REFRACTIVE DISORDERS IN SCHOOL-AGED CHILDREN DURING THE COVID-19 PANDEMIC

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ABSTRACT

Myopia is a serious medical and social problem. Among the causes of blindness and low vision, myopia ranks third. The prevalence of myopia has increased significantly over the past decade, occurring more frequently in Asian countries than in Western ones. In urban Asian communities, its prevalence exceeds 80% [1,2,3]. If the current trend continues, the World Health Organization (WHO) predicts that by 2050, up to 50% of the world's population may be affected by myopia [4,5,6]. In the United States, the prevalence of myopia increased from 25% to 44% between 1972 and 2004 [7,8,9]. It remains much lower in less developed regions, such as the Sherpa population in Nepal. According to various authors, the prevalence of myopia and myopic astigmatism among young, working-age individuals in Russia, the USA, and the European Union ranges between 27% and 45%. The rise in myopia is associated with higher educational levels, increased stress, prolonged use of digital devices such as laptops, tablets, and mobile phones, and reduced time spent outdoors. The COVID-19 pandemic has further contributed to the progression of myopia. Literature sources indicate that remote learning negatively affected myopia dynamics in children due to reduced outdoor activity, longer screen time, and greater use of electronic devices during the pandemic.

Objective

To analyze the prevalence of myopia among 9th and 11th grade students in schools of Tashkent.

Materials and Methods

A total of 150 students from 9th and 11th grades were examined.
Inclusion criteria: refractive error greater than –0.5 diopters under cycloplegia.
Research base: schools in Tashkent city. All participants underwent standard ophthalmologic examination methods. Statistical methods were used for data processing and analysis.

Results

When comparing the prevalence of myopia before and during the COVID-19 pandemic (2019 and 2021), the number of students with myopia increased 2.3-fold overall: 1.82 times among 9th graders and 1.94 times among 11th graders. The total proportion of children with myopia among all participants was 20% (30 students).

Notably, despite access to printed materials, 30% of students preferred to use digital devices. The average time spent reading printed materials was 4.5 ± 1.78 hours per day. The average duration of electronic device use was 7.3 ± 1.2 hours among 42.6% of respondents, 2–3 hours among 25%, 4–5 hours among 17.4%, and less than 1 hour among 15% of children.

Conclusion

The increase in myopia among high school students during the COVID-19 pandemic can be explained by the simultaneous use of multiple electronic devices, prolonged screen exposure, decreased outdoor activity, and unbalanced nutrition.

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