

# Article • If a Tree Falls, Is It an Epidemic?

## Results of the OEPF Online COVID-and-Myopia Survey

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### Introduction

If a tree falls in the forest, and no one is around to hear it, does it make a noise? If an epidemic happens, and no one notices, is it still an epidemic? Myopia is spoken of as an epidemic. Have we noticed any change in the epidemic in our clinics and offices as the world has gone into various lockdowns, forcing students into virtual learning and others onto screens for both work and recreation?

Information of one sort or another having to do with the COVID-19 epidemic has bombarded anyone paying even minimal attention to media. Few have escaped the mandated COVID shutdowns and lockdowns, even if they have escaped the virus.

Another epidemic—this one in vision—has been brewing much longer. Look at the titles of pieces discussing the increase in myopia in recent years and decades: “The Myopia Boom”<sup>1</sup> and “Myopia: A global epidemic.”<sup>2</sup> Search one year of published scholarly papers on myopia, and hundreds, maybe thousands, of papers can be accessed. The increases in myopia have gotten the attention of a good share of the vision research world.

Myopia has always been part of the optometric clinical world. Optometry dealt with the concept of nearpoint stress and the biological unacceptability of near work before anyone else cared.<sup>3</sup> The near-work theory of myopia has had its detractors, but some research has supported the physiological

unacceptability of near work, which can lead to increasing myopia.<sup>4</sup> Two recent studies link cell phone use to myopia.<sup>5,6</sup>

While the myopia epidemic has been brewing for decades, suddenly the world (and specifically schoolchildren) has been plunged into the biggest health-related experiment in history. Placing schoolchildren in front of computers for hours at a time for their schooling became a fact of life during lockdown and effectively became a forced laboratory on near work and myopia.

The Optometric Extension Program Foundation (OEPF), as part of its research emphasis, called on Clinical Associates and interested optometrists to answer six questions about their clinical experience as lockdowns eased. Survey respondents were asked to answer the question, “Do you see what I see? Is it your clinical impression that locking children indoors to view hours of school lessons on the computer and participate in online elementary school, middle school, and high school classes has increased the speed of the progression of myopia?”

### Participants

On May 28, 2021, OEPF launched an online survey in an effort to assess expert opinions on whether we are seeing an increase in myopia over what we might otherwise expect during a time of virtual learning. Invitations to respond to the survey were sent to 11,533 people across the globe. From those eleven thousand-plus invitations, the survey generated 5307 post-engagements, meaning that someone actually looked at the message. Out of those engagements, 1246 optometrists responded and were counted by the survey software as filling out the full survey. Response counts to individual questions ranged from 1147 to 1344 (an average of 1210). Those 1246 counted optometrists represent at least 32 countries, although the bulk of responses came from the United States, followed by Canada, the Philippines, Australia, and India. The survey response can be accurately characterized as global, with the universal factor

driving interest in participating being the global nature of governmental response to the COVID epidemic and its effect on our patients.

### Survey Questions and Reasoning

1. Do you treat children? Children are the most likely group to be actively developing myopia; therefore, the question clarifies whether this is a group of optometrists who would likely see increasing myopia.
2. Do you “actively” manage myopia (not just by prescribing single-vision distance lenses or contacts)? This continues to clarify the group responding: those who recognize myopic progression as worthy of interference.
3. Do you plan to “actively” treat myopia in the future? Having defined active treatment, the group can now include those who recognize the need to treat myopic progression even if they have not done so to date.
4. During the pandemic, have schools in your area switched heavily into online teaching such as Zoom classes? Screen time is a discussion point for increasing myopia. The forcing of screen time with online classes for elementary and middle school children in particular may be a factor if an increasing prevalence or amount of myopia are developing.
5. Is it your impression that the amount of myopia in these children is: increasing, the same, less, or hard to tell?
6. Compared to pre-COVID, are changes in myopia occurring: at a faster rate, at the same rate, at a slower rate, or hard to tell. These last two questions attempt to clarify whether myopia is increasing, in these experts’ opinions, and whether it is increasing at a faster pace since COVID lockdowns happened.

Although some of the questions may seem redundant, the goal was to have no misconstrued questions. Respondents were encouraged to respond by being entered into a drawing for \$10 Amazon gift cards.

### Results

The respondents comprise a group of practitioners who treat vision problems in children. Ninety-nine percent of 1151 respondents (to that question) treat children and actively attempt to manage myopia progression. Ninety-two percent of 1147 actively manage myopia progression in

some way currently, and an additional 4% (of 1149 respondents) are considering becoming involved in active management.

The children in the locations of these experts overwhelmingly were subjected to online classes, versus the in-person classes that children usually have for schooling. Ninety-five percent of 1234 respondents live where schools have shifted to online educational delivery such as Zoom classes; that is, 95% located in 32 countries throughout the world. Thus, this represents a worldwide phenomenon.

The support for an increase in myopia is less overwhelming but still substantial. Fifty-eight percent (782 of 1344 respondents) say that the amount of myopia is increasing, while 28% of those (381) think that it is about the same, 9% (115) think that it is less, and 5% (66) are unsure. When the question specifies comparing to pre-COVID myopic progression, 54% (of 1234) see faster changes, 28% think that it is about the same, 11% think that it is slower, and 7% are unsure (669, 349, 133, and 83, respectively). If we put all that together, currently, at least 782 optometrists worldwide who see children identify this as a worsening epidemic, and 669 of those think Zoom classes and similar responses to COVID are instrumental in making this epidemic worse. Time will tell, but that suggests that 85% of those who see the myopia epidemic worsening place part of the blame on lockdowns.

### Discussion and Conclusion

The expert opinion of a worldwide group of optometrists who see children of the age of greatest risk for developing myopia and who are actively managing myopia is that lockdowns have increased the rate of development of myopia in their young patients. If we combine those who think that the pace has increased with those who think that it is about the same, 82 to 86% would say that, if there is an epidemic of myopia, it has not subsided and may be increasing in intensity.

If a tree falls in the forest, and no one is around to hear it, does it make a noise? If an epidemic happens, and no one notices, is it still an epidemic? In the case of epidemic myopia during the COVID experience, experts in children’s vision worldwide have seen the epidemic in myopia, and it may be worsening thanks to lockdowns and the accompanying increased screen time for school classes.

Suggesting positives in a myopia epidemic that may be increasing in intensity may seem fatuous.

However, OEPF has been at the forefront of suggesting and providing the theoretical basis for expecting increasing myopia with increases in biologically unacceptable nearpoint stress. These experts, across the world, suggest that nearpoint stress as a cause for myopia was correct all along.

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