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Now, test your eyesight through an app

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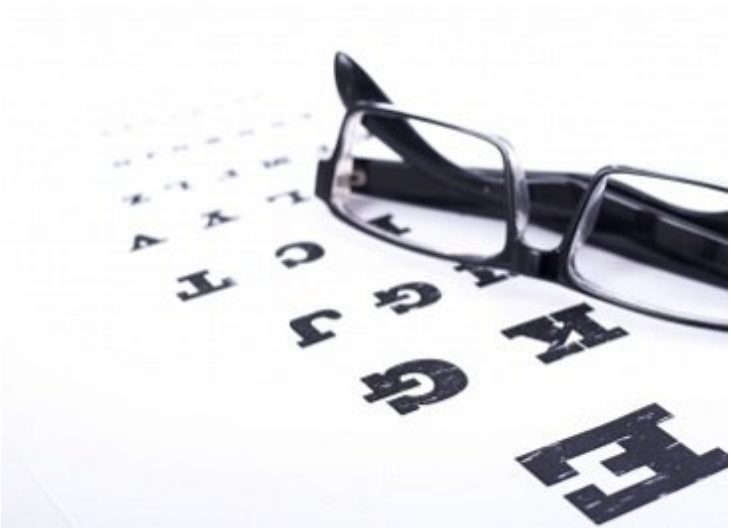

Researchers at the International Centre for Eye Health at the London School of Hygiene and Tropical Medicine, the University of Strathclyde and the NHS Glasgow Centre for Ophthalmic Research have designed and developed Peek (the Portable Eye Examination Kit), a smartphone-based system for comprehensive eye testing.

The study shows that the results from the app tests carried out on 233 people in their own homes and repeated in eye clinics based in Kenya were as reliable as those from standard paper-based charts and illuminated vision boxes in an eye clinic.

"With most of the world's blind people living in low-income countries, it is vital we develop new tools to increase early detection and appropriate referral for treatment. In this study, we aimed to develop and validate a smartphone-based visual acuity test for eyesight which would work in challenging circumstances, such as rural Africa, but also provide reliable enough results to use in routine clinical practice in well-established healthcare systems," said lead author Dr Andrew Bastawrous, lecturer in International Eye Health at the London School of Hygiene and Tropical Medicine and co-founder of Peek.

He added, "Our ultimate hope is that the accuracy and easy to use features of Peek will lead to more people receiving timely and appropriate treatment and be given the chance to see clearly again."

Peek consists of a series of apps and a unique piece of hardware called Peek Retina. This study focused on one of the apps, called Peek Acuity, which determines how clearly an individual sees. It features a "tumbling E" on screen, showing the letter E displayed in 1 of 4 orientations. The patient points in the direction they perceive the arms of the E to be pointing and the tester uses the touch screen to swipe accordingly, translating the gestures from the patient to the phone, as the image gets smaller. Tests (using Peek Acuity at a distance of 2m and a reduced 3m "tumbling E" Snellen chart) were carried out in the participant's home and in the central clinic on two consecutive days.

Average testing time was also measured and found that the familiar and commonly used Snellen test took 82 seconds compared with 77 seconds for Peek Acuity which shows that using Peek is as quick to use as traditional methods.

The researchers are conducting other studies to determine the suitability of the tool in different contexts across a range of different handsets and operating systems, including a trial involving teachers testing over 20,000 schoolchildren.

The study is published in the journal JAMA Ophthalmology.