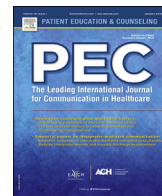




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E-Health

Cardiac patients' experiences with a telerehabilitation web portal: Implications for eHealth literacy

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ABSTRACT

Objective: The aims of this study are two-fold: 1) To explore how cardiac patients experience their use of a telerehabilitation tool for recuperation from surgery, and 2) To study how the patients' use of the interactive 'Active Heart' web portal affected their eHealth literacy skills.

Methods: The 'Active Heart' telerehabilitation web portal offers patients and their relatives information and exercises for recovery from cardiac surgery. 109 cardiac patients were using the Active Heart web portal for a duration of three months.

Results: 49 patients completed questionnaires that were administered both before and after their use of the portal, resulting in a 45% response rate. Respondents had a mean age of 60.64 ± 10.75 years, and 82% of the respondents were males. The respondents had a positive impression of Active Heart, reporting that it was easy to access, user-friendly, and written in an understandable language. The patients' eHealth literacy skills increased during the trial period.

Conclusion: Use of a cardiac telerehabilitation web portal can be beneficial for patient education and can increase cardiac patients' eHealth literacy skills.

Practice implications: Online telerehabilitation portals may be used as a tool in patient education and cardiac rehabilitation.

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1. Introduction

Cardiovascular diseases are often associated with decreased quality of life, loss of memory, increased fatigue, onset of depression, and anxiety [1,2]. Successful recovery from cardiac events requires not only short-term alterations in physical activity but may also require long-term lifestyle changes for both patients and families [3]. Today, the Internet is a source of enormous amounts of health and disease information [4]. If online health

information from web portals, websites, and blogs is to be used as an effective tool in cardiac telerehabilitation, patients need to know how to use the Internet and how to seek out reliable health information. They need to be able to understand and assess health information, to understand the technologies, and be able to make informed health decisions. This package of skills can be defined as 'eHealth Literacy', which is the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to address or solve a health problem [5].

A study [6] has estimated that only 12% of adults have the required health literacy to manage their own disease. Other studies [5,6] have found that low health literacy was associated with limited knowledge about cardiac diseases and that low health literacy was a risk factor for low self-care behavior, re-hospitalizations, and all-cause mortality [6,7]. However, low health literacy

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was found not to be significantly associated with decreased use of online cardiac rehabilitation systems [7], thus making online patient education and counseling important in increasing cardiac patients' awareness of their disease and its symptoms. While research on eHealth literacy in cardiac patients is limited, some studies [8,9] have shown that web-based learning and online cardiac rehabilitation may help patients make informed health decisions and to become more involved in their own health care, thus making eHealth programs potentially efficient tools in the management of health. Furthermore, positive attitudes have been observed among cardiac patients following the use of an online patient education program, while an increase in eHealth literacy was associated with increased self-care behavior [10]. Studies [9,11] have found that age plays an important role in the kind and extent of Internet use for health information, while no significant associations have been found between gender and eHealth literacy [7]. Low education level and socio-economic status seem to have a negative influence on eHealth literacy and on the use of online health information services [9,11]. The aim of this study was two-fold: firstly, to explore how cardiac patients experience the use and content of a telerehabilitation tool in a specific web portal, called 'Active Heart', and secondly, to study how the patients' use of the Active Heart portal affected their eHealth literacy skills.

1.1. Active Heart a web portal for telerehabilitation

Active Heart was developed during a user-driven process that included cardiac patients, their relatives, health care professionals, researchers, and representatives from companies. The portal was developed through the Teledi@log project [12] as an interactive cardiac telerehabilitation tool aimed at educating and helping patients during their rehabilitation. Active Heart content contains texts, videos, and pictures communicating a range of information about cardiac disease, treatment, adverse effects, and advice to relatives. The content offers suggestions for lifestyle changes, such

as detailed information on diet, alcohol and smoking consumption, exercise suggestions, and motivational texts describing how to adopt new habits as a tool to initiate and maintain lifestyle changes. There are 80 videos of cardiac patients presenting their stories and experiences of rehabilitation. The videos last from 1 to 2 min. A screen dump of the Active Heart front page is shown in Fig. 1 and shows the range of topics covered: food, medicine, sleep, pain, smoking, training, contacts to healthcare professionals, etc. The portal also provides information for both patient and relatives on how to take action and whom to contact if adverse events occurred during rehabilitation.

2. Methods

2.1. Recruitment of patients

Patients for this study were recruited from the ward of the Department of Cardiothoracic Surgery, Aalborg University Hospital, and from the ward of the Department of Cardiology at the North Denmark Regional Hospital in Denmark. The study was performed between September 2014 and February 2015. The Active Heart web portal was part of a telerehabilitation program, and the patients were recruited for the research study prior to discharge from hospital.

Inclusion criteria for the study were:

- Patients suffering from ischemic heart disease or heart failure including patients who had undergone coronary artery bypass and/or valve surgery;
- Must be above 18 years of age;
- Must live in Hjoerring or Frederikshavn Municipalities;
- Must have an Internet connection;
- Must be able to use information technology (e-mail, web search);
- Must be able to understand the study information.

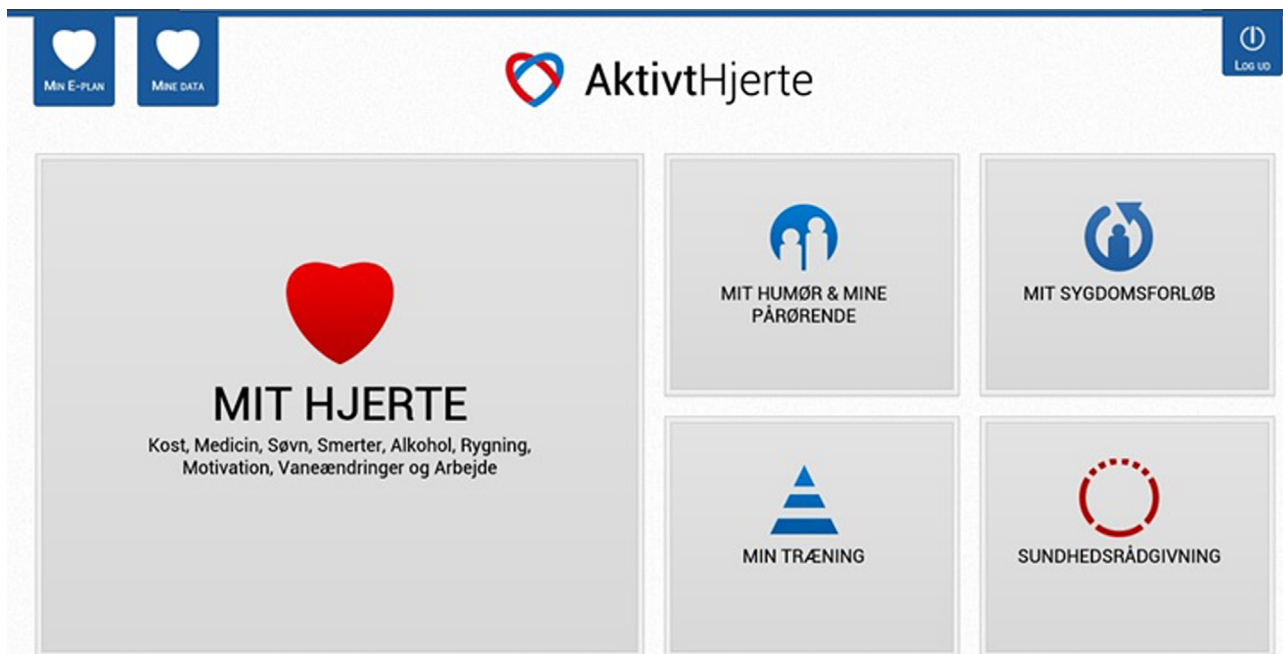


Fig. 1. Screen dump of the front page from Active Heart. The five options include 'My Heart', 'My Mood and My Relatives', 'My Disease Course', 'My Workout', and 'Health Advice (Call Center)'.

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