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# Lack of outdoor time amid Covid-19 worsened myopia in kids: Studies

## Local team reviewing global studies finds that children had faster progression of myopia

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The lack of outdoor playtime during the Covid-19 pandemic would most likely worsen the rates and hasten progression of myopia in children, according to preliminary data from some studies here.

This comes after several worldwide studies found that lifestyle changes amid the pandemic – such as less outdoor playtime and more screen time – led to worsening myopia compared with the situation in years before the pandemic.

Professor Saw Seang Mei, cohead of the Singapore Eye Research Institute's Myopia Research Group, told The Straits Times that her team is reviewing seven worldwide studies in places such as China, Turkey and Hong Kong, and has found that children had a faster progression of myopia during the pandemic compared with before.

They also spent less time outdoors and more time looking at the screen during the pandemic, she added.

The studies each evaluated between 200 and 1,800 children aged between six and 17.

"We are currently evaluating the data from Singapore and will contrast the myopia progression levels before and during the pandemic," said Prof Saw.

Having outdoor playtime is important as there is more natural light compared with indoors.

The sunlight reaches the retina at the back of the eye and triggers the production of a chemical known as dopamine, which helps to prevent myopia.

"Children who don't spend enough time outside are not exposed enough to the light from the sun, so the chemical cannot be released in the retina," she added.

The study, which was published in April last year in the British Journal Of Ophthalmology, found that Singaporean children spent only one to 1½ hours outdoors each weekday, and one to two hours outdoors per day on weekends.

This is lower than the time children in Australia and Britain spent outdoors – an average of two to three hours outdoors each day.

The study covered close to 500 nine-year-olds who are taking part in the Growing Up in Singapore Towards Healthy Outcomes (Gusto) birth cohort study.

The aim of the Gusto study is to understand how conditions in pregnancy and early childhood influence the health and development of women and children.

The researchers also used a light meter to measure the amount of sunlight in both indoor and outdoor spaces.

"The light level inside a room is about 200 to 300 lux on average, usually below 1,000 lux. However, the amount of light outdoors can be as high as 30,000 lux," said Prof Saw.

Even then, as Singapore has cloudier skies, it generally gets less sunlight than countries such as Australia, which gets about 100,000 lux, she noted.

Both factors can help to explain why myopia sets in earlier among Singapore children than those in other countries.

The age of myopia onset is 8.5 years old among Singaporean children, compared with around 12 to 16 years old among children in Europe or the United States, where very few children in primary school have myopia, said Prof Saw.

"So our age of onset of myopia is very early – and I won't be surprised if the age (of onset falls) because of the pandemic."

Singapore has been labelled the myopia capital of the world, with myopia prevalence among the highest worldwide.

"Another study of 3,000 children aged between six months and six years, which we just completed, showed that 10 per cent of Singaporean children below the age of six are myopic," added Prof Saw.

Data from a separate 19-year study, which began in 1999, on close to 2,000 children found that 28 per cent of children here have myopia by age seven, 34 per cent by age eight, and 43 per cent by nine years old.

At 10 years old, 50 per cent of children had myopia while the rates were 62 per cent at 12 years old and 75 per cent at age 16.

Another reason driving up myopia rates is that at the age of six or seven years, children start primary school and begin reading and writing, said Prof Saw.

The study concluded that school- and community-based programmes are important in increasing time spent outdoors daily.

Positive parent attitudes on after-school outdoor activities and support for educators on outdoor learning initiatives, especially for pre-school children, are crucial, said the study.