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Prevalence of amblyogenic risk factors among children aged 3.5-5.5 years in Scotland who fail their vision screening.

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References (if any):

Aims / Purpose:

Scotland, with a population of ~5.5 million, has a comprehensive vision screening programme by orthoptists for children aged 3.5-5.5 years, taken up by ~85% (40,000-50,000 annually). Tests include presenting vision, cover test, and other orthoptic evaluations. Screening failures are referred for an eye examination, including cycloplegic refraction, by an optometrist or, infrequently, an ophthalmologist. Our aim is to report the prevalence of amblyogenic risk factors (ARF), in children who failed screening and completed an eye examination.

Methods:

Based on AAPOS criteria, the following ARF were applied: constant manifest strabismus or any of the following refractive states: hyperopia (spherical equivalent refraction, SER) >4.00D (in one/both eyes), astigmatism >1.75DC (in one/both eyes), anisometropia >1.25DC for astigmatism and >1.25D (SER) for hyperopic or mixed (one eye hyperopic, the other myopic) anisometropia. 2021/22 school year data, from Scottish Health Boards containing 87% of Scotland's population, are reported.

Results:

36,270 children completed vision screening, 78.9% of all eligible children. 8,130 (22.4%) children failed screening and were referred for eye examination, with data returned and analysed for 5,310 (65.3%). The overall prevalence (95% CI) of children having at least one ARF was 5.06% (4.84-5.29), and for at least two, three and four ARFs was 1.62% (1.49-1.76), 0.27% (0.22-0.33) and 0.04% (0.03-0.07) respectively. Among children with an ARF, 35.1% had hyperopia >4.00D, 48.2% had astigmatism >1.75D, 26.6% had hyperopic anisometropia, 12.6% had astigmatic anisometropia, 2.0% had mixed anisometropia, and 13.7% had constant manifest strabismus.

Conclusions:

In this predominantly Caucasian population 5.06% (95% CI: 4.84-5.29%) of Scottish children (3.5 – 5.5 years) have at least one ARF. The high prevalence of ARFs validates the importance of carrying out a universal vision screening programme.