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Listening to the patients

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Listening to the patients: Using Participatory Design in the Development of a Cardiac Telerehabilitation Web Portal

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BACKGROUND

1

Cardiac diseases is the leading cause of deaths worldwide [1]. Cardiac rehabilitation requires patients to make both short- and long-term lifestyle changes. [2]. One solution for giving patients a better opportunity to change behavior may be personalized rehabilitation programs that use interactive telerehabilitation or eHealth web portals that can facilitate patient education. Several studies indicate that for eHealth systems to be successfully implemented, the end-users' needs and concerns need to be taken into consideration. [3,4,5]. In our view, the chances of operational success are greater by employing a patient-centered and participatory design (PD) in the design and development process. [3,4,5]

AIM

2

The aim of this study was to evaluate the design and usability of a cardiac telerehabilitation web portal called the 'HeartPortal'

METHODS

3

Phase I: Development of ideas

Aim: Needs assessment and idea generation

Method: 8 workshops with heart failure patients, relatives, health care professionals, health technology companies, and researchers

Time: November 2015 to June 2016

Pilot testing with 3 patients November 2016 to June 2017

Phase II: Evaluation of design and structure

Aim: To evaluate the structure and user-friendliness of the "HeartPortal".

Method : Questionnaire survey and tasks assignments on: Use of technology, Experience of user-friendliness, Structure of the HeartPortal. Time: December 2016

Phase III: Testing usability

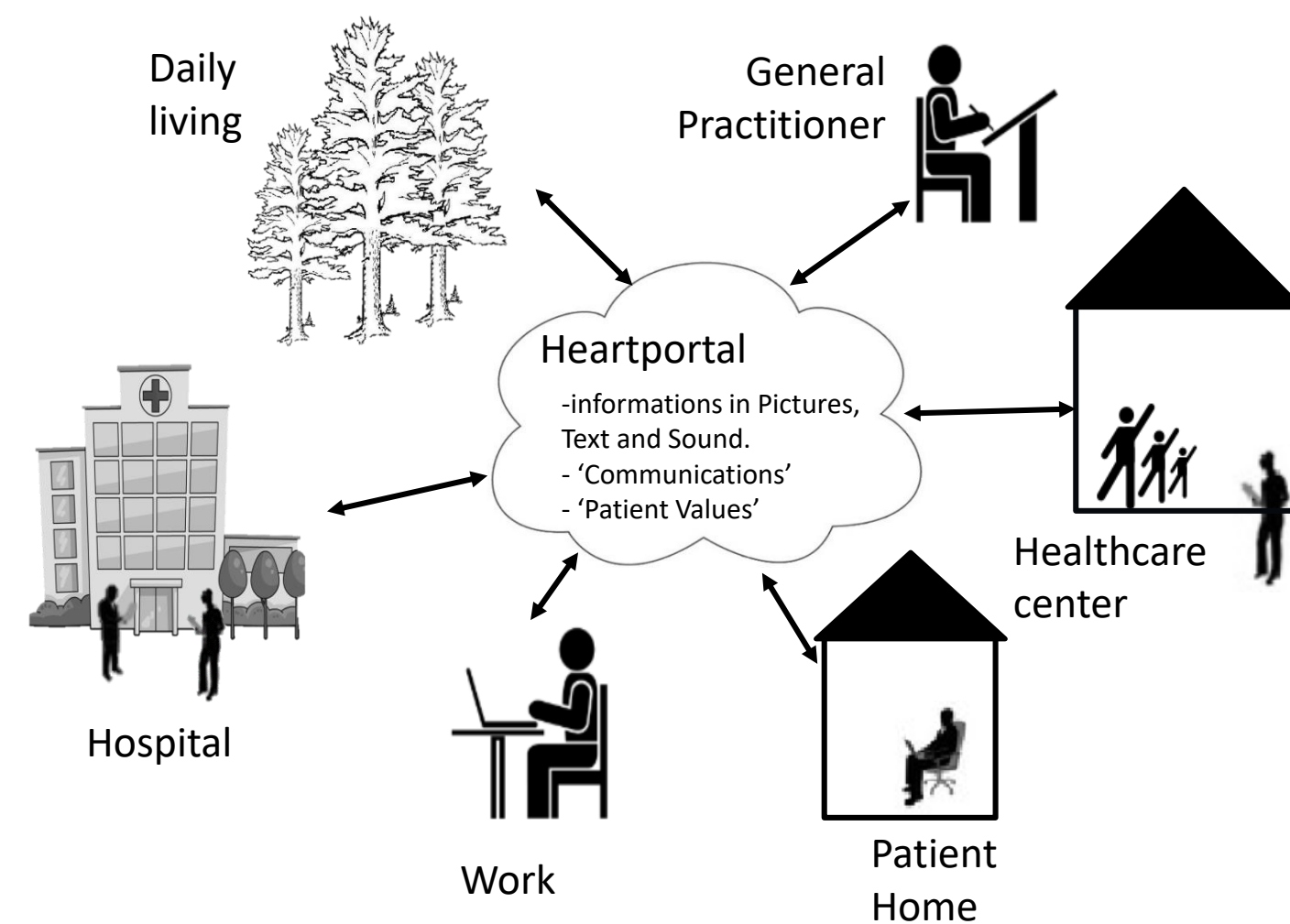
Aim: To test the usability of the interactive information site and the health monitoring and activity tracking module of the HeartPortal

Method: Questionnaires comparable to phase II with additional questions regarding data presentation and interpretation of graphical illustrations. Time: February 2017

CONTEXT

4

A Telerehabilitation program was developed (See Below).

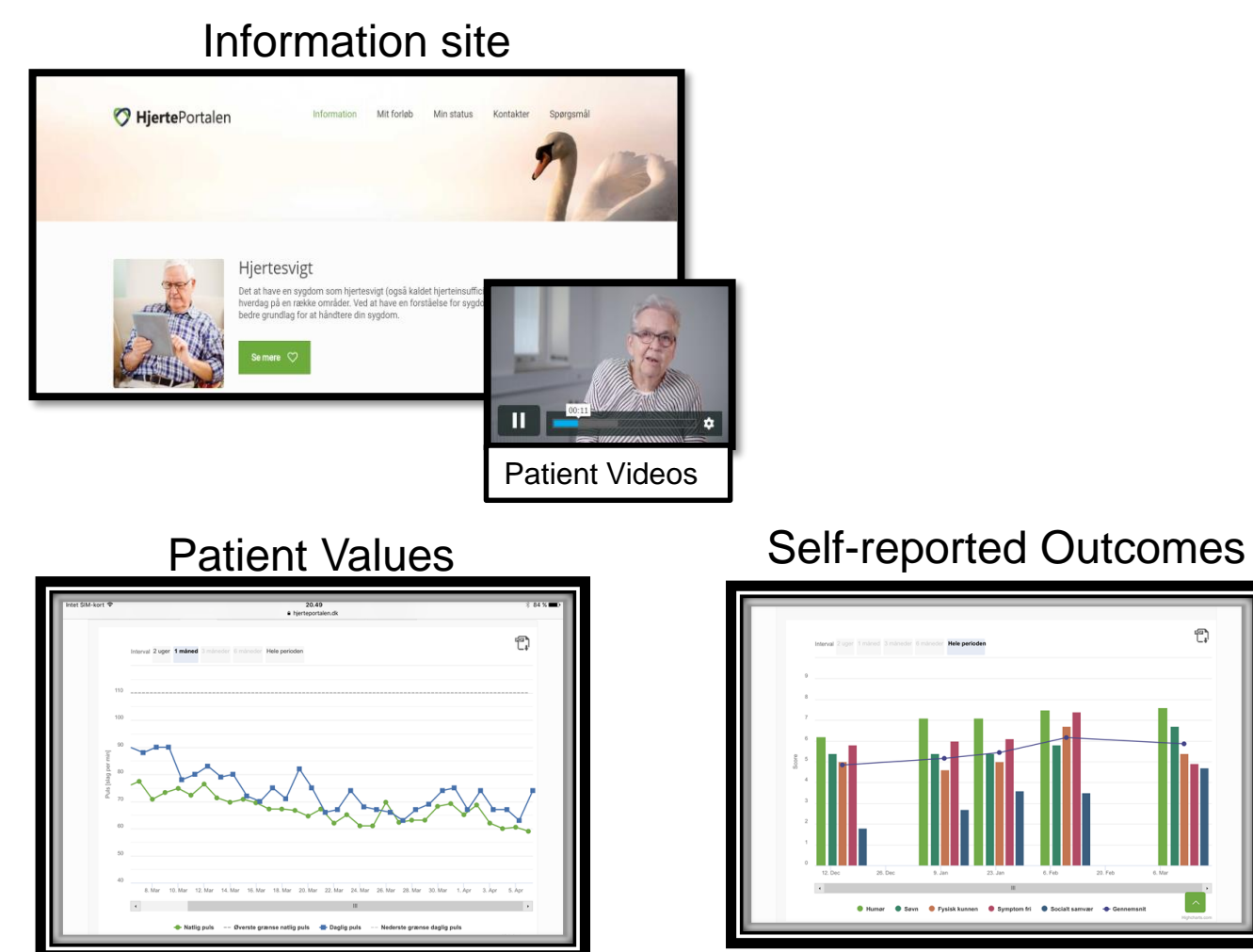


Heart Portal

5

The HeartPortal was designed with four elements:

1) Interactive information site that provide information on rehabilitation issues, 2) a health-monitoring and activity-tracking module, 3) self-reported outcomes, and 4) a communication platform



User Evaluation

6

The user evaluations were done through questions with heart failure patients and healthcare professionals.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
It is easy to navigate on the HeartPortal	25/40	50/60	25/0	0/0	0/0
The information is understandable	25/60	75/40	0/0	0/0	0/0
The information is relevant for the disease	40/60	60/20	0/20	0/0	0/0
I feel secure in using the information	20/60	80/40	0/0	0/0	0/0
I understand the graphs	60/60	20/20	20/20	0/0	0/0
The graphs are clear and have an appropriate size	80/60	20/20	0/20	0/0	0/0
Patients being updated on activity helps to improve their health	20/20	60/60	20/20	0/0	0/0

Answers from the Usability Evaluation. The numbers are percentage of answers in presented as (% Healthcare professionals) / (% Patients)

A total of 60% of patients reported that it was 'very easy' to navigate on the HeartPortal, 80% 'strongly agreed' that the information was understandable, and 60% 'strongly agreed' that the web portal had a logical structure. The results from the health care professionals were almost identical: 80% of the health care professionals reported that the portal was 'very easy' to navigate on the web portal, 60% found the information understandable, and 80% reported that the HeartPortal had a logical structure.

RESULT

7

Usability of the HeartPortal

All participants felt comfortable using the HeartPortal

All agreed that the portal was easy to use, understandable, relevant for the disease, and comprehensive

The majority of the participants felt that being updated about their activities through the tracking devices could help to improve their health condition.

Our findings show that HF patients, their relatives, and HCP had an overall positive experience of the web portal and that end-users' needs and ideas have been integrated into the portal.

CONCLUSION

8

Based upon a PD process, an interactive HeartPortal for the use in a telerehabilitation program for HF patients has been designed and developed.

Evaluation of the portal by patients and HCP shows the design and structure of the HeartPortal to be logical and easy to navigate.

The study shows the absolute importance of PD in developing web-based technologies for patient users.

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REFERENCES

- [1] Grace SL, Thomas S, Lima G, Ghisi DM, Abdallah F, Grace SL, et al. A systematic review of patient education in cardiac patients: Do they increase knowledge and promote health behavior. Patient Educ Couns [Internet]. 2014
- [2] Nguyen HQ, Carrieri-Kohlman V, Rankin SH, Slaughter R, Stulbarg MS. Supporting cardiac recovery through eHealth technology. J Cardiovasc Nurs [Internet]. 2004;19(3):200-8.
- [3] Bech C, Hansen J, Spindler H, Jesper J, Nielsen G, Dinesen B. Heart patients' experiences and use of social media in their rehabilitation: A qualitative study. 2013;51-4.
- [4] Wolpin SE, Halpenny B, Whitman G, McReynolds J, Stewart M, Lober WB, et al. Development and usability testing of a web-based cancer symptom and quality-of-life support intervention. Health Informatics J [Internet]. 2014;21:10-23.
- [5] Bjerkan J, Hedlund M, Hellesø R. Patients' contribution to the development of a web-based plan for integrated care - a participatory design study. Inform Health Soc Care [Internet]. 2014;40(7489):1-18