International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Impact of COVID 19 on Eye Health Access - Patient Perspectives

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Abstract: ***Purpose:*** ***COVID 19 pandemic has affected health care delivery and access in a myriad number of ways, but the ones affected most are our patients. For us to provide appropriate health care, especially with regards ophthalmology, we need to take into consideration patients perspectives with regards access to eye health care delivery.*** ***Methods:*** ***Questionnaire based cross sectional, observational study, with emphasis on patient perception with regards general eye care, refractive errors, cataract, diabetic retinopathy and paediatric ophthalmology. Results were recorded and analysed using spread - sheet based assessment.*** ***Results:*** ***Majority of the people questioned felt that COVID era with its restrictions and serious ill effects on general health has affected their eye care, though in a mild way with decrease in vision being the most common complaint. Increase in screen time associated dryness, advancing cataracts, lack of regular IOP monitoring, worsening retinopathy and children with undetected or poorly updated refractive corrections.*** ***Conclusion:*** ***Considering eye health is many times neglected in the developing world due to socio - economic reasons, the pandemic has only worsened this scenario. This study concluded that we need to step up routine eye care, with regular follow up and outreach programmes, especially for advancing cataracts, unmonitored glaucoma, school aged children and those lost to follow up, having a targeted approach.***

Keywords: COVID 19, Eye health, patient perspectives.

1. Introduction

Year 2020 was expected to be a year of celebration in field of Ophthalmology as it would have marked the completion of VISION 2020 WHO programme carried out across the world to provide affordable eye care and curb preventable blindness. However, our perspectives have changed following the coronavirus disease 2019 (COVID - 19) pandemic on societies around the world, and the changes in eye care practices that were associated with steps designed to control the spread of the virus. Eye care has been drastically hit since the pandemics began as it raised constant fear in the mind - set of the people, both patients as well as health care providers, of contracting the virus during the course of hospital visit, especially with regards ophthalmic care delivery at tertiary level institutes which were designated for COVID care.[1, 2] This has led to a toll on the relatively non - emergency branches like ophthalmology, with regards to elective procedures and even at times for urgent eye care. The emergency eye care service of the doctors were halted until further notice. Local emergency eye care was changed from a walk in service, with the implementation of a strict triage protocol.[3] Many patients have been lost to follow - up, thereby causing uncorrected refractive errors, development of mature cataract, progression of glaucoma, worsening of retinopathy, lazy eyes in children etcetera. Though many studies have been conducted with regards COVID and eye care delivery, few cater to patients view point, especially with regards eye health. The ones affected most are our patients, we need to take into consideration their perspectives with regards access to eye health care delivery if we are to formulate future policies catering to such specific needs.

2. Materials and methods

Questionnaire based cross sectional, observational study, with emphasis on patient perception with regards general eye care, refractive errors, cataract, retinopathy and paediatric ophthalmology.

Questionnaire was designed to cater to150 patients of both the sexes along with children above the age of 5 years over a period of 3 months in a tertiary level hospital in suburban area, designated as COVID care centre during the pandemic. Guardians were asked questions related to wards that were too young to give valid answers.

Results were recorded and analysed using spread - sheet based assessment, using Google forms.

The study was conducted after getting ethical clearance from Institutional Ethics Committee and after obtaining a well informed consent from the participant of the study including parental consent for paediatric population. The study is adherent to the guidelines of the Declaration of Helsinki.

3. Results

The questionnaire was designed in patients' language and was divided into ten questions related to general ophthalmology; and five each for refractive errors, glaucoma, cataract, retinopathy and paediatric ophthalmology.

With regards eye health, majority (49.7%) of people questioned felt that though COVID era had affected their health, but eye issues were perceptibly mild. Only 8.7% felt that the impact on their eye health was of severe nature.

The most common complaint (50%) amongst those questioned was of decrease in vision, usually reported to be in the form of near related activities. This was caused by various issues ranging from mild ones like change in refractive errors to sight threatening diseases like glaucoma progression and diabetic retinopathy of severe grades.

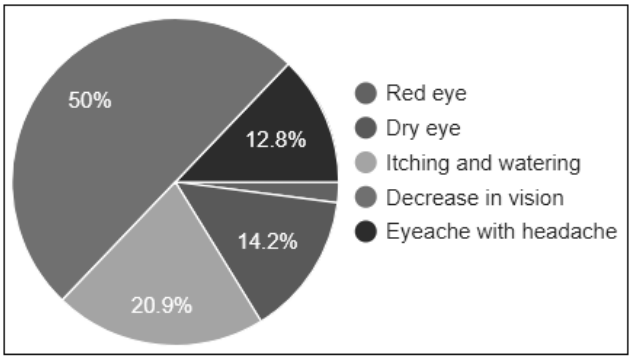

Figure 1: Showing DOV being the most common complaint faced by the patients affecting 50% of the population.

Most patients that we questioned had a delay in their follow up, the reasons for the same were almost equally divided by perception (one third each) to be fear of contacting the virus, movement restriction due to government guidelines and lack of confidence to visit a designated COVID care facility without having been vaccinated due to non - availability of vaccines at an earlier date.

87.9% of our patients who got delayed in their routine follow up were already on medications or treatment in the form of spectacle correction. Of these 86% could acquire drops and continued the same without any ophthalmic consult by using over the counter (OTC) medications using old prescriptions. Even most glaucoma patients amongst them continued the same without having an IOP check.

Nearly 88.4% thought that the eye care protocols at the designated COVID care tertiary centre had been altered with regards precautions taken to ensure prevention of spread of the virus associated. This was also associated with a decrease in designated staff for eye care, possibly related to their duties being shunted for COVID duties, leading to increase waiting times for patients.

83.2% patients noticed that they or their immediate family members had a specific eye problem, which was most commonly reported (38.5%) to be dryness of eyes.

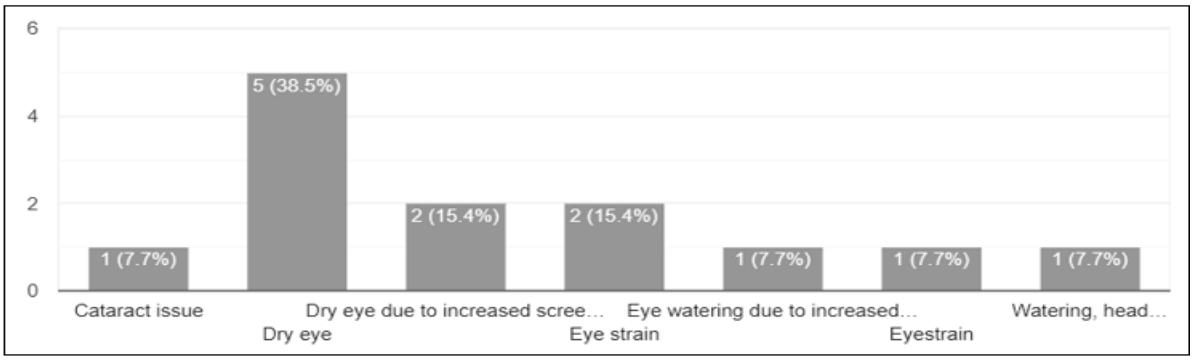

Figure 2: Dry eye affecting 38.5% of the population. Dry eye has affected a lot of people because of increased screen time during COVID 19 lockdown due to work from home setup.

Out of the people questioned, 30.6% had a screen time of more than 10 hours, as shown in figure 3 and nearly 15% had a supposed increase in the same. Although only 25% patients felt they had an eye issue due to this increase, which was usually in the form of decrease vision and watering with eye strain.

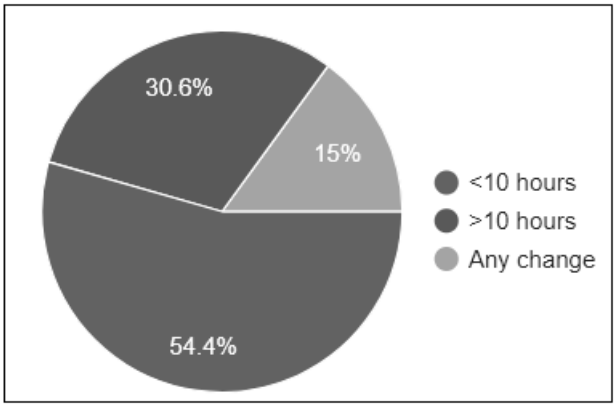

Figure 3: During of screen time, especially during lockdowns

Nearly 20% felt that their sleep pattern had altered during the COVID era, with some blaming it on the increase in screen time, as well as the shift to late night screen use and day time sleep with Work from Home (WFH) protocols being variable.

Spectacles and contact lens usage was commonly affected, especially during the lockdown period, many avoiding contact lenses during this period.12.8% people had eye related issues due to usage of old spectacles without updating to a newer one due to fear of contracting the virus and thereby avoiding visit for an ophthalmic eye check up. Due to that, about 21% patients faced problems like eyestrain, headache followed by watering. Though screen time was increased, despite using glasses without updating, only about 27% complained of watering and itching during the same.

It was found that the usage of contact lenses was reduced among people due to fear of spread of the virus directly through the eye. However, in our study we found that around only 9% people had fear about contact lenses usage, hygiene, application and hence were used sparingly.

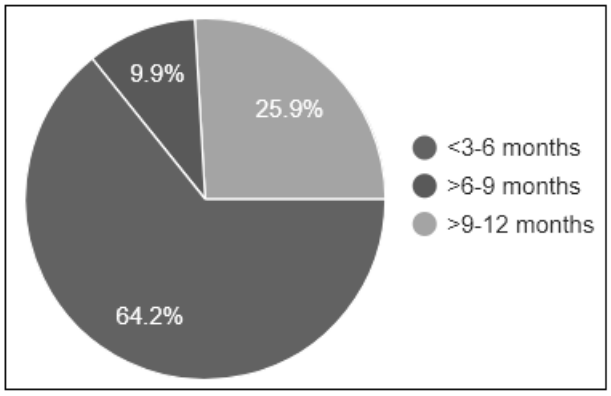

Figure 4: Duration of loss of follow up for routine Glaucoma checks

Glaucoma is one area of eye diseases that was affected in a significant manner, both with regards routine follow ups as well as emergency care due to sudden IOP changes in angle closure variant. It was found that 64.2% of those questioned loss to follow up in 3 - 6 months for glaucoma evaluation as shown in figure 4. It was found that 8% of the population faced problem due to long term usage of anti - glaucoma drug during this period, mostly with regards irritation, dryness and discomfort. About 82.9% suffered due to non - availability of anti - glaucoma medications.

One of the most common causes of gradual, progressive and painless vision loss in people is cataract, and it was found that 18% noticed progression in cataract, as shown in bar chart (figure 5) and thereby hampering their daily activities.

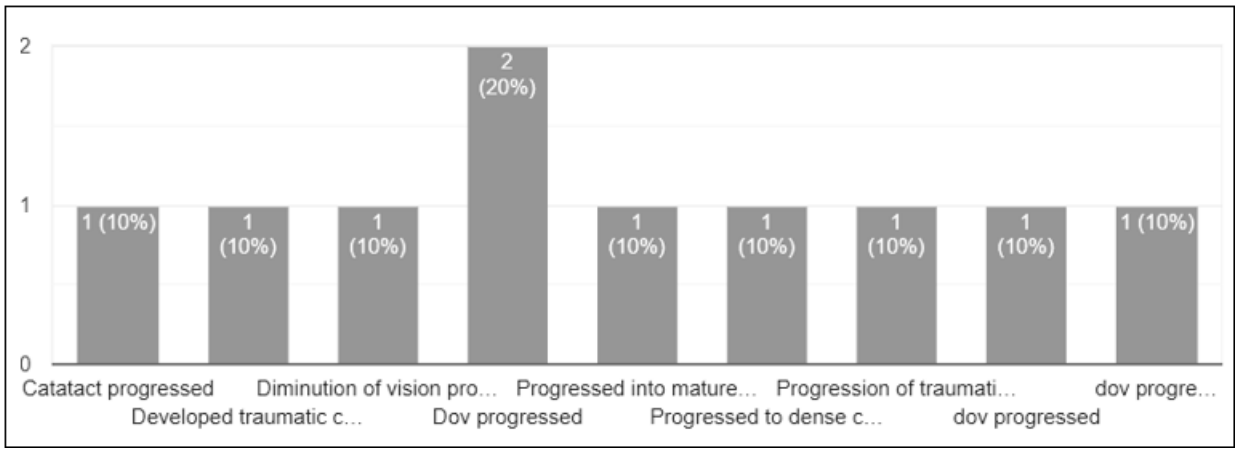

Figure 5

Due to complete shutdown of nationwide elective OT's as well as movement restrictions, cataract surgery also got delayed and 16% people or their immediate relatives actually noticed development of mature cataract due to surgery being postponed. However only 11.2 % of those questioned realized that complications might increase with this delay.

Retina related issues were another area where urgent care was needed, but got delayed due to COVID related restrictions as well as fear of contracting the virus at a designated tertiary care centre for COVID care.

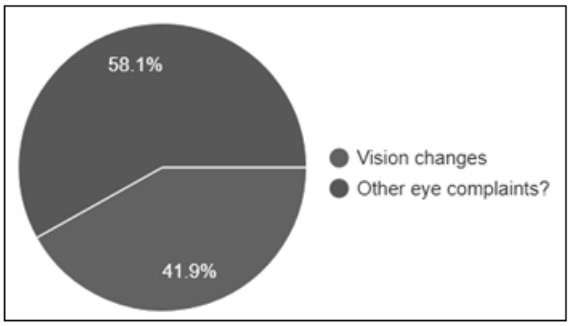

Figure 6: Perception of diabetes affecting patients with regards eye care

Along with periodic metabolic, glycaemic control in diabetic patients, ophthalmologic evaluation, need of anti - VEGF

injection, screening for proliferative changes is also mandatory. Figure 6 shows - 41.9% of the diabetic patients further noticed diminution of vision and were lost to follow up for anti - VEGF injections which led to worsening of vision. However around 88% felt they were able to systemically control their diabetes with regular oral hypoglycaemic drugs and insulin therapy. Out of those questioned, no major retinal issues, including age related degenerative changes were complained to have worsened, except in 6.1% of patients, due to loss of regular ophthalmic follow up.

Children were one of the worst affected due to the pandemic causing a shift to online classes as well as lack of social interaction at tender ages. But most guardians (about 89%) amongst the patients questioned did not notice any worsening in their wards eye related issues. This despite the fact that nearly 87.7% could not follow up for the scheduled paediatric eye visit.

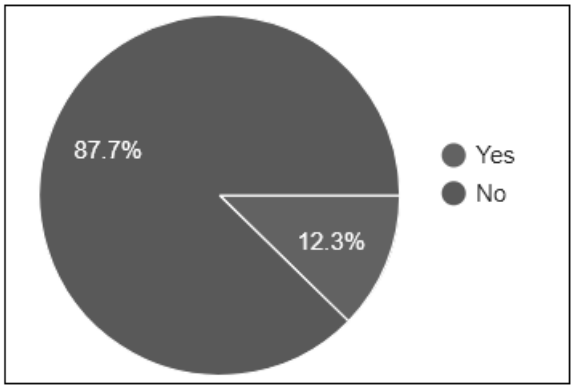

Figure 7: Loss to follow up for regular Paediatric eye evaluation

It was found that 12.6% of those questioned noticed eye related changes like eyestrain, watering, need of spectacles in children.13% paediatric cases showed other changes like obesity, sleep issues, low test scores other than eye issues. Only 5.9% of wards had trauma related to eye, for which urgent care was not possible during the lockdown period.

4. Discussion

COVID 19 pandemic not only affected the global economy but also had a huge impact on the functioning of tertiary eye care hospitals. This burden of the imposed lockdown and COVID pandemic occurred mainly on the patients, the clinicians, the staff and the hospital management. [(2)] Ophthalmology was one of the specialties most impacted, as observed in many countries, especially in tertiary care centres which were designated for COVID care. [(4)] The patients attending a tertiary eye care hospital consult for a routine as well as urgent eye care is especially important in a country like India, as they cater to the under - privileged for most eye related issues. However, due to risk of spread of infection and fear of contracting the virus many patients failed to follow up in ophthalmology OPD in such institutes causing many eye related issues.

Patients were also willing to postpone their appointments instead of taking the risk of contracting the virus at the hospital, especially amongst those not vaccinated due to late availability of vaccines. Vaccination can have a substantial impact on mitigating COVID - 19 outbreaks. India sustains a staggering 17·7% (1·39 billion) of the world's population, and vaccine production has therefore been a challenge in the country. At the current pace, it would not be possible to vaccinate the whole nation by the end of 2021. The Government of India therefore implemented a centralised vaccination policy and administered more than 8·6 million COVID - 19 vaccine doses on day 1 (June 21, 2021).[4]

Such a vaccination strategy might be helpful in achieving mass vaccination against COVID - 19. However, ensuring a consistent vaccine supply is a substantial challenge to maintaining such a high pace and achieve nationwide coverage. [(5)]

Our study showed a highest risk of fear of contracting the virus accounting for 38.3% due to which patients missed their regular visit.

In a survey done earlier, it was found that majority of the ophthalmologists in India were not seeing patients during the COVID - 19 lockdown with near - total cessation of elective surgeries and were unsure about resumption of surgeries after cessation of lockdown. [(3, 10)] This probably contributed to the progression of cataract we found amongst those questioned.

In our study, the most common symptom was DOV, affecting 50% of the population. DOV could lead to eye strain and headache, undiagnosed refractive errors. This is on par with the occurrence reported by the study conducted in Chennai in 2014 [(6)] and significantly higher than the prevalence reported in Ethiopia in 2018, during pre - pandemic levels. [(7)] DOV has been reported by 16.5% of the population, and this is more than the occurrence reported by Talwar et al, which was 13.2%.

The second most common symptom was itching and watering affecting 20.9% followed by dry eye affecting 14.2%. Next symptom being eye ache with headache [(8.9, 10)] affecting 12.8% in our study whereas Dessie et al ([(7),] reported eye pain affecting 29% which can be explained by the undue strain on the intrinsic muscles of accommodation. In India, where COVID - 19 continues to overwhelm the health care system, Bahkir and Grandee ([(8)] surveyed 407 people through social media platforms and found that the average increase in screen time during lockdown was 4.8 ± 2.8 hr per day, resulting in an average screen time usage of 8.65 ± 3.74 hr. Our study found 54.5% of the population with screen time of more than 10 hours, while 30.6% of the population with screen time of less than 10 hours. . Not surprisingly, 95.8% of respondents experienced at least one symptom related to digital device usage and 56.5% reported an increase in symptoms frequency and intensity during lockdown. [(10, 11)] The other component is the strain on the ocular muscles, the constant near work demands the eye to always be in a state of accommodation. When this state is maintained for extensive periods of time, the fluidity of the visual motor system is fatigued [(10)] and causes eye strain and headache. [(11, 12,)] Although these were related to eye strain due to refractive errors and lenticular changes, most other studies did not evaluate patient issues with regards Glaucoma, retinal issues like Diabetic Retinopathy or Paediatric eye care specifically with regards

visits at tertiary care centre designated as COVID care hospital.

With this study, we aim to raise awareness about patient concerns with regards eye care during times like this pandemic; reaching levels of distress as caused by COVID 19. We hope that this enables policy makers and health administrators to cater eye care delivery in the coming months to patient needs with the waning of the pandemic. Our study is limited by the relatively smaller number of patients questioned, this however occurred due to multiple waves of the pandemic hampering regular follow up. It is also limited by perceptions limited to a set of socially and economically challenged population which usually relies on tertiary care institutes for health care in a developing country like ours.

This study concluded that we need to step up routine eye care in the coming months, with regular follow up and outreach programmes, especially for advancing cataracts, unmonitored glaucoma, school aged children and those lost to follow up, having a targeted approach.

Financial Interest - Nil

Conflicts of interest - None of the authors have any proprietary interest, conflicts of interest related to this submission.

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