Article • Surveying the Scene: Results of the OEPF Online COVID-Related Conditions Survey

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Introduction

"Survey says?" So said the host of the television game show "Family Feud" when he needed surveyed answers for a show question to contestants. In the medical world, surveys have their limitations and certainly can be subject to manipulation. However, expert opinion is also considered valid in evaluating signs and symptoms.[1] Expert opinions may be useful as long as we acknowledge that experts can flock together just as any crowd does. Respecting the words of Gustave Le Bon is appropriate: decisions made by a crowd, including people "of distinction, but specialists in different walks of life, are not sensibly superior to the decisions that would be adopted by a gathering of imbeciles."[2]

Randomized clinical trials (RCTs) are considered the gold standard for clinical medical research. However, even RCTs have their limitations. Expense and timeliness are two limitations.[3] When looking at eye and vision issues associated with COVID-19, timeliness is a paramount consideration in any investigation. Expense is a fact of life, limiting what gets done and who does the inquiry; that is, those researchers who can find funding do the research. Objectivity is the goal. For a survey, the study relies on the respondents to provide their own individual objectivity. Just the choice of questions for the survey involves subjectivity and confirmation bias that needs acknowledgment.

Perhaps by broadly casting a survey across country borders, the effect—or the bias—of the crowd might be limited. A survey asking for personal experiences from a variety of doctors across the globe might provide insight into what is seen in private clinic offices for symptoms of both the COVID virus and COVID vaccinations during this pandemic time.

Subjects and Methods

The authors constructed a survey and advertised it through a professional email discussion site. The survey included doctors' experiences in seeing COVID patients in their offices, seeing vaccinated patients in their offices, and their own personal experiences with COVID infection and/or vaccines. The biases that must be admitted are that these doctors are part of an email discussion forum that deals with binocular vision issues and children's vision rather than medical or surgical treatment of health issues. Therefore, rather than a truly random sampling, this is a group with broadly similar interests. Also, this group in large part represents private practice, not hospital or emergency room doctors. In all likelihood, separation from the hospital setting limits contacts primarily to non-severely sick patients. Acutely and severely sick patients may be more likely to go to the hospital emergency room rather than to a private optometric practice for any needed care.

The advantageous bias of a private practice group versus a hospital-based group is that private practice may be slightly more distanced from influences based on government COVID treatment policies. Those potential biases aside—both positive and negative—the survey attracted 1557 respondents from 18 countries. The number of respondents and the variety of practice settings across 18 countries may soften the worries of bias a bit. The breadth of

that response reduces chances for discussion across groups, so there is less chance of development of a crowd effect in potential respondents.

Optometrists were encouraged to participate in the survey with the possibility of entering a drawing for an Amazon gift card. The survey opened October 8, 2021 and closed November 15, 2021, so it was live for just over 5 weeks. The full survey questions can be seen in the appendix.

Results

Ninety percent of optometric offices in this group were open, and 88% saw patients during this pandemic time. Equal numbers of optometrists saw patients with COVID-19 disease-related eye and vision conditions and COVID-19 vaccine-related eye and vision problems or conditions. Anterior segment problems were seen in both disease and vaccine groups, at 35% and 32%, respectively, of reported problems. Reports of posterior segment problems had similar prevalence in the two groups, at 32% for the disease group and 33% for the vaccine group. Oculomotor problems were reported by 14% of optometrists as disease-related, and 15% reported oculomotor problems as vaccine-related problems. It is important to remember that these numbers are not a direct count of individual patient cases, but rather a count of reporting optometrists from the 1557 optometrists who have seen these conditions. No attempt was made to obtain numbers of cases in each reporting category from the respondents.

Reports of optometric treatments reflect the optometric group responding: that is, primarily vision therapy doctors. Treatments for the eye and vision problems grouped in equal response levels for disease- and vaccine-problem groups: active vision therapy (27% disease, 26% vaccine) was the most common, followed by syntonic-tint color therapies (19%), occlusion including binasal occlusion (19%), therapeutic lens prescriptions including prism lens prescriptions (18%), nutritional counseling (17%), and a group of other treatments that included appropriate medical therapies and referrals.

This group also responded to the personal question of whether the optometrists themselves had experienced either COVID infection and/or COVID vaccination and whether there were any problems with either. Only 68 respondents did not answer this question (4.4%). Therefore, more than 95% had experienced infection and/or been vaccinated. Of those, 65% had the vaccine, 19% were infected, and 16% had both the vaccine and were infected. Twenty-eight percent of the personal-response group had no eye or vision problems, leaving 72% of the 95% of respondents (>68% overall) having eye and/or vision problems.

Respondents took advantage of the opportunity to pick more than one response to the question about their own personal eye/vision problems, as evidenced by the 2603 responses to question 12, below. Oculomotor, corneal, retinal, and conjunctival problems all had about equal prevalence at 12 to 15%. Other problems were individually listed in 25% of responses. Twenty-one percent of respondents picked "none of the above" as to the problems they had encountered.

These experts were also asked to make an evaluation of whether they attributed their eye and/or vision problems to infection or to the vaccine. Of the 72% (>68% overall) who had eye and vision problems, seven percent were unsure whether to attribute their problems to vaccination or to infection, or perhaps to both. The remaining 65% were 1.6 times as likely to blame infection (40%) over vaccination (25%) as the culprit. Stated differently, over half of the respondents who were comfortable with assigning blame for their maladies assigned blame to vaccines, not the disease.

Discussion

Assigning blame or cause for health problems requires some sort of association in time between the symptoms and any suggested cause. In this case, a time link may differentiate between disease as a cause and vaccine/pandemic-response as a cause for any eye and vision symptoms. To assign blame, if you will, to a non-disease cause requires respondents to link that non-disease event to their symptoms in time. For example, the prior world-wide research survey suggests that myopia may have accelerated during the online learning that dominated schooling during pandemic lockdown.[4] An increase in myopia during the time of increased online schooling implies correlation, if not causation. This correlation-in-time example illustrates how disease and virus issues might appear to these experts and then be reflected in the current survey.

The first level of cause and possible effect is the disease itself. The disease causes eye and vision problems as these experts link the two in time. With a virus, anterior segment infection and, in particular, mucous membrane infection is perhaps to be expected. With the depth of infection of this

particular virus, retina and vitreous problems may not be completely surprising. Oculomotor problems seem likely with the level of fatigue that this virus apparently can cause.[5]

The fact that this survey adds vaccine effects, and those vaccine effects (linked by time) mirror virus-infection effects, is a bit surprising. Add to that the reports from the experts of their personal symptoms that were likely caused by vaccines over half as often as by infection, and a muddled picture of consequences of this pandemic time emerges. Limiting our view to eyes and vision, the disease has caused problems. However, so have the vaccines. In addition, the lockdowns have likely accelerated myopia.

Another of the possible effects of pandemic-and-response is the possibility of interference with brain development in developing infants by others covering faces for long periods of time.[6] The predictions from that may not be known for several years, and then acknowledgment of cause-and-effect will require looking at increases in facial responses through research in children who were infants before, during, and after pandemic-response epochs.

This group of experts responded to the situation as we would expect. That is, appropriate referrals seem to have been made, based on individual responses. In addition, appropriate lens, prism, and more active therapies have been used to relieve suffering. None of these therapies as we understand them would have made symptoms worse, so these therapists worked within their expertise to help. This group deserves kudos for helping instead of avoiding patients during this tough time.

Conclusions

Discussing pandemics and responses to pandemics can perhaps be more multi-dimensional than many would think. The discipline of economics discusses unintended consequences of actions in the economy. What we see in these two surveys, the first on myopia incidence and progression and the second on COVID infection and vaccination, as well as in the exploratory paper on face-recognition development, is that unintended consequences in this pandemic time are real. Behavioral optometry has a place in dealing with the consequences of both pandemic and response-to-pandemic, as shown by the application of therapies and advice falling within the optometric purview. The optometric community demonstrated that they are appropriately caring and involved in this difficult time.

This may serve as a cautionary tale. Responses to the pandemic have, and in the case of face recognition may, produce unintended consequences. *Primum non nocere*. First, do no harm. The optometrists in this survey seem to have followed that advice. Time will tell whether full societies have done as well.

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Appendix: The Survey Questions

1) Has your clinic been open and seeing patients in-person during the COVID pandemic? y/n
2) If yes, have you personally seen patients in your clinic during the COVID pandemic? y/n
3) If yes, have you personally seen patients with COVID disease-related conditions? y/n
4) If yes to Q#2, have you personally seen patients with (COVID) vaccine-related conditions? y/n

If NO to questions 3&4, please go to Q#11

5) What COVID disease-related conditions have you seen? Choose as many as apply.
- conjunctivitis
- corneal problems
- vitreous problems
- retina problems
- oculomotor problems
- field defects
- neurological problems
- none of the above/other

6. What vaccine-related conditions have you seen? Choose as many as apply.
- conjunctivitis
- corneal problems
- vitreous problems
- retina problems
- oculomotor problems
- field defects
- neurological problems
- none of the above/other

7. Did you treat those COVID disease-related eye and vision conditions beyond correction of refractive status? y/n

8. If yes, what treatments did you use for COVID disease-related conditions?
- therapeutic lenses and/or prisms
- tints and/or syntonics
- occlusion and/or binasal occlusion
- active vision therapy
- nutritional counseling and/or supplements

9. Did you treat those vaccine-related eye and vision conditions beyond correction of refractive status? y/n

10. If yes, what treatments did you use for vaccine-related conditions?
- therapeutic lenses and/or prisms
- tints and/or syntonics
- occlusion and/or binasal occlusion
- active vision therapy
- nutritional counseling and/or supplements

11. Have you had COVID disease or/and a vaccine?
- COVID disease
- vaccine
- both

12. Have you experienced any eye/vision effects?
- conjunctivitis
- corneal problems
- vitreous problems
- retina problems
- oculomotor problems
- field defects
- neurological problems
- none of the above

If None of the Above, thank you. You're done.

13. If you experienced any of the eye/vision problems, did the timing of them make you suspect COVID disease or suspect the vaccine?
- No eye/vision problems experienced
- I attribute the problems to COVID disease
- I attribute the problems to the vaccine
- I don't know which