

Mask-associated dry eye disease and dry eye due to prolonged screen time: Are we heading towards a new dry eye epidemic during the COVID-19 era?

Dear Editor,

The entire world is currently struggling with coronavirus disease-2019 (COVID-19) pandemic and safety measures such as widespread use of face masks, respiratory hygiene, hand hygiene, physical distancing, and throat hygiene have been determined essential to combat COVID-19's spread. To avoid social gatherings and crowded workplaces, most of the work and meetings are done using digital devices on virtual platforms resulting in a considerable increase in screen time. Measures such as the use of face masks by the public remain the single most important aspect to limit the COVID-19 pandemic in the community. However, the ophthalmologists, as well as the general population, need to be aware that the facial mask together with prolonged use of digital devices is giving rise to increased reports of dry eyes in a large number of patients. Scientists from the Centre for Ocular Research & Education (CORE), Waterloo, Canada termed dry eye after use of face mask as mask-associated dry eye (MADE).^[1-3]

Face masks, face shields are crucial in the fight against COVID-19, and most of the ophthalmologists are seeing more and more patients with dry eye as a result of prolonged use of face mask and increase in screen time during the COVID-19 pandemic era. The use of face masks significantly reduces the outward spread of air. However, exhaled air still needs to disperse; when a face mask sits loosely against the face (nose and cheek), the likely route of the exhaled air is upwards. This forces a stream of air over the surface of the cornea, creating conditions that accelerate corneal tear film evaporation, leading to dry spots on the ocular surface, ocular irritation, and discomfort.

MADE can also cause worsening of symptoms in patients with pre-existing dry eye disease, post-menopausal dry eye,

people using a smartphone or digital devices or computer for more than 2 h. MADE may aggravate dry eye symptoms in the elderly males or post-menopausal females, post-cataract IOL surgery cases, post-Lasik cases, contact lens wearers, who typically have a poorer quality corneal tear film, and masked people working extended hours in air-conditioned settings and/or while using digital screens.

Beyond discomfort, MADE patients may rub their eyes or clean their spectacle for temporary relief—raising the possibility of unwashed hands being brought to the face. In turn, this increases the likelihood of novel coronavirus infection through the mouth, nose, and to a lesser extent, the eye. This can also increase the possibility of allergic conjunctivitis secondary to contents of sanitizers via frequent hand-eye contact.

The ophthalmologists should be aware of this new entity of MADE and educate patients to wear the masks properly, such that exhaled air is not forced over the eyes, while also taking care to continue to encourage the widespread use of masks. Provide advice on alleviating the symptoms, including using info-graphic to help show how a few simple steps can likely provide relief and minimize re-occurrence [Fig. 1]. The ophthalmologist must ensure that a face mask is worn appropriately, particularly with spectacles or sunglasses. A carefully taped top edge on the nose (that does not interfere with blinking) may be helpful to minimize the symptoms. Frequent use of lubricating eye drops (as per recommendations by an ophthalmologist) can be helpful to minimize MADE. It is important to limit time in air-conditioned environments, take regular breaks from digital devices by following the 20:20:20 rule to minimize the digital eye strain.

As an effort for overcoming the global COVID-19 pandemic, it is everyone's responsibility to wear a mask when going out at public places, even when having to contend with eye dryness. MADE should not be used as an excuse for not using the mask. However, the ophthalmologists as well as the public need to remain aware of the MADE. The ophthalmologists should further communicate their knowledge about this entity to all their patients during this time of COVID-19 Pandemic when sound, scientific guidance is needed more than ever to win the battle against this invisible enemy.

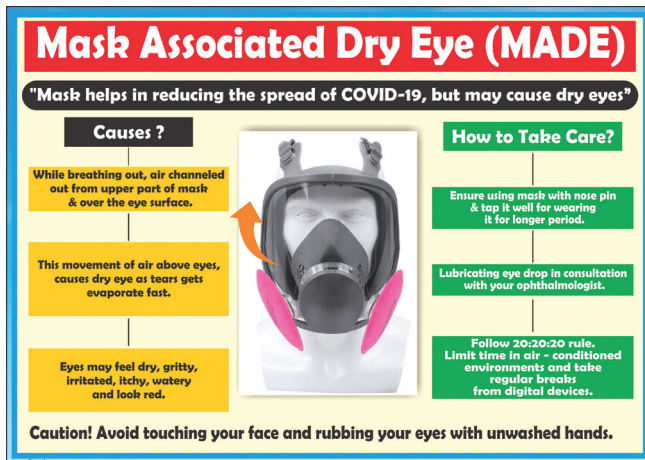


Figure 1: Mask-associated dry eye (MADE)

Future studies will reveal the incidence as well as the magnitude of the problem of the MADE. The use of masks, combined with prolonged screen time due to the easy availability of smartphone and cheap data plans in India, maybe a contributing factor to an epidemic of dry eye diseases in near future. Over 50 crore Indians are now using smart-phones, a 15% increase from 2018. Factors like availability of good-quality affordable smart-phones, expansion of online as well as offline channels, expansion of 4G/LTE networks by the operators are among the key reasons driving the smartphone user growth and most of these users are spending at least 6–8 h on phone each day. A study during the pre-COVID-19 era on dry-eye disease conducted by researchers from Hyderabad, on 1.45 million patients was recently published.^[4] The study estimated that based on current incidence rates, 45% or nearly half of India's urban population is likely to be affected by this condition by the year 2030, roughly translating to a staggering 275 million people. Even rural India is likely to see 17 million new patients of the dry-eye disease every year. This would make dry-eye disease a serious health concern, even more common than diseases like diabetes or heart disease. Ophthalmologists, optometrists, vision scientists, health-care workers- let us all join hands together to educate the public and do our best to overcome the forthcoming epidemic of dry eye disease.

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Conflicts of interest

There are no conflicts of interest.

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