

Towards 2020 Vision in Singapore

SM Saw,^{1,2,3} MBBS, PhD, FAMS

With the increasing demands of contemporary life, higher levels of visual performance are expected. In modern societies such as Singapore, many more adults will join the workforce and perform complex tasks that require perfect visual function. A more mobile elderly population that travels frequently and engages in active hobbies may also have greater visual needs and expectations. Visual impairment [defined as acuity <6/18 or 20/60 by the World Health Organization (WHO)] and blindness (defined as <6/120 or 20/400) are important public health problems that need to be addressed.¹ The WHO estimated that 45 million people are blind and 135 million people visually impaired worldwide.² “Economic blindness” has been defined as vision below 6/12 or 20/40, because vision below this level affects workplace function and the ability to drive.³ In Singapore, the prevalence rates of low vision and blindness defined by the WHO in 40- to 79-year-old Chinese persons are 1.1% and 0.5%, respectively.⁴ Blindness has enormous economic and public health impact, so systematic intervention programmes to combat blindness should be developed. As Sir John Wilson so eloquently described in 1986 “*People do not really go blind by the million. They go blind individually, each in his own predicament.*”

Vision loss is a serious condition that may lead to reductions in health-related quality of life, depression, more dependence and less social interaction.^{5,6} Poor visual performance is associated with increased risks of falls, and injuries such as hip fractures.⁷ More importantly, poor vision increases the risk of death. In the Melbourne Visual Impairment Project (VIP) cohort of 3271 adults aged 40 years or older, even mild visual impairment doubled the risk of death.⁸ In 2520 older adults in the Salisbury Eye Evaluation project in the United States, those with impaired vision had higher mortality.⁹ Visual impairment may increase mortality by increasing the risks of injury and death from accident, or may cause social and emotional problems that lead to early death, or both.

Although distance visual acuities as estimated by the

uncorrected, habitual, and best-corrected logMAR or Snellen methods are common and objective measures, these measures should not be the only indicators of vision. The self-reporting of day-to-day visual function using vision-related health assessments is a more relevant but often neglected measure. Visual function may be measured using validated and reliable health-related questionnaires such as the VF-14¹⁰ or the 25-item NEI-VFQ.¹¹ By these means, both decline in visual function and decrease in quality of life have been documented in patients with cataract, glaucoma, diabetic retinopathy and age-related macular degeneration (AMD).

In Singapore, the 2 leading causes of visual impairment – undercorrected refractive error and cataract – are both correctable. In Singapore Chinese persons aged 40 to 79 years, 17.3% do not have adequately corrected refractive error (the criterion being an improvement in visual acuity in the better eye of 2 lines or more by best possible refraction).¹² Even though Singapore has a well-developed healthcare system, uncorrected refractive error is a major problem because myopia is exceptionally common. The public are generally unaware of the need to fully correct visually for refractive errors, the costs of spectacles may be too high for the disadvantaged, and there are barriers to eye care, especially among the elderly and disadvantaged. Refractive error is easily and cheaply neutralised by appropriate optical wear such as spectacles or contact lenses. The provision of free or cheap “off the shelf” spectacles may alleviate the problem of costs.

About 94% of Singapore Chinese adults aged 70 years and older have cataract, or have had cataract surgery.¹³ So, cataract is the other common cause of visual impairment in Singapore. Cataract blindness may be prevented by cataract surgery. Better access to cataract surgery services, awareness of the visual disability, and surgical treatments for cataract may all decrease visual loss associated with unoperated cataract. With an ageing population and increased demand for early cataract surgery, the number of cataract surgical procedures in Singapore may increase.

¹ Department of Community, Occupational and Family Medicine

³ Department of Ophthalmology

National University of Singapore, Singapore

² Singapore Eye Research Institute, Singapore

Address for Correspondence: A/Prof Seang-Mei Saw, Department of Community, Occupational and Family Medicine, National University of Singapore, 16 Medical Drive, Singapore 117597.

Email: cofsawsm@nus.edu.sg

Apart from the leading causes of visual loss, open-angle and angle-closure glaucoma cause optic nerve damage, and contribute to significant visual loss in Singapore. Appropriate surgical and medical management of the early stages of glaucoma is the key to the prevention of permanent glaucoma-related blindness. Other disease-specific causes of blindness, including AMD and infectious causes such as trachoma and nutritional causes such as vitamin A deficiency, are rarer in Singapore than in other parts of the world. The prevalence rates of AMD are believed to be lower in Singapore compared with Western countries, although accurate population-wide estimates are not yet available. In Singapore, the paucity of contributing genetic and environmental factors for AMD might account for the low reported rate of visually disabling AMD. Singapore is a rapidly developing country and both infectious and nutritional causes of visually disabling eye disease have decreased over the past few decades.

Low vision is more common in the elderly, because eye diseases are often age-related, and are more likely to remain undetected or untreated in this group. We anticipate that low vision rates will increase as the population ages. Frequent eye examinations and screening will reduce the load of undiagnosed eye disease, but barriers to eye care access remain. For example, an elderly patient may not visit the eye care practitioner because the clinic is too far away, waiting time is too long, clinic fees are too costly, or there is no one to accompany the patient. Health promotion messages should be targeted at noticing changes in vision and emphasising the need to visit the eye care practitioner, especially in individuals with a family history of eye disease or existing diabetes mellitus.¹⁴ Once diagnosed, the surgical and medical treatments for common eye diseases in Singapore are highly effective, and 20/20 or 6/6 vision is often restored. Uncorrectable visual impairment still remains a public health challenge: social, economic and vocational rehabilitation, in conjunction with the adequate provision of low vision services, are essential.

In 1978, the WHO Programme for the Prevention of Blindness (PBL) was established. The current WHO Vision 2020 global initiative aims to eliminate two-thirds of blindness in the world by 2020.¹⁵ Solving the problem of poor vision is a huge challenge which requires the dedication of governments, ophthalmologists, optometrists, vision researchers and individual patients. More attention should be given to individuals who are visually impaired and blind from refractive error, cataract, glaucoma or diabetic retinopathy, and eye programmes of screening, full optical correction, surgical and rehabilitation measures should

receive high priority in Singapore.¹⁶ New data will allow us to estimate and compare the burden of correctable and uncorrectable vision loss and blindness in Singapore, the Asia-Pacific region, and worldwide. Blindness is an undeniably huge public health problem, and greater awareness could be generated amongst family physicians, clinicians, eye care professionals, and medical students in Singapore and abroad.

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