Pre-dementia •
AI tool to aid diagnosis

A screening tool powered by artificial intelligence could make the process of diagnosing pre-dementia more efficient.

Developed by NTU's Lee Kong Chian School of Medicine, ReCognAIze uses four neuroscientific games to assess mental skills such as executive function and working memory, identifying early signs of cognitive impairment in just 15 minutes.

NTU launches screening tool to detect pre-dementia

Powered by AI, it identifies early signs of cognitive impairment within just 15 minutes

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Mild cognitive impairment, or pre-dementia, affects as many as 12.5 per cent of Singapore's population, but diagnosing the condition can be costly and time-consuming.

A new screening tool powered by artificial intelligence promises to make the process more efficient and affordable, identifying early signs of cognitive impairment within just 15 minutes.

It was officially launched on Feb 4, following three years of research and development.

Developed by Nanyang Technological University's Lee Kong Chian School of Medicine (LKCMedicine), ReCognAIze uses four specially designed neuroscientific games to assess mental skills such as executive function and working memory.

Powered by a proprietary algorithm, these games require users to do a series of tasks which include selecting the correct items after memorising a grocery list, as well as choosing the correct combination of notes and coins to pay a bill.

Early clinical trials showed the tool, which can run as an app on a tablet, is almost 90 per cent accurate in detecting mild cognitive impairment.

ReCognAIze was developed by a team led by Associate Professor Nagaendran Kandiah, director of the Dementia Research Centre (Singapore), otherwise known as DRCS, a centre under LKCMedicine.

Dementia is an umbrella term for neurological conditions that lead to a decline in cognitive function, such as Alzheimer's disease.

An estimated 86,000 people were living with dementia in Singapore in 2021 – a figure that is expected to grow to more than 150,000 by 2030 as the Republic's population ages.

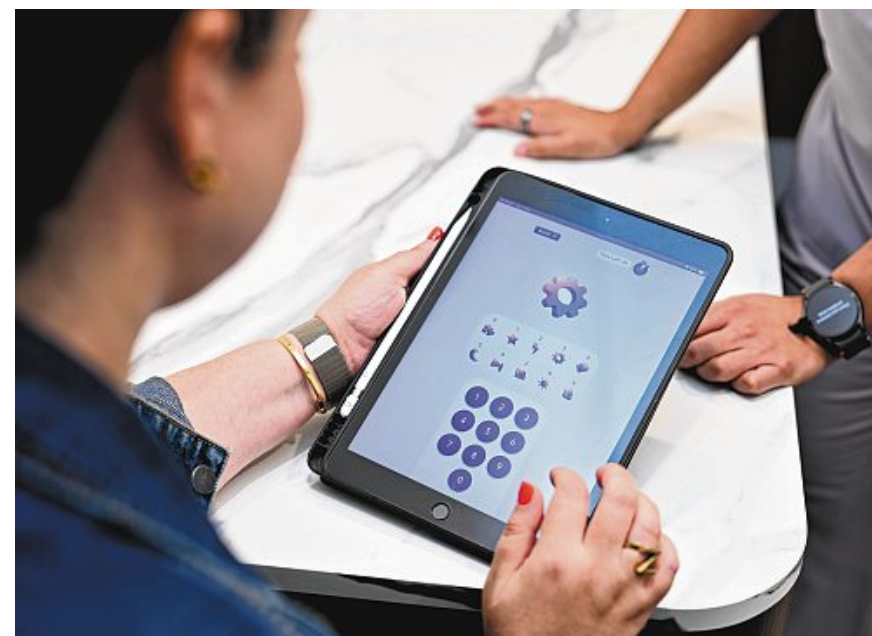"We know that dementia is a really big problem, and we don't want people to get to that stage, basically," said LKCMedicine PhD student Mohammed Adnan Azam, who was part of the team that developed the app.

Prof Kandiah said early identification of mild cognitive impairment could allow patients to make the necessary lifestyle changes to stave off dementia and help reverse the trend.

He added that up to 45 per cent of dementia cases could potentially be delayed or have the impact reduced, citing findings from the August 2024 report of the Lancet Commission on Dementia.

While those in the early stages of dementia may experience mild memory lapses or struggle with some complex tasks, early detection can be difficult as such symptoms are often subtle.

The current gold standard for diagnosing the condition involves imaging diagnostics such as magnetic resonance imaging, which can cost more than $1,000 and take several hours.

Even simple tests using pen and paper would require between three and four hours to take and evaluate, said Mr Adnan.

Prof Kandiah said that ReCognAIze would make testing simpler and more accessible to a greater number of people.

Mr Adnan added that ReCognAIze's tech is backed by 125,000 hours of research – conducted by DRCS on 1,500 patients over a course of between three and five years.

The technology is now licensed to Gray Matter Solutions – a start-up co-founded by Prof Kandiah and Mr Adnan – which is responsible for commercialising ReCognAIze.

The firm's first customer is health and wellness group Osler Health.

Over the next three months, ReCognAIze will be available for free to patients at Osler Health's two clinics here at Raffles Hotel Arcade and Star Vista as part of a holistic health assessment.

Osler Health chief medical officer Foong Tsin Uin said the company is excited to adopt the technology.

"Future technological innovation is going to keep transforming healthcare, and Osler Health is excited to be part of that change," she added.

Mr Adnan said that in the longer term, Gray Matter Solutions is aiming for ReCognAIze to be more widely available at polyclinics and hospitals here.

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Developed by NTU's Lee Kong Chian School of Medicine, ReCognAIze uses four specially designed neuroscientific games to assess mental skills such as executive function and working memory. ST PHOTO: LIM YAOHUI