

## Commentary: The untapped potential of protective eyewear for primary prevention of ocular trauma

Ocular trauma resulting from any cause results in complex psychosocial implications for the victim despite rehabilitation with prostheses. Some of the effects include emotional devastation in the aftermath, problems in getting over the trauma and moving forward, a fear of social stigma, difficulties in daily living and safeguarding self and close others, and a threat of injury and further deterioration of residual vision or blindness.<sup>[1]</sup> Young people in their productive years are significantly affected, who may initially be oblivious to the consequences of ocular trauma. At the same time, the injuries have a lifelong impact on their career and socioeconomic well-being.<sup>[2]</sup>

The risk of ocular trauma is well recognized for industrial workers like those involved in infrastructure and construction, agriculture and food processing, pharmaceutical and chemical manufacturing, microbiological and vaccine handling, mining, stone crushing, and so on. In India, a mandatory requirement for ocular protection has been issued in the Model Rule of the Factories Act of the Indian Constitution, with relevant national standards for visual protection equipment laid out by the Bureau of Indian Standards.<sup>[3,4]</sup> Surgeons and paramedical personnel routinely use protective eyewear to safeguard against occupational injuries from blood and body fluids, lasers, radiation, and infective material. Apart from this, fume hoods and goggles are prescribed in essential standard operating procedures for chemistry laboratory spaces in Indian schools.<sup>[5]</sup> Use of protective goggles is also recommended for recreational activities like sports, mountaineering, swimming, and gardening. In addition, appropriate eyewear can also prevent thermal-chemical injuries from firecrackers or during whitewashing or cooking.

However, studies exploring the knowledge, attitude, and practices related to the use of ocular protection across the world show poor adoption of these devices.<sup>[2]</sup> A study in the Middle East showed that about 85% of workers in small-scale enterprises were involved with activities presenting eye injury risk and were highly aware of this. Still, none used safety goggles all the time.<sup>[6]</sup> In Canada, a study showed that about two-thirds of patients presenting with occupational eye injuries did not wear eye protection and the remaining one third sustained an eye injury while using eye protection, possibly due to inappropriate or incorrect usage.<sup>[7]</sup> In this context, the study by Durmuş Ece, *et al.* is most relevant because by showing that trauma-related diseases were the second most prevalent disorders in young people who had to be disqualified from military recruitment, it emphasizes that young people, in general, and those aiming for careers in military forces, in particular, must use ocular protection from their early years.<sup>[8]</sup>

Various geographic factors, culture, educational level, and socioeconomic status are essential determinants in adopting protective devices.<sup>[2]</sup> Also, low-quality and improperly fitting eyewear may not offer adequate protection even after use, while prescription glasses made out of conventional materials or helmets without visors may provide a false sense of security. Some of these devices may be suitable for one situation rather than the other. Thus, a complex interplay of factors has to be considered when choosing proper eyewear for any particular activity.

Ideal safety eyewear should protect against specific hazards, fit properly and comfortably, be durable, should not restrict vision or movement, and should not interfere with any other simultaneously used personal protective equipment.<sup>[9]</sup> Local bodies, citizens' unions, and professional associations of ophthalmologists and optometrists could formulate guidelines on the use of this equipment for specific job types or subject populations. Ensuring proper use of such protective gear is equally important. The World Sight Day 2022 theme – "Love your eyes" – was a global call to raise

awareness and enhance personal eye protection. Furthermore, educational reinforcement about eye protection can be brought about by initiatives such as “enhanced education” (individual education session, group education, individual discussions, and educational plays), as reported in a study from South India.<sup>10</sup> It is only through such initiatives that the much-needed behavioral change in attitude and practices among the population can be brought about in this regard.

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