Prevalence of Myopia within a large tertiary children's eye hospital

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Introduction

The prevalence of myopia is attracting researchers from around the world.

Myopia is the most commonly occurring refractive error [1].
Most individuals develop myopia during childhood, particularly during school years[2]; children who are younger at the onset of myopia tend to have greater myopia progression subsequently. European populations have an estimated a prevalence of 30.6% and the prevalence is steadily increasing[3].

Myopia has adverse socioeconomic effect$ and is also linked to ocular comorbidities like glaucoma, retinal detachment and choroidal neovascularisation. Environmental factors can cause an increase in myopia[4], and this is particularly relevant during the peri-pandemic era.

Aim

The purpose of this study was to assess the types, attributes and ophthalmic comorbidities of children with myopia in a tertiary children's hospital in the United Kingdom (Alder Hey Children's Hospital).

Methods

This was a retrospective data collection of all patients seen between January 2018 and June 2018 who had a diagnosis of myopia. We identified patients from the electronic patient record and clinic letters using the keywords "Myopi-" and "Short". We collated demographic, refractive, orthoptic and comorbidity data.

Definitions

In line with other reports[5,6] we defined **emmetropia** as spherical equivalent (SE) greater than −0.5D and smaller than +0.50D.

Mild myopia: −0.5D to −2.99D
Moderate myopia: −3.00 to −5.99D
High myopia: ≥ −6.00D

Astigmatism was defined as:
Low Astigmatism 0.75D to 1.99D
Moderate Astigmatism 2.00D to 3.99D
High Astigmatism ≥ 4D.

Results

320 patients were identified. Patient demographics are shown in Table 1.

	Mean ± SD (Range)
Age (years)	7.80 ± 4.24 (0-17)
Male: Female (%)	50.6:49.4
New referral: Follow up (%)	26.7: 73.3
Spherical Equivalent (Diopters)	
Low Myopia	-1.11 ± 0.89
Moderate Myopia	-3.64 ± 1.48
High Myopia	-9.84 ± 5.81
Best corrected Visual Acuity (LogMAR)	
Low Myopia	0.24 ± 0.32
Moderate Myopia	0.35 ± 0.35
High Myopia	0.63 ± 0.52

Table 1: Patient Demographics

Fig. 1 and 2 show astigmatism and orthoptic assessment based on level of myopia

Fig 1: Levels of Astigmatism depending on Myopia level

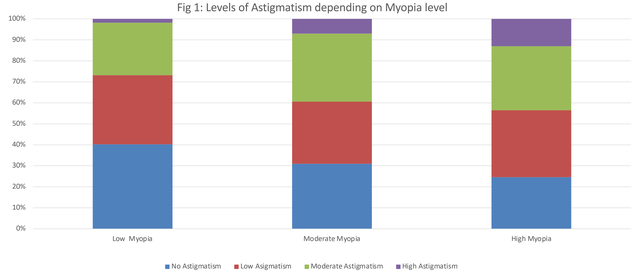
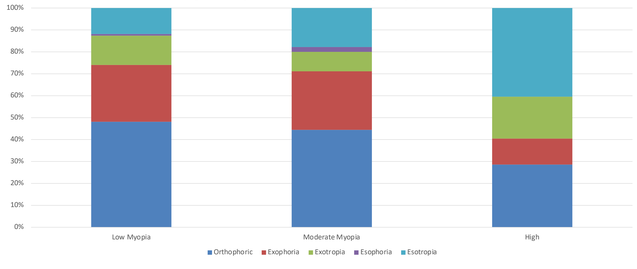
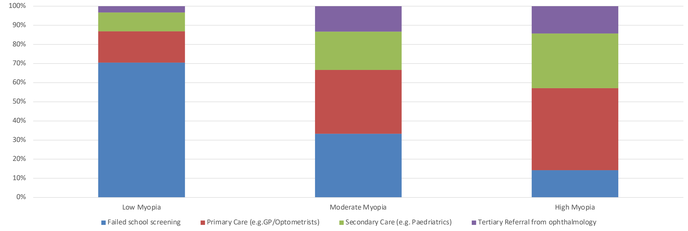


Fig 2: Orthoptic assessment depending on myopia level



234 patients (73.1%) were follow up patients and 86 patients (26.9%) were new referrals. Of the new referrals (Fig 3), 48 patients (55.8%) were referred for failing the National School Screening Service[7].

Fig 3: Reason for Referral – New Patients



190 (59.4%) patients had at least one associated comorbidity.

43.7%, 66.7% and 87.1% of patients had comorbidities in the low, moderate, and severe myopia groups, respectively.

The top 5 comorbidities are shown in Table 2. There was no difference in the order with respect to myopia type. 21.9% of patients had more than one comorbidity.

Comorbidity	Number of patients
Prematurity	36 (11.3%)
Hereditary Dystrophies	35 (10.94%)
Cerebral Visual Impairment/ Developmental Delay	34 (10.63%)
Cataract	21 (6.6%)
Chromosomal Abnormalities	13 (4.1%)

Table 2: Comorbidities

Conclusion

Low myopes are more likely to be referred to the hospital eye service due to failed school screening and have no other systemic or ocular co-morbidities. Moderate and high myopes are more likely to have ocular comorbidities. This study suggests at any one time in our children's hospital, there is a large mix of myopes and a high number who would qualify for myopia treatment trials.

References

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