What motivates patients with NCDs to follow up their treatment?

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Abstract. *Background:* Patient engagement and self-management are increasingly regarded as vital to improved health outcomes for patients who suffer from chronic noncommunicable diseases (NCDs). *Objectives:* To understand the changing and expanding role of mHealth in patients' self-management and care. *Methods:* To discuss new ideas and directions in the field from existing literature and the presentation of successful use cases. *Results:* Improved understanding and knowledge of mHealth and eHealth tools (i.e. smartphones, tablets, medical sensors) to support self-management and patient education.

Keywords. mHealth, eHealth, self-management, NCD, persuasive design

Introduction

The increasing use of mobile health (mHealth) tools for self-management is considered to be important to improve health effects for patients with chronic NCDs (noncommunicable diseases). This development is supported by an increasing number of available mHealth apps. The apps range from disease management apps (e.g., diabetes diary) to health and fitness apps (e.g., dietary apps and workout apps). However, there seems to be a lack of motivation from most users to keep using these health apps over a long period of time [1]. This may be because of the way these apps were designed and developed, i.e. lack of co-participatory design techniques and lack of a tested developer guideline for creating mHealth solutions. The motivation behind this workshop is to identify motivational factors which will increase adoption and usage of mHealth apps. Since 2001, several of the presenters have been working on self-management tools for people with diabetes [2, 3]. The main tool is a diabetes diary – the "Few Touch Application" (Norwegian, "Diabetesdagboka"), available for free from Google Play, and used by several thousands of users [4-8].

1. Rationale outcome

In this workshop, we will address three ongoing projects. In all three projects, mHealth apps have been implemented to record health data from participants. These projects are dependent on participators using the apps for an extended period of time. Motivating participants to install and use these apps are therefore an important part of each project.

The first project (Diabetes) aims to utilize patient-recorded data from people with Type 1 Diabetes and implement an *Electronic Disease surveillance Monitoring Network* (EDMON), which can possibly detect infectious disease outbreaks during the incubation period [9-12]. This is achieved by detecting a cluster of people with elevated blood glucose (BG) levels on a spatio-temporal basis. The system incorporates data recorded from diabetes apps, Continuous Glucose Monitoring (CGM) devices, and other appropriate physiological indicators from people with type 1 diabetes [13, 14].

The second project focuses on another global health issue, Sickle-Cell Disease. This project investigates the challenges and issues regarding the automated reuse of patient-generated data to support patients' self-care decisions [15]. An application for collecting relevant health data is developed and the effects of reusing the information on patient outcomes such as knowledge, attitude and lifestyle practices (KAPs) will be evaluated [16, 17].

The third project (Physical activity) aims to develop solutions for accessing physical activity and heart rate data from smartphones using internal and connected devices, and to examine the strengths, possibilities and potential of smartphones as data collection tools for future medical research on physical activity [18-21].

The objective of this workshop is to identify important motivational factors that should be considered when implementing a new mHealth solution. Attracting user to any mHealth application can be difficult, and making them stay once recruited are also challenging. In the three projects described earlier, we are building mobile applications to record relevant health data. Furthermore, we want to collect data over an extended period of time. To enhance the likelihood of accomplishing an extended participation time, we have identified the most important motivational features for achieving this.

During the workshop, these features will be addressed and discussed. Furthermore, we will during the workshop try to create a list of all possible motivational factors as well as try to rank them in order of importance, aiming for a scientific publication including all active participants.

2. Programme

Min.	***Topic***	***Presenter***
05	Introduction and presentation of workshop participants	G.Hartvigsen
10	Patient perspective of self-management and motivation	M.Bradway, E.Årsand
05	Discussion	S.Pelagatti
10	Persuasive design principles and motivation	K.Sato
10	Motivating people to share their physical activity data	A.Henriksen
10	Motivating people with type 1 diabetes	A.Woldaregay
10	Motivating people with sickle cell disease	D.Issom
05	Discussion	S.Pelagatti
25	Final discussion – Recommendations	G.Hartvigsen

Statement of the workshop organizer

All listed participants have agreed to attend MIE 2021 conference and participate in person in the workshop.

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