.04, 95% confidence interval [CI] 2.62–6.23,

Table 2: Multivariate analysis of various parameters related to serious financial distress

Parameter	Odds Ratio (95% Confidence Interval)	P
Practice in private sector (vs. government sector)	4.04 (2.62-6.23)	<0.0005
Practice in metropolitan/Tier 1 city (vs. others)	3.78 (2.75-5.21)	<0.0005
Salaried (vs. rest including self-employed)	1.70 (1.24-2.33)	<0.001
Comprehensive ophthalmology (vs. rest including specialty practice)	0.67 (0.49-0.91)	<0.01
Years into practice >10 years (vs. <10 years into practice)	0.30 (0.20-0.45)	<0.0005

$P < 0.0005$) followed by Tier 1 city practice ($OR = 3.78$, 95% CI 2.75–5.21, $P < 0.0005$), and salaried personnel ($OR = 1.70$, 95% CI 1.24–2.33, $P < 0.001$) [Table 2].

Major concerns of health care organizations

In the survey, the most important concern causing financial distress faced by health care organizations was revenue loss (717/1026) followed by preexisting debts/mortgages (402/1026). Around 27% (279/1026) were worried about the increased running costs of the setup.

Reduction in salaries

Out of 424 salaried respondents, 210 respondents actually had salary cuts, though the deduction of salary was variable.

Loss of jobs

Nearly 67% (684/1026) thought of reducing hospital staff to decrease the incurring hospital expenditure. Only 23% (239/1026) had to actually lay off staff to meet the expenses.

Owing to the financial instability, 58 respondents had future plans of changing job or switching career.

Reduction in funding to charitable/NGO health care organizations

Of the total responses, 260 respondents working in the charitable/NGO setups reported variable reduction in incoming funds. They reported at least 50% reduction in their funding as compared with pre-COVID-19 times (range = 50%–100%, median = 50%).

Preexisting loans/liabilities

Out of 1,026 respondents, 542 (53%) required restructuring of loans to pay for annual maintenance contract (AMC)/comprehensive maintenance contract (CMC) of the ophthalmic equipment. About 7% (38/542) found the revised terms of payment of debts as unacceptable.

Increased running costs of operations

Around 68% (696/1026) of the respondents believed that their running costs will escalate up to 25% to compensate for implementation of additional precautions such as provision of adequate personal protective equipment (PPE), increased sterilization/disinfection needs, testing/triaging, and so on. Around 22% (227/1026) felt increment in running costs up to 50%.

Measures planned to achieve financial sustainability

Various measures were being planned at the organizational level to increase the inflow of revenue [Table 3]. Increasing working hours of hospitals was the most favored option (44%) followed by collection of outstanding payments (34%) and utilizing reserve funds (22%). Around 27% ophthalmologists

planned to increase the cost of outpatient services and surgical procedures. Taking a loan from a financial institution was the least preferred option (6%) [Table 3].

Reduction in paycheck of employees was one of the most favored options to decrease running costs of hospitals [Table 4]. Majority of the respondents also planned to reduce incurring expenditure by better inventory management and resource utilization. Applying for a moratorium on existing loans was the least popular option [Table 4].

At the personal level, most of the respondents tried to save money by diverting money from nonessential requirements [Table 5]. They also tried to save more than that of pre-COVID-19 times. Only a few believed in applying for loans to manage short-term or long-term financial needs.

Adoption of solutions like teleophthalmology and home-based patient care

When asked about the adoption of teleophthalmology solution and its utility in the present COVID-19 pandemic, 355 respondents found that it did not benefit many of their patients and did not meet their expectations. Majority of them were from Tier 2 cities. About 326 respondents believed that it benefitted their patients. Out of 326 respondents, 285 respondents did not bill it in their consultation charges. Majority of them belonged to Tier 1 cities. Nearly 246 respondents did not practice teleophthalmology.

Home care management involves sending hospital staff (doctor, optometrist) to the patient's home for checkup and evaluation. Only 60 respondents were willing to consider this option.

Possible role of AIOS in dealing with the financial crisis

Around 90% (918/1026) of the respondents felt that AIOS can help in mitigating the COVID-19-related financial crisis and help its members in various ways [Table 6].

Around 80% of the participants believed that AIOS should come forward to engage with the policymakers in the government and strongly advocate the need for industry-specific stimulus packages, subsidies on loans, and other economic relief measures. About 73% believed that AIOS should also hold talks with the equipment-supplying companies/industries to restructure and delay payments of AMC and CMC of equipment. Nearly 94% (918/980) respondents believed that any AIOS intervention would likely make a significant impact on the final restructured terms. Around 25% also believed that there is a need to create a standardized platform for teleophthalmology that can help its members. Only 20% thought of the need of negotiating with financial lending institutions such as banks for better loan-related services.

Table 3: Possible measures planned by organizations to increase revenue

Measure	No. of Respondents (%) (n=1,026)
Increasing the costs of OPD consultations, services, and procedures	285 (27.7%)
Increasing working hours of hospitals	453 (44.2%)
Collecting outstanding payments/debts from insurance companies, government panels	345 (33.6%)
Taking loans from banks, money lending agencies	63 (6.1%)
Utilizing cash reserves, fixed deposits, and mutual funds	226 (22%)
Shift to group practice or collaborations	75 (7.3%)
No such plans	141 (13.7%)

OPD=Outpatient department

Table 4: Possible measures planned by organizations to decrease hospital running expenditure

Measure	No. of respondents (%) (n=1,026)
Cutting salaries of employees	580 (56.5%)
Laying off employees/hiring on contractual basis	367 (35.8%)
Delaying payments and extension of annual maintenance contract/comprehensive maintenance contract	435 (42.4%)
Cost cutting by better inventory management and other measures	554 (54%)
Taking moratorium on existing loans	75 (7.3%)
No such plans	112 (10.9%)

Table 5: Possible measures planned by ophthalmologists to manage personal finances

Measure	No. of respondents (%) (n=1,026)
Cutting expenditure on nonessential services	878 (85.6%)
Trying to save more money than pre-COVID-19 times	683 (66.6%)
Diversifying savings in various investments like fixed deposits, mutual funds, sovereign bonds, etc.	162 (15.8%)
Taking short-term or long-term loans	61 (6%)
No such impact on my personal finances	74 (7.2%)

Table 6: Possible measures that can be attempted by AIOS to help its members

Measure	No. of respondents (%) (n=1,026)
Strong advocacy with government for economic relief, stimulus package, subsidized loans, etc.	805 (78.5%)
Coordinate with industry to delay payments and extension of annual maintenance contract/comprehensive maintenance contract	746 (72.7%)
Coordinate with lending institutions such as banks for financial aid or delaying loan repayments	210 (20.5%)
Create a teleophthalmology platform	257 (25%)

AIOS=All India Ophthalmological Society

Discussion

COVID-19 pandemic has shaken the world with far-reaching socioeconomic consequences in the society. Few surveys have been done across the world to assess the economic impact of COVID-19, which revealed the adverse impact on medical professionals in various specialties such as neurosurgery, anesthesiology, and radiology, with the private practice being more affected.¹²⁻⁴¹ Ophthalmologists face a unique challenge and are severely affected during this COVID-19 pandemic with the double whammy of having to continue to provide service in these risky and trying times and the massive financial setback faced by all institutions with increasing overheads and diminished returns. Therefore, we conducted a survey to assess the initial economic impact of the COVID-19 pandemic during the first COVID-19 wave on ophthalmologists in India. It was conducted among the members of AIOS, which is the largest ophthalmological society of life members in the world, with more than 18,000 members. To our knowledge, this is

one of the first surveys in India to detail various adversities of the ophthalmologists, especially financial concerns, and their adopted strategies during the initial period of COVID-19 crisis, which included nationwide lockdown starting from the end of March 2020 to the end of May 2020, which severely restricted movement of the public.

More than 90% of the respondents reported major reduction in OPD and surgical load (>25% reduction). Ophthalmic services have suffered a huge blow during this COVID-19 pandemic as the majority of the OPD/surgical services are elective.⁸¹ The majority of the patients availing of these services are also old and often have multiple systemic comorbidities, making them vulnerable to acquire and develop severe COVID-19 complications during hospital visits. These apprehensions along with the government restrictions have discouraged the patients to visit their ophthalmologists as compared with pre-COVID-19 times.⁹¹ The ophthalmologists are also concerned to keep the health workers and other hospital staff

safe during this pandemic. This is important as most of the routine face-to-face examination involves prolonged proximity with the patient while evaluating anterior segment using slit lamps or doing fundus examinations. Special modifications and standard operating procedures were also followed during the COVID-19 times such as provision of adequate PPE, social distancing norms, modification in sterilization protocols, and so on, which have increased the running costs of the eye care setups.^[9,10] A survey conducted by Goel *et al.*^[11] also supported these observations.

Nearly 59% of the ophthalmologists perceived serious financial distress, and 5% had plans of suspending their services temporarily till the situation improves. On further analysis, young doctors who are new in practice and are salaried employees in big cities are the worst hit. The American Academy of Ophthalmology recently conducted a nationwide pulse survey among its member ophthalmologists that was aimed to quantify how U.S. practices have been financially affected and the extent of layoffs in April, May, and July 2020.^[12] They reported tremendous revenue losses in ophthalmology and the majority of members stating that without substantive federal grants and loans their practices will be smaller, financially unhealthy, or both by the end of the year. About 88% of respondents said that they have applied or will apply for federal loans. In another survey done in Egypt, there was a significant reduction in patient inflow with elective surgeries constituting less than 20% of the practice.^[13] Young ophthalmologists were more willing to perform emergency surgeries on COVID-19-positive cases. Refractive surgeons were more willing to perform elective surgeries.

The most important financial concerns were revenue loss followed by payment of preexisting debts/mortgages. More than 50% required some modification/restructuring in terms of loan repayment, especially while paying for AMCs/CMCs of equipment. Ophthalmologists practicing in India do not have access to financial resources and stimulus funds that are available in developed countries to reduce the financial impact of COVID-19. In the United States, there are various financial aids, including the Coronavirus Aid, Relief, and Economic Security (CARES) Act, Paycheck Protection Program, CMS COVID-19 grants, accelerated Medicare payments, and other federal loans to help ophthalmologists manage their finances.^[12,14]

Cutting salaries of staff, better inventory management, and postponing the payment of AMCs/CMCs were favored by respondents to decrease expenditure/operation costs. Laying off staff was a less preferred option, which is a good sign that things will revert to normal once their revenue increases with the increased footfall of patients. To increase revenue, increasing the working hours of hospitals and collecting outstanding dues were favored over increasing costs of services, which can have an adverse impact on the patients in terms of affordability. In India, the majority of expenditure on health care services is borne by the patients out of their pocket, and insurance coverage is limited. These planned measures offer a ray of hope to the patients as well as ophthalmic health care workers ensuring continuity of operations of eye hospitals in a sustainable way.

There is still hesitancy in the minds of Indian ophthalmologists regarding adoption of teleophthalmology on a wide scale. This pandemic has been a boon for telemedicine sector as it has

forced other subspecialties to shift to telemedicine to ensure financial sustainability. In the present survey, ophthalmologists practicing in Tier 1 cities had found it useful in their practice. A similar trend was observed in Egypt where respondents used telemedicine in less than 40% of cases, although 68% expressed interest to consider telemedicine in the future.^[13] This is in contrast with Western countries where telemedicine had seen a major surge in usage to manage routine as well as emergency eye care.^[5,12,14,15] In India, doctors are hesitant about billing issues and accuracy. There is also an absence of a well-defined legal framework to promote telemedicine in India, and doctors can have fear of getting fined for malpractice.^[16] Similarly, providing home-based management to patients was not favored by the majority of the respondents due to the risk of COVID-19 transmission, and there are still initial guidelines available in the country for its implementation.^[17] Thus, there is an increased need to sensitize the general public and ophthalmologists to start incorporating telemedicine in routine patient care and explore new ways to make it an acceptable practice in India like incorporating it in the residency curriculum.^[18-20] It is also shown in the present survey that many of the respondents urged the AIOS to get involved and develop a standardized teleophthalmology platform in India.

The majority of the respondents believed that AIOS should actively engage in mitigating the financial impact of COVID-19-related disruption of services on its members. They urged that AIOS should negotiate with the government, policy planners, and eye care industry to pitch for special stimulus packages, tax rebates, better loan restructuring, and so on. AIOS has also fulfilled its commitment by releasing standardized operating protocols for ophthalmic practice in India and various subspecialty-wise modifications.^[21,22] It has also held fruitful talks with the representatives from the industries regarding better restructuring of AMCs, CMCs, and other loans. AIOS will continue to work its advocacy for the welfare of its members.^[22]

This study has several strengths. It encompasses the opinion of a large number of ophthalmologists hailing from diverse socioeconomic and cultural background all over India. A wide stratum of participants ranging from residents to consultants, working in public and private practices in small, large, and metropolitan cities participated in the study.

The limitations of the study include a low response rate among the members in whom the survey was circulated and limited representation of ophthalmologists working as trainees or posted in the government sector. The study did not assess the impact based on different ophthalmic subspecialties. There is always a risk of sampling bias due to the nonrandom technique of sampling and reporting bias inherent to surveys.

Based on the findings of the survey, we suggest that special provisions should be instituted for better guidance and rehabilitation of ophthalmologists, especially vulnerable private practitioners. The findings of this study will help in future preparedness as there might be worsening of the crisis in future COVID-19 waves and pandemics. Future follow-up surveys should be conducted at regular intervals to elucidate the long-term trend as the present COVID-19 pandemic will have a prolonged impact on health care sector in India, especially focused on surgical/OPD volume, recovery of financial stability, and adoption of telemedicine.

Conclusion

To conclude, this is the first nationwide survey that has revealed that the COVID-19 pandemic has caused an adverse financial impact on ophthalmologists practicing in India due to diminished patient inflow and increased operating costs. The information acquired by this survey will strengthen the advocacy efforts by the AIOS in highlighting the plight of the ophthalmologists and will strive for an improved environment for ophthalmology practice during these difficult times. It will also help in combating future crises through better crisis preparedness.

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Conflicts of interest

There are no conflicts of interest.

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