

Evaluation of an App to Support Older Adults with Wounds

Kate Bennett
Psychological Sciences
University of Liverpool
K.M.Bennett@liverpool.ac.uk

Floriana Grasso
Computer Science
University of Liverpool
floriana@liverpool.ac.uk

Victoria Lowers
Psychological Sciences
University of Liverpool
V.Lowers@liverpool.ac.uk

Alison McKay
Institute of Design, Robotics
and Optimisation
University of Leeds
a.mckay@leeds.ac.uk

Christine Milligan
Center for Ageing Research
Lancaster University
c.milligan@lancaster.ac.uk

ABSTRACT

In this paper we present an evaluation study on project "Virtuous Cycles of Well-Being", aimed at exploring technology-based wound-care services, solutions and products to support older adults in managing wounds more independently. The aim was to evaluate opinion and use of the app by wound care service users. Nine participants were recruited with an average age of 65. A semi-structured interview methodology was employed following researcher demonstration and participant interaction with the app.

Categories and Subject Descriptors

H.5.2 [Information Interfaces and presentation]: User Interfaces—*Evaluation/methodology*; J.3 [Computer Applications]: Life and medical sciences—*health*

Keywords

Digital interventions; Evaluation study; Ageing population

1. INTRODUCTION

The research reported in this paper arose from "Virtuous Cycles of Well-Being", and funded by N8, a partnership of the eight research intensive universities in the North of England. The ambition was to create innovations that would enable older adults to maintain their own wellbeing for as long as possible. In our collaboration, the academic input led by Leeds and comprising input from the University of Liverpool and Lancaster University, is complimented by the involvement of leading industrial medical technological organisation, Smith & Nephew and Hull City Healthcare Partnership. In this paper we focus on the managing of chronic wounds. Research has shown that increased independence and self-management in the face of health issues improves wellbeing. It was anticipated at the outset that

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Figure 1: Prototype Introductory Page and Menu

the technological-based wound care services would improve wellbeing and lead to the minimisation of hospital admissions through wound-care related issues, thus being in the interests of both patient and stakeholders. In this paper we describe the evaluation study that was conducted on the design of a wound care application aimed at older people with wounds. We start by outlining the issues around wound care management, then we briefly describe the prototypical app that was used for the evaluation study, and then we move to a discussion of the evaluation and the findings of the process.

2. WOUND CARE MANAGEMENT

The target population we aimed at were adults over 65 years old who live in sheltered or social housing, on low incomes. These people can gain significant improvement to their well-being through the use of digital services. In particular, we focussed on wound care management, as the process lends itself to the notion of stages of care. Assessment is the most important stage, as it helps decide the most suitable course of action, but such assessment is difficult due to the extreme variability of wound type, concision and severity. Patients without professional medical training will often struggle to identify important changes in their wounds. As a result, wound care is often not as effective, increasing recovery time and even resulting in serious regression. An assessment tool to make the task easier, or more accessible to patients or untrained individuals, could improve personal wound care. The wound healing process can be also significantly impeded through lack of exercise, de-

creased circulation, poor nutrition/hydration and sleep disturbance. Lifestyle changes affected by long term illness or wounds can result in many of these factors. Advice and tools to support lifestyle improvement could aid in recovery and individual well-being. A healthy living program that can track and advice on the wound healing process, as well as exercise, nutrition, hydration and sleep patterns to ensure patients are maintaining their fitness to support the natural healing process, would be of great benefit to the target population.

3. PROTOTYPE

A prototype app was realised on an Android platform (Honeycomb 3.0) optimised for a Kindle Fire HD tablet, connected to a MySQL database residing on a remote server. The purpose of the prototype was to provide the patients participating to the evaluation stage with a concrete example of what a system might look like, and which features might be included in a potential more intelligent application. Figure. 1 shows the introductory page and the menu. The patient can choose to browse or update pre-populated mock data on wounds, or browse or updates the various other aspects of the well being cycle: nutritional details, regimen of exercises, rest management. A sample gamification element was introduced, to be able to discuss with the patients possible motivational mechanisms to improve compliance with the clinician's advice through games. A community page was included to introduce a social aspect to the app, whereby patients using the system can exchange posts, pictures, or comments, with the familiar mechanism of voting by "like" and "dislike", with the aim of overcoming the sense of isolation, by increasing a sense of belonging to a wider group.

4. EVALUATION

A working app was presented on a Kindle to wound sufferers located across three different geographical areas. The aim was to evaluate opinion and use of the functioning app by wound care service users. Nine participants were recruited with an average age of 65, five from Hull (low socioeconomic background), two from Bradford (mid socioeconomic background) and two from Liverpool (mid socioeconomic background). Participants were shown the app on the kindle and were given a demonstration and the opportunity to explore the app. We then used semi-structured interview methodology to evaluate the participants interaction with the app, and their views of the app.

5. RESULTS AND DISCUSSION

General findings can be grouped under four themes: the relationship between patient and practitioner; the data management aspects of the app; social support through the app; and barriers. The evaluation found a surprising lack of trust between patient and practitioner exists, which is fuelling an 'us and them' culture with respect to wound managing. Participants expressed the view that the 'practitioner doesn't always know best', and suggested that the app could be a means of addressing these issues, used as a joint enterprise with both participants and professionals adding information. The app was viewed as a way of aiding continuity between

health care professionals. Concerns were raised that this would produce more work for practitioners and that it would not be a priority within an NHS budget if that were the case.

The second theme feeds on from the sharing of information. There was a consensus that the app would be a good way of storing information that would be forgotten between appointments, and would be easily retrievable. One of the main benefits of the app was seen as the ability to gain access to and digest information at a suitable rate. Participants felt that any tool which could aid self-management would be met positively. A related benefit of the app was the around goal creation and development which would facilitate better wound management. There was a strong sense that the more knowledge gained, the more control and confidence it was felt there would be over their own health care issues. However, the most feedback we received concerned the community application of the app. Participants discussed the unmet need in terms of emotional wound care support. They suggested that currently there was little support for patients struggling to cope with secondary issues such as embarrassment, depression and feeling alone. Participants suggested the community aspect of the app was seen as an antidote to these issues and it was likened to a 'virtual waiting room'. The evaluation found that wound care patients consider themselves part of a community, often forming bonds with fellow patients in a clinic. The ability to communicate their problems to people who have been through something similar was important. Thus, the Community Tab was met with great positivity with parallels being drawn to other social networking such as Facebook. In fact, the familiarity with social networking facilitated the positive response to the community tab. Participants felt the community tab would provide reassurance and would be useful to patients who were more isolated. Although participants focused primarily on the advantages of the app, concerns were raised around some aspects of the app. For example, participants were concerned about privacy settings, and some participants favoured a 'patient only' viewing set-up, which would exclude professionals. On the other hand some participants were concerned about safety concerns and wished for professional monitoring. Other barriers to the app's use concerned technological skills, although participants were keen to point out that age was not a barrier to learning those skills. Technology will be a barrier to some people. Socio-economic status was considered a barrier. Those of our participants from lower SES groups were more distrustful and less willing to engage in the either the app or the concept of the app. They were also more averse to the notion of self-care. They saw self-management as a burden and an extra responsibility that should not be theirs. This contrasted with those from higher SES who suggested they would find the app empowering. Participants also discussed the advantages and disadvantages of the reliance on technology in health care services, and there were divided views as to the extent that this should be adopted.

In summary, participants were positive towards the app, but it was viewed as a secondary, additional service to complement the existing wound care service rather than a "sole use" tool. Participants suggested that appointment visits could be reduced by way of self-care via the app, but were concerned that this should not impact upon the amount of human contact.