Source: *The Straits Times,* pB3
Date: 13 January 2025

Myopia is a public health crisis with long-term economic and social implications, say the writers. It increases the risk of severe complications later in life such as retinal detachment, glaucoma and macular degeneration. These can lead to visual impairment and significantly reduce quality of life. ST PHOTO: GAVIN FOO

Shift the focus to tackle myopia in Singapore

It may be irreversible, but the battle with short-sightedness needs to be contained, if not won.

Goh Jit Khong Jake and Foo Li Lian

Ten-year-old Ethan suddenly developed myopia, and it quickly got worse. But where once children like Ethan had to rely on increasingly stronger lenses, his vision was stabilised with the use of myopia-control spectacle lenses. Sarah, a 12-year-old dancer, switched to Ortho-K (orthokeratology) lenses, gaining freedom from glasses and excelling in performances.

These cases highlight the importance of early intervention and regular follow-ups in myopia – and in the wider picture, how a whole-of-society approach is needed. While myopia, or short-sightedness, is irreversible, its trajectory can be managed.

Ortho-K lenses, for example, reshape the cornea overnight to provide clear vision during the day, while slowing myopia progression. Control spectacle lenses focus peripheral light rays in front of the retina to slow the eye moving from its normal round shape to being too long or oval.

Sure, conventional corrective glasses and contact lenses help the short-sighted, but parents may not be up with latest developments, or they may be complacent and think that when the child is older, they can simply have Lasik surgery. There are environmental factors at play too – the need for outdoor play and screen breaks. These involve education and policy decisions.

Myopia is a public health crisis with long-term economic and social implications. It increases the risk of severe complications later in life such as retinal detachment, glaucoma and macular degeneration. These can lead to visual impairment and significantly reduce quality of life.

Addressing it requires systemic changes that go beyond individual responsibility. This involves rethinking school policies, creating urban spaces that encourage outdoor activity, and adopting hard measures to reduce screen time.

The focus must shift from prevention to containment, emphasising early intervention, consistent follow-ups and comprehensive public education.

PAST EFFORTS TO TACKLE MYOPIA

Singapore is often called the myopia capital of the world – an unwanted "distinction" that hits young Singaporeans particularly hard. Nearly 65 per cent of 12-year-olds and 80 per cent of teenagers are short-sighted. In contrast, about 16 per cent and 29 per cent of 12-year-olds in Britain and Australia respectively are myopic.

Yet, there have been decades of public health efforts and targeted measures in Singapore to address the issue in schools, including the National Myopia Prevention Programme launched in 2001 by the Health Promotion Board in partnership with the Ministry of Education and the Singapore National Eye Centre. It includes initiatives such as annual vision screenings for Kindergarten 1 to Primary 4 children, educational workshops for parents, and collaborations with schools and eye-care providers.

Pre-school efforts have also been introduced. The Early Childhood Development Agency mandates at least 30 minutes of outdoor play daily or 45 minutes three times a week for children in full-day childcare. The Myopia Centre was established in Bedok in 2018 to provide tailored treatment and education for both children and adults with progressive myopia.

However, these efforts have not significantly shifted the numbers for younger children. For example, in selected primary schools, the prevalence of low myopia remains around 20 per cent, while moderate and high myopia decreased only marginally from 2013 to 2023.

In secondary schools, on the other hand, moderate myopia dropped from 20 per cent to 18 per cent, and high myopia from 11 per cent to 7 per cent during the same period.

MANAGING THE PROBLEM

Myopia's progression can be managed through containment strategies. This involves delaying onset, slowing progression and mitigating the risks of complications. A multi-faceted approach is required, combining individual actions with systemic support across all age groups.

Early intervention with special lenses can help. Strategies also include low-dose atropine eye drops, which can reduce progression by up to 60 per cent.

Myopia-control spectacle and contact lenses, while effective, may carry accessibility challenges. In Singapore, these lenses are neither subsidised nor covered by insurance, making them a financial strain for many families.

Contact lenses, in particular, demand frequent visits to eye-care specialists for fitting and monitoring, adding inconvenience for busy parents. They also carry risks like infection or corneal scarring if mishandled, though such issues are rare with proper hygiene.

Despite these hurdles, their proven ability to slow myopia progression often outweighs the drawbacks, provided users adhere to care and follow-up routines.

Schools also play a critical role in managing myopia, given the amount of time children spent there. They should prioritise outdoor learning, incorporating physical education, assemblies and lessons into outdoor settings whenever feasible.

Expanding outdoor co-curricular activities and designing campuses with larger green spaces can encourage outdoor play, which has been shown to delay the onset of myopia. Increased outdoor time reduces eye elongation, a key factor in myopia development. Sunlight exposure triggers dopamine release in the retina, a molecule that prevents myopia.

Despite this, long hours spent in school, tuition and after-school care reduce opportunities for outdoor play. Singapore's hot and humid climate, combined with the preference for indoor physical education, further limits outdoor exposure.

SCREEN-TIME IMPACT

The rise of digital learning has made screen time unavoidable. Every student now uses a tablet or similar device for schoolwork, increasing the risk of myopia.

A 2024 meta-analysis published in BMC Public Health confirmed a significant association between screen time and myopia in children. Using computers and devices involves peering closely at a screen, a known risk factor for myopia progression. The prolonged focus on screens within arm's length adds to the strain on young eyes.

Reducing screen time is not solely a parental responsibility. Policymakers, educators and technology developers must collaborate to protect young eyes.

In 2021, China's Ministry of Education prohibited personal mobile phones in classrooms to reduce myopia risks. Singapore could consider similar measures, while also addressing recreational screen time through public education campaigns and policies that encourage device-free family activities.

Balancing technology use with eye health is essential. Schools could limit non-essential screen time, ban mobile phones for younger students, and educate children about regular vision breaks.

Singapore might draw inspiration from Taiwan's "120 Every Day" policy, which encourages at least 120 minutes of outdoor activity daily. China's State Council has implemented policies to minimise homework loads, regulate after-school tutoring and promote outdoor time, demonstrating a systemic approach to tackling myopia.

At the community level, after-school programmes can offer structured outdoor activities to complement school efforts. Urban planning can also support eye health by increasing green spaces and recreational facilities, encouraging outdoor lifestyles for children and families.

The link between high myopia and mental health further adds urgency to addressing excessive screen use. Studies show that children with severe myopia are more prone to anxiety and depression, underscoring the condition's far-reaching impact.

To tackle this, containment strategies must be paired with technological innovation and systemic reforms. Singapore's vision health hinges on decisive action today to secure a brighter future for the next generation.

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