



Post Covid Prevalence of Timir W.R.T Refractive Errors among the Primary School-Going Children in Navi Mumbai

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PURPOSE: This study investigated the distribution pattern & prevalence of refractive errors in school going children post the lockdown period in Navi Mumbai. As schooling was online so there was less requirement of distance vision. If they were developed with myopia although they were happy with near vision. In post-covid era with physical classroom teaching students were facing problems for distance vision. Visual acuity plays an important role in a child's learning. Uncorrected refractive error (URE) has become a major challenge in post covid in school going children. We aim to report the prevalence of refractive error among the school students of Navi Mumbai.

KEYWORDS: Hyperopia; myopia; prevalence; refractive error.

Methods: A cross-sectional study was carried out among 1,595 school children under the school Eye screening program of Prabhat Trusts. Demographic data were interviewed by the children and cross verified by the class teachers with their school records. Screening included {Vision taking, Refraction, Examination of Squint by cover & uncover test} by trained optometrist. The screening was conducted in 7 schools of Navi Mumbai which included primary section students.

METHODS

Study design

A cross-sectional study was conducted among the school children of Navi Mumbai during April 2022. The study was done by Prabhat Trust Solar powered Mobile Eye clinic for identification and treatment of refractive errors. The screening was carried out in 7 schools which included the primary section.

Study population

A total of 1,595 children were screened for refractive errors. Permission was taken from the NMMC education department of the selected schools. Informed and written consent was obtained from the teachers and principals prior to enrolling the students for the study.

Eye examination

An eye team consisting of an ophthalmologist and senior optometrist visited the selected schools. Depending upon the total number of students the teachers were selected in the school for the training program as a volunteer.

The teachers were aware about the magnitude of digital use of gazettes during lockdown and impact on children's eyes. Their role was in early detection of vision problems as they were trained by the senior optometrist to screen the vision of each eye separately using the Snellen chart in their respective classes. An

eye health education program was conducted for the students and teachers to make them aware of eye health & hygiene.

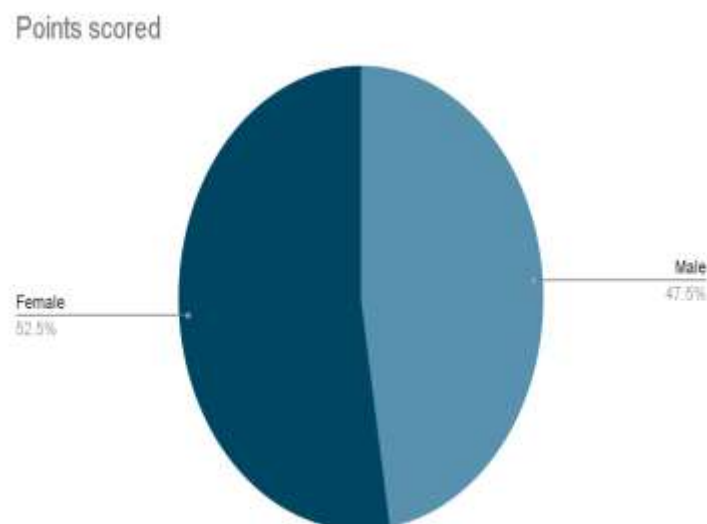
The children detected to have any ocular anomaly or visual acuity less than 20/40 by the trained teachers were referred first to the mobile eye clinic where optometrist did auto refractometer reading, lensometer if the children has there glasses & subjective refraction by placing the appropriate lenses in the trial frame. Using a cover-uncover test to evaluate squint in the patient. The visual acuity were tested with the digital Snellen chart. The children that were unable to get the non cycloplegic correction were later dilated using homatropine 2% after instilling the drop for about 2 hour patient dilated AR & undilated AR where compared and next day the trail was given by the trained optometrist to give the needful prescription of glasses under the guidance of an ophthalmologist. Lastly, those who still did not improve were referred to the base hospital for further complete ophthalmic examination by the ophthalmologist for any pathological disorder that the child must be having. Refractive errors were diagnosed when the presenting visual acuity was less than 20/40 and improved to >20/40 with correction. Myopia was defined as measured objective refraction of $>_-0.5D$ spherical equivalent in one or both eyes. Hyperopia was considered when the measured objective refraction of $>_+2.0D$ spherical equivalent in one or both eyes was present. Astigmatism was considered when the measured objective refraction of $>_0.75 D$ cylinder was there in one or both eyes. These refractive errors were categorised according to the Refractive Error Study in Children (RESC) Survey group.[1]

The data were entered into the Excel sheet and analysed using the Statistical Package for the Social Sciences version 16.0 (SPSS Inc, Chicago, IL, USA). The data were expressed as proportions ($n, \%$).

RESULTS

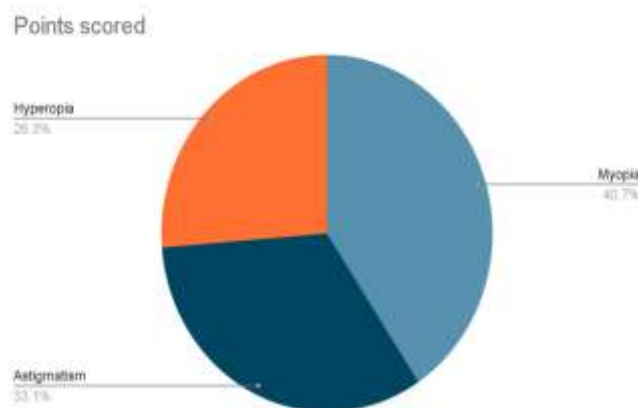
Total of 1,595 school children were screened from 7 different schools of Navi Mumbai. Some other ocular cases like squint, vitamin A deficiency, and cataract were also diagnosed by the ophthalmologist but could not be recorded for analysis due to the unavailability of data. The prevalence of refractive error was 118 Females had slightly higher refractive error 62 than males 56.

Table 1: Gender distribution of refractive errors in the primary school of Navi Mumbai



Among which myopia was the most common error present in 48 (40.7%) children, followed by astigmatism in 39 (33.1%) and the remaining 31 (26.3%) with hyperopia.

Table 2: Refractive error based on myopia, hyperopia, and astigmatism among the school children



DISCUSSION

Girls were mostly affected with refractive errors as compared to boys and many have reported similar studies. We also observed that the children studying in monastic schools also had refractive errors who are often ignored.

Myopia was the most common refractive error followed by astigmatism and hyperopia being the least and many studies have reported similar results. Various components like nutrition, lifestyle, and hereditary might be involved in contributing to the rise of refractive errors.

CONCLUSION

The study provides useful and baseline data about the post covid refractive error amongst the school children of Navi Mumbai. A larger study needs to be conducted in all the schools of the state to get a clearer picture of RE and other eye related diseases to detect vision problems as early as possible to provide the needful assessment to the children.

Timely intervention for refractive error plays an important role to protect children from becoming amblyopic. As amblyopia is a silent sight threatening issue by which their future goals or the career choice of a student gets hampered due to its visual acuity. Active screening and timely intervention at the right time will not only help in vision restoration but will also influence a child's growth and overall development.

An estimated 19 million children are visually impaired worldwide of which 12 million are due to refractive errors which could be easily corrected. [2] While many screening programs in schools are being carried out, there is a lack of accurate data in the prevalence of visual impairment. [3] Yearly screening of school children plays an important role to prevent visual impairment.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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