MedFit: The development of a mobile-application to enhance participant self-management of their cardiovascular disease

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Background:

Cardiovascular disease (CVD) is the leading cause of premature death and disability in Europe, accounting for four million deaths annually [1]. Exercise-based Cardiac Rehabilitation (CR) can reduce the impact of CVD by lowering mortality and morbidity rates and promoting healthy active lifestyles [2]. Yet adherence within CR is low [3]. Common adherence issues relate to accessibility/parking at local hospitals, a dislike of group environments and work/domestic commitments [3]. Mobile health (mHealth) is an emerging area of healthcare, defined as "*medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants and other wireless devices*" [4]. Research suggests that mHealth interventions can be useful in supporting the self-management of chronic disease [5][6]. The purpose of this research is to report on the development of an mHealth intervention.

Methods:

For the intervention development the Medical Research Council's [7] formative process consisting of 4 stages; i) development, ii) feasibility/piloting, iii) evaluation and iv) implementation will be used. The intervention will be a theoretically informed specially designed Android App. Its aim will be to enhance disease self-management and quality of life in people living with CVD. It will be offered to graduates from hospital-based CR, with the aim of extending and augmenting their care. Like CR it will use exercise as its main modality, and provide advice on other health behaviours.

Results:

A systematic review of the use of behaviour change techniques (BCTs) in physical activity eHealth interventions for CVD patients has been conducted. Seven electronic databases yielded 987 articles, 97 of which met the inclusion criteria for full text review. Preliminary results suggest an average 7.6 BCTs are used in mHealth interventions, with BCTs providing information on 'consequence, or about the behaviour-health link' and on the 'use follow up prompts' showing the most potential for sustainable behaviour change. A multidisciplinary team comprised of exercise scientists, health behaviour change and technology specialists are now using this information to develop the intervention prototype. Stage one will be followed by qualitative research on the prototype, where actual end-users will be asked to examine the intervention in order to determine its feasibility, acceptability and ultimately to improve its efficacy through a co-design process.

Implications:

The lessons learned from the development of this complex mHealth intervention, the challenges faced in working with technology and in designing an intervention specifically for use with a chronically ill population will be discussed.

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