

Avatar-based application improves symptom recognition in heart attack survivors

October 17 2016

An avatar-based application improves symptom recognition in heart attack survivors, reveals research presented today at Acute Cardiovascular Care 2016 by Jintana Tongpeth, a PhD student at the School of Nursing and Midwifery, Flinders University, Adelaide, Australia.

"The [medical profession](#) has been slow to integrate technology into practice," said senior author Professor Robyn Clark, professor of nursing at Flinders University. "Robots can do surgery but we're still waiting for doctors to catch up with hairdressers who send [appointment reminders](#) by [text message](#). The World Health Organization says 85% of the planet has access to Wi-fi so there is huge potential for communicating."

"Every year approximately 92% of persons who experience an out of hospital cardiac arrest event die before they arrive in the emergency department," said Ms Tongpeth.² "The time patients take to recognise symptoms of a heart attack and decide to seek medical help accounts for the largest portion of pre-hospital delay, which increases the chance of death. Patients who have had a heart attack are at high risk of a second heart attack."

There is little research to show that booklets are effective in teaching patients about health issues. But a systematic review has found emerging evidence that tablets, websites and mobile phones may work.³

The current study evaluated the impact of an avatar-based application

(app) to improve heart attack patients' ability to recognise the symptoms of a heart attack and correctly decide what to do. It also assessed how satisfied patients were with the app's usability and ease of navigation.

The study was conducted in two phases. Phase one used "action research" in which feedback on the design of the app was collected in cycles from cardiologists, patients and gaming IT experts.

In eight minutes the avatar, a nurse named Cora, teaches heart attack warning signs and symptoms, and what to do when having heart attack (figure 1). It is interactive with a number of quizzes along the way. The text has come from Australian Heart Foundation literature.

"We have found in patient education that cartoon like characters are less intimidating than a video with a doctor in a white coat giving a lecture on what to do," said Professor Clark. "Cora is engaging, fun, and gives good feedback. Patients of any age can answer her questions by pressing yes/no on the screen."

In phase two the app was tested with ten heart attack patients. The investigators found that participants' ability to recognise symptoms improved by 24% and their knowledge about what to do increased by 15%. More than 87% of patients said they were satisfied with the technology and found it easy to use.

Ms Tongpeth said: "Patients said the app made it easy to learn. They enjoyed using it and said it had helped them to be more confident about recognising and managing heart attack symptom in the future."

The app has the potential to replace traditional booklets, brochures and complex medical language in patient education. The dialogue will also be translated so that Cora speaks 144 languages.

"We want to reach all patients regardless of what language they speak, how old they are, and their level of literacy," said Professor Robyn. "To use the app you don't need to read or speak English, and you can get most of the messages from the pictures. It is also suitable for older patients with one message per screen and large buttons."

The idea is that patients who have suffered a heart attack would be given the app before discharge from hospital. Ultimately it could be used to increase awareness in patients without existing heart disease.

The next stage in the research is to test the app's ability to improve outcomes after a heart attack in a randomised controlled trial.

Ms Tongpeth concluded: "Lack of knowledge on the symptoms of a heart attack is a major obstacle to seeking timely medical treatment and is associated with potentially preventable death and complications. With the app we hope to improve knowledge and response time, which should save heart muscle through faster paramedic support and treatment with stents to clear blocked arteries."

More information: Jintana Tongpeth will present the abstract 'Development and acceptability evaluation of an avatar-based education application for improving knowledge of symptom recognition and response for patients with acute coronary syndromes' during the Rapid Fire Session, 16 October 08:30 to 10:00, Coimbra room.

Provided by European Society of Cardiology

Citation: Avatar-based application improves symptom recognition in heart attack survivors (2016, October 17) retrieved 19 April 2024 from <https://medicalxpress.com/news/2016-10-avatar-based-application-symptom-recognition->

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