

Perspectives of patients and healthcare professionals on mHealth for asthma self-management:

**A mixed methods research study to develop
a user-centred system.**

**LAY SUMMARY
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Preface: What self-management means to asthma patients? And how could mHealth be of support ?

After reviewing several definitions of self-management, the myAirCoach Advisory Patient Forum has agreed with what proposed by the US Institute of Medicine, which defines self-management as “the tasks that individuals must undertake to live with one or more chronic conditions. These tasks include having the confidence to deal with medical management, role management and emotional management of their conditions”.

In the context of a variable condition, such as asthma, the core, evidence-based component is supporting patients to recognise and act on deteriorating symptoms (“medical management”), but we need to recognise that patients face challenges in accommodating asthma into their work, social and family lives and that, for some, this challenges their roles in society and/or comes at significant emotional cost.¹

mHealth systems are promising tools that may revolutionise asthma self-management. Recently, the European Asthma and Research Innovation Partnership (EARIP)² presented the need to develop tools for asthma self-management as one of their 15 key research priorities. Furthermore, a recent report by Asthma UK, entitled Connected Asthma: how technology will transform care³, proposes that asthma is made exemplar for technology-enabled self-management.

However, if mHealth is to be accepted into routine practice for asthma self-management, it is fundamental that the opinions of healthcare professionals and patients are identified and considered in their design; our research constitutes an integral first step in this process.

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4487370/#C6>

² <https://earip.eu/>

³ <https://www.asthma.org.uk/globalassets/get-involved/external-affairs-campaigns/publications/connected-asthma/connected-asthma---aug-2016.pdf>

Purpose of the research

Determine the perspectives of individuals with asthma and healthcare professionals on the utility and efficacy of mHealth tools for asthma self-management.

Message

People with a controlled and uncontrolled asthma support the need for mHealth for the management of their disease. Similarly, healthcare professionals underline the need and opportunities for mHealth to improve asthma-control. Interestingly, whilst both people with asthma and healthcare professionals support the use of mHealth in asthma, there remain significant differences in their preferred functions.

Methods

In this study the opinions of people with asthma and healthcare professionals on mHealth were explored using focus group discussions. During the focus groups held with 18 asthma patients and 5 health care professionals, twelve potential opportunities of mHealth were identified. These opinions were used to develop a questionnaire which was subsequently completed by 186 people with asthma and 63 healthcare professionals.

Results

When asked '*what would be a useful function in a m-health systems*', patients most frequently requested a mHealth system to monitor asthma over time and to collect data to present to healthcare teams. These uses relate to the difficulty patients have on recalling symptoms to their doctor, as expressed in the focus group discussions. On the other side, healthcare professional most frequently supported a system to alert patients to deteriorating asthma control and a functionality advising them when to seek medical attention. Both parties generally agree however that the integration of asthma action plans into the m-health system would be desirable, due to improved accessibility of the information.

When looking at the difference between patients with controlled and uncontrolled asthma, patients with uncontrolled asthma were less in favour to replace the routine asthma check-ups by mHealth compared to patients with controlled asthma. Patients with uncontrolled

asthma underlined much more the different possible applications of mHealth tools to help them with their asthma control compared to patients with controlled asthma.

With regard the acceptability and barriers related to the use of m-health system, a consistent theme of the participants was the need to have the capability to personalise the system according to different user requirements; at the same time, the system should be as automated as possible, so to not discourage its use. Nevertheless, around 3/4 of the patients are willing to carry one additional device and to keep one at home, provided that the product design and compatibility match with the patients' needs and expectations.

Meaning for people with asthma (conclusions)

This research provides strong support for mHealth for asthma-self management but highlights fundamental differences between the perspectives of the patients with controlled or uncontrolled asthma and healthcare professionals. Patients' main priority is a system to monitor their asthma over time and a system that collects data so they can demonstrate their asthma control to their doctor. Patients with uncontrolled asthma and healthcare professionals largely share the opinion that they would like to have a system that detects a deterioration in asthma before the 'normal' signs are shown. Similarly, both patients and healthcare professionals recognised the potential value in monitoring the environment for increasing levels of potential triggers. Patients are willing to use one device, at home or to carry but only if the product design is consumer friendly All these end-users perspectives should be carefully considered for the successful development of mHealth for asthma self-management.

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