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Development of an internet-delivered program and platform for the treatment of depression and anxiety in patients with ischemic heart disease in eMindYourHeart

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Abstract

Objective: To design and evaluate a mental health treatment program and internet-based delivery platform for patients with ischemic heart disease (IHD) attending cardiac rehabilitation with the aim of reducing the risks associated with anxiety and/or depression. *Participants:* Patients diagnosed with IHD and comorbid anxiety and/or depression. *Methods:* Participatory design of treatment program and internet platform through staged inclusion of participants in two groups. Group 1 was enrolled as co-researchers with prolonged engagement in the project. Group 2 participated only in the pilot evaluation workshop. *Results:* Three patients were included in Group 1, two patients in Group 2. Inclusion of patients proved challenging, but the extended collaboration with co-researchers yielded valuable circumstantial insight and resulted in the design of a novel nine module treatment program. Additionally, the inclusion of two participant groups helped shape the development of an internet platform based on an open source content management system. *Conclusion:* Our grouped participation method contributes with several recommendations and reflections of advantages of this approach. Collaboration with co-researchers helped us gain a deeper understanding of the impact of language on self-perception and potential stigma. Prolonged participation led to a higher level of trust and familiarity, which enabled uncovering of issues otherwise hidden.

Keywords: participatory design; heart disease; telemedicine; workshops; end user involvement; eHealth; mental health

Introduction

Ischemic heart disease (IHD) is among the top 10 causes of death in Western countries ¹ and among the top 10 diseases contributing to the disease burden in 2020 ². The ability to recover and return to normal life is an important challenge not only for patients but also for the healthcare system and society in general. Having a heart attack, for the first time or reoccurring, is a stark realization that life is fragile and finite. Consequently, the risk of experiencing anxiety and/or depression following a diagnosis of IHD is substantial, especially in the face of possible recurrence of a heart attack. Several studies have linked anxiety and depression in patients with IHD with increased mortality risk ^{3,4}. Hence, the European guidelines on cardiovascular disease prevention – both in 2012 and 2016 – also acknowledge the importance of attending to psychosocial risk factors in patients⁵. Despite the correlation between good mental health and ability to comply with cardiac rehabilitation (CR), there is insufficient focus on how to address depression and anxiety in patients participating in CR.

In the Danish national clinical guideline on CR from 2013 (later updated in 2015), the Danish Health Authority has recommended screening for symptoms of depression and anxiety in patients with IHD referred for CR⁶. However, as psychologists are generally not part of the multidisciplinary CR team, the CR setting does not have a treatment offer to the subset of patients that need psychological treatment for their anxiety and depression. Hence, patients are usually referred back to their own general practitioner (GP). This approach risks leaving the patient in limbo between two treatment settings – primary versus secondary care – that are poorly equipped to address the patient's individual needs. Moreover, these settings primarily address the somatic aspects of rehabilitation, with limited or no emphasis on mental health issues that newly diagnosed patients with IHD might experience.

To overcome the treatment gap between CR and general practice, it may be advantageous to offer patients internet-delivered treatment for depression and anxiety. This technology-based treatment modality has previously delivered positive results in clinical outcomes ⁷. One reason for this is that patients can engage with the treatment at their own convenience, potentially yielding a higher completion rate of both somatic and mental health rehabilitation. Given the increase in patients diagnosed with IHD and the disease burden of both depression and anxiety ^{2,8}, any improvement in treatment of body and mind can result in significant improvements for society and patients alike. Because of the characteristics of IHD patients and their treatment challenges, this presents a formidable design challenge that is best addressed by involving patients directly in the design cycle.

To improve the acceptability and usefulness of interventions and technology in general, user-oriented research thus is the '*comme il faut*' of most research methods seeking to design solutions for specific end-users. Not involving users has been identified as the main reason that projects fail to garner sufficient end-user adoption ⁹. However, the longevity of most research projects challenge involvement of patients as participants, as it requires that they allocate a substantial amount of time and resources.

Addressing this challenge, the aim of this paper is to present our approach to designing both the treatment content and information technology platform for a new internet-based intervention for patients with IHD in the CR setting. This effort comprises the first stage of a larger project, eMindYourHeart, seeking to evaluate and validate the intervention in a clinical trial.

Background

Internet-delivered treatment for patients with IHD

Compared to traditional pathways, one of the key advantages of internet-delivered treatment is its capability to provide treatment asynchronously. Still, this trait also implies a substantial challenge for the platform design, as the use of information technology interleaves with existing technology, habits and attitudes of end-users¹⁰. The challenges of enrolment, engagement, and completion of internet-based interventions is well documented¹¹. Still, there is no strong indication that dropout from treatment is necessarily higher with internet-based treatment when compared to regular treatment¹².

Regarding traditional CBT, a recent review and meta-analysis found CBT treatment to be an effective treatment for patients with cardiovascular disease (CVD) and depression including patients with IHD and comorbid depression. The pooled results for the effect of CBT on anxiety showed a significant effect, if the CBT treatment was long term and given face to face. However, due to the heterogeneity of the different study results found in the meta-analysis on the effect of CBT on anxiety in patients with CVD, no clear conclusion can be made on CBT's effect on anxiety¹³. Furthermore, the results of online cognitive behavioral therapy (iCBT) administered for patients with IHD and comorbid anxiety and depression are mixed. In one study, patients with myocardial infarction and comorbid anxiety and/or depression received iCBT, but no significant reductions in depression or anxiety was found when comparing the iCBT intervention with treatment as usual¹⁴. The authors of the study and other researchers propose low treatment adherence, and thus a low treatment dose as a possible strong factor influencing the results. One possible reason for the low treatment adherence could be a low level of end-user involvement in the development of the treatment¹⁴. Another iCBT study from 2019 targeting depression in patients with CVD including patients with IHD, found

significant moderate effects (Cohens d (0.62)) in reducing depression when comparing the iCBT intervention with the control intervention (online discussion forums) ¹⁵. The effective iCBT intervention was built upon a previous iCBT intervention aided significantly by end-users in the creation ¹⁶. These studies show the importance of involving end-users in the creation of the interventions. To our knowledge, no iCBT study tailored for patients with IHD and anxiety has shown significant results in reducing the patient's anxiety. However, as before mentioned traditional CBT treatment has shown some promise in helping patients with IHD who suffers from anxiety ¹³. Conversely, it has been proposed that some elements of CBT (e.g. cognitive restructuring) might not be an optimal way of treating IHD-related anxiety as some of the anxiety-related thoughts may be realistic, and therefore not suited for restructuring ¹⁷.

In order to help patients who suffer from realistic negative thoughts, such as fear of a new cardiac event, we include elements from other therapeutic directions i.e. Acceptance and Commitment Therapy (ACT), and Compassion Focused Therapy (CFT), and hereby use an integrative psychotherapeutic approach.

Another major challenge for patients with IHD and the general CVD population is that many symptoms of anxiety and depression overlap with symptoms of the somatic disease. For example, >40% of patients with IHD suffer from considerable fatigue, also called vital exhaustion¹⁸, which may be interpreted as depression when patients do not have the same energy level to engage in activities as prior to their cardiac event. Fatigue is also one of the core symptoms of depression. This pervasive sense of fatigue may be rooted in damage to the heart muscle after a myocardial infarction, inflammation and endothelial activation¹⁹. The patients need information and tools to distinguish between psychological symptoms and symptoms of their underlying heart disease. Through our user-centered development process, we have tried to customize an intervention, tailored

to the needs of patients with IHD and comorbid anxiety and/or depression using a CBT foundation with elements of CFT and ACT.

Development of internet-delivered treatment platforms

Some of challenges for iCBT programs in the past section could have been mitigated by involving end-users across the span of the software development lifecycle. As software development is an intangible process, short feedback loops between developers and end-users are required. The iterative and incremental development of products have been a key part of software development projects for decades ²⁰. These cyclic and staged characteristics serve to center the objectives on what is most essential and to ensure that these objectives are realized. In later years, this approach has been integrated into the language of participatory design as this methodology has seen a wider adoption in technology development projects within the healthcare sector ^{21,22}. However, the different backgrounds and experiences of users emphasize the importance of accommodating this diversity during the design phase ²³. Taking this into account, it is important to acknowledge that attention to diversity should not only span professions, but also traits relating to adoption categorization ²⁴ to not only include early and first movers, but also those who initially would even not engage with new technology ²⁴.

Similar to the involvement of end-users in research projects, decisions pertaining to the development of an e-health platform are non-trivial. Compared to other health information technology systems, the e-health market is fragmented and struggles with sustainability ^{25,26}. Thus, researchers are faced with the decision to either collaborate with a large commercial vendor who either seeks to validate a new product line or to offer an off-the-shelf platform, or partnering with a younger company where the product, as well as the company, is more flexible. Alternatively, researchers can seek to build or customize, deploy, and operate one of many open source solutions. Despite the

momentum of the open-source movement in some fields of information technology, besides work with Electronic Health Records, there is limited published research on the use of open source tools in eHealth interventions. One positive example from internet-delivered interventions is a recent Danish research project – iACT – where an open source Content Management System (CMS) was utilized to reclaim control over development and operation of information technology ²⁷.

Methods

To accommodate the disease and mental progression of patients with IHD, with the assumption that developers of the treatment program and the platform would benefit from a deep understanding of their situation, our methodology follows an iterative participatory design approach with a focus on extended involvement of patients as co-researchers ²¹. Accordingly, the project was designed as a sequentially staged process with initial focus on the treatment program with an ongoing emphasis on the future delivery platform. This focus was summarized in a pilot design evaluation workshop.

Co-researcher participation

The role as co-researcher was presented to candidate patients as an opportunity to take active part in the project during its entire development phase – although with a focus on extended participation during the initial phase with an expected commitment of 3-4 hours every three weeks for half a year. Two levels of engagement were planned with a differentiation between patients who participated throughout the program development as co-researchers (Group 1) and patients (participants) who only partook in the final evaluation workshop (Group 2).

Program and platform development

Based on experiences with vendor driven internet-based treatment platforms, there was a motivation in the research team to instead build the system on top of a non-commercial,

more open, and flexible platform that would support development directly by the research team rather than through a commercial vendor.

The involvement of patients was conducted in two phases. First, by focusing mainly on the development of the treatment program and second on the fusion between the program and the platform. It has been noted that technology can serve as both a filter and a catalyst to intervention content²⁸. Consequently, the purpose of involving patients in both design phases was to make sure that the platform was optimized for delivering the treatment content.

Development of treatment program

The treatment content primarily uses CBT with added elements of Acceptance and Commitment Therapy (ACT) and Compassion Focused Therapy (CFT). Because of patients' complicated mix of physical and psychological problems, the eMindYourHeart intervention program will be tailored specifically to emphasize symptom management for patients with IHD and anxiety and/or depression. We have included elements from ACT, such as acceptance and life values, to help patients cope better with a life with IHD and the possible consequences of IHD, such as a permanently lower energy level. Figure 1 illustrates the program development process.

With inspiration from CBT, ACT, and CFT, we composed an initial eMindYourHeart program. This first draft was organized into nine modules, developed so that patients can reasonably complete one module within a week. Approximately one week before each workshop, all co-researchers were sent the next one or two modules in the preliminary treatment program and were asked to review the material as if they were patients in active treatment.

Each workshop was conducted at the Department of Psychology, University of Southern Denmark. Besides the co-researchers, 3-4 academic project members

participated. Meetings were informal and started with casual conversation. During the review of the assigned treatment module, the content was screened from start to end and all comments noted down by the staff. Multimedia content was played in-plenum and discussed afterwards. All meetings were audio recorded.

Platform development

The eMindYourHeart platform builds upon the same platform used in similar research projects but with different populations (e.g. patients with health anxiety)²⁷. We used a customized CMS based on Drupal¹. Hosted on virtual servers at the Region of Central Denmark, this is a solution that has been customized to adhere to legislative requirements in accordance with the Danish Data Protection Act and the European General Data Protection Regulation (GDPR), which came into force during the project.

During the program development, co-researchers were fully informed about the intention of offering the treatment via an internet platform. Thus, suggestions for transferring the content to an internet-based platform was naturally provided by co-researchers throughout the first phase. These suggestions were noted by the research team, but not directly fed into the development backlog to not preload the pilot evaluation workshop with envisioned features.

The aim of the workshop was to evaluate the technical platform as a medium for the treatment program. The platform was made available on a 24" Acer Chromebase computer for each participant. Additionally, we invited participants to bring personal tablet computers if they relied on these in their daily lives. Participants were asked to work through 1-2 modules of the treatment program and were encouraged to think aloud and make remarks and observations relating to both content and platform. An observer

¹ www.drupal.org

sat next to each participant and was equipped with a guideline for facilitating the process. All remarks were classified as either positive or negative and noted down on post-it notes. In parallel, ideas for corrections, additions, and new features were captured. Following the evaluation, all observations were grouped as belonging to either the program or platform. All change requests were collectively prioritized by participants and facilitators using MoSCoW principles (Must have, Should have, Could have, Would have) ²⁹.

Approvals and ethics

The co-researchers were given written and oral information about the participatory design process, their roles, tasks, and signed a written consent form. According to Danish legislation, no ethics approval is required for conducting participatory design studies of this character. However, the subsequent phases of the eMindYourHeart study (i.e., the feasibility study and the randomized controlled trial (RCT)) have been approved by the Regional Committees on Health Research Ethics for Southern Denmark [S-20180024]. The required permissions from the Danish Data Protection Agency were obtained from Odense University Hospital (17/41433 on 24 November 2017) via the umbrella permission of the Region of Southern Denmark. The RCT has been listed on clinicaltrials.gov [18/39431].

Findings

Inclusion requirements for participants in the project was that they had both IHD and experience with anxiety and/or depression. Invitations were distributed throughout the research partner network, to patient-driven organizations, and via interest groups on Facebook, but recruitment of co-researchers proved difficult. Ultimately, three patients from a regional cardiac rehabilitation program accepted the invitation to participate as co-researchers. All male, age ranging from 40-70 years. Additionally, two participants, male and female, were recruited for the pilot evaluation workshop.

Program workshops

In total, we held five program workshops between September 2018 and March 2019. As the overall objective of the program workshops was to modify the pre-existing treatment program, co-researchers worked through the program systematically. Each workshop focused on a subset of modules and multimedia content and exercises were replayed again during the workshop to facilitate a more honest discussion. The co-researchers gave valuable feedback on the treatment program and raised potential misunderstandings and problems. For example, the level of academic language used in the program was discussed as well as more specific words, such as whether to call the therapist in the program a psychologist, coach or therapist. The word psychologist was associated with stigma for some of the co-researchers, while they could agree on using the term therapist in the program. In the workshops, the co-researchers also gave feedback on the treatment program itself, how effective they found the information and exercises in the program, but also their preferences for questionnaires to use as study endpoints (e.g. generic versus disease-specific) in the feasibility study and RCT. They expressed their preference for a disease specific questionnaire to measure anxiety, as the generic one did not capture their situation well. Generally, the co-researchers found the program very useful, but expressed some reservations with the audio exercises based on mindfulness. Due to their feedback, we changed the focus from a more meditative approach to exercises focusing on attention. During the discussions at the workshops, it was evident that dealing with difficult emotions was one of the important challenges for the participants. Hence, when asked, the co-researchers confirmed that a module on difficult emotions, such as guilt and shame, would be relevant to include in the treatment program. Table 1 summarizes all the tasks posed to the co-researchers.

The final program consisted of nine treatment modules, preceded by an introductory step, and with two additional extra modules. All modules and their main treatment focus are illustrated in Figure 2.

Pilot evaluation workshop

The pilot evaluation workshop was conducted mid-June 2019. In total, thirty-five improvements were proposed by participants in Group 1 (long-term participants/co-researchers) and Group 2 (short-term participants). Figure 3 illustrates how co-researchers had a higher level of contribution, but also that co-researchers classified none of their improvement suggestions as unimportant. This was in contrast to the short-term participants who were more cautious to classify their suggestions as essential. In identifying which aspects of the platform either facilitated or hindered in the processing of the treatment program, both co-researchers and short-term participants contributed equally. The improvement suggestions and comments can be grouped into four categories (see Table 2).

Additionally, the pilot evaluation highlighted several positive aspects but also issues of concern. All participant groups appreciated the mixed use of content types to exemplify and engage them in the treatment modules; multimedia contents, such as audio and video, cartoon-inspired illustrations, and the range of exercises for engagement. Furthermore, the decision to finish each module with a set of summary questions for personal reflection was acknowledged as a sensible approach to reflect upon the ground covered.

In contrast, issues were raised concerning the length of module sub-pages, storing progression of exercise completion, and the effect of wording which some found guilt inducing e.g. *‘are you keeping up with your daily exercises?’*.

Platform development

We decided to utilize and extend an existing open source solution in the eMindYourHeart project, with the expectation that this would ensure rapid progress. However, several of the same challenges known from industry participation was faced in the customization and development of the project platform. One major reason for this was due to the obligation to ensure that the solution was compliant with the general data protection regulation (GDPR), which came into effect during the project development. Of particular importance to this project are the matters of data protection and privacy by design and by default.

In addition to customization of user content, program flow, and GDPR requirements, an application programming interface was developed for integration of the platform with the internationally recognized REDCap (Research Electronic Data Capture) system that will be used for data capture in eMindYourHeart. This enables the integration of responses to module exercises to be transferred for storage and secure analysis on the REDCap system at Open Patient data Exploratory Network².

Platform design

The eMindYourHeart platform is organized around content modules. Each module wraps a set of topic specific sub-pages. Platform access is secured through 2-step authentication using the Danish national NemID system. Following authentication, patients are directed to a landing page (see Figure 4), which lists all modules in the program (see Figure 2). All modules utilize the same layout as the landing page with a header providing easy access to the landing page, a message center, and a log-out function. The page footer links to participating partners and technical support.

² <https://open.rsyd.dk/>

Figure 5 exemplifies the navigation utilized in all modules. Module progression is marked by highlighting each visited step in the treatment module. Forward and backward navigation are offered at the start and end of each sub-page.

Each module involves multiple exercises. Some are for personal reflection, while others are used as input and tracking of progression with the therapist assigned to the patient. Figure 6 shows the ‘thought-circle’ exercise in which the patient is asked to consider how a specific anxiety or depression episode leads to a cascade of thoughts and its effect on emotions, behavior, and their body. Following completion of the exercise, patients are encouraged to self-assess how helpful the exercise was for them to gain a better understanding of personal response.

Discussion

This paper describes the design and development of a treatment program and internet-based delivery platform for CBT to patients with IHD and co-morbid anxiety and/or depression. During the development phase, we sought to include patients as long-term participants in the project through co-research. The opportunity to engage with a small group of co-researchers over a period of several months during the program development phase was a major advantage for the project, as the patient input ensures that the contents and wording are relevant and make sense to the target group. In addition, the longer development period provided the time needed to revise and adjust the program through multiple iterations. During the period of regular workshop meetings, the co-researchers naturally became more acquainted with each other and members of the project team. This led to a greater sense of coherence, shared understanding and connection, all of which are essential for individuals to provide their honest opinion and not the socially desirable answers. This bond invariably provided us with a deeper insight into the lives and circumstances of patients with IHD and comorbid anxiety and/or depression. Despite

their substantial time investment, none expressed frustration with the tediousness of treatment program revision. On the contrary, they found this investment meaningful as the workshops continued to draw out aspects of their situation that would improve the treatment supported in eMindYourHeart.

The effect of long-term engagement became very clear during the pilot evaluation workshop with the addition of short-term participant involvement. Experience and familiarity with the format and aim of the treatment program and the platform enabled the co-researchers to contribute with notably more feedback. Still, given the priorities shown in Figure 3, it seems that long-term involvement also leads to a stronger conviction of the importance of provided feedback and suggestions. Given the variation in reactions and feedback, there is value in involving patients in both short- and long-term engagements in development of patient-oriented eHealth solutions. Differentiating between first-time impressions and repeated exposure to the objectives of a research project is important for the design of engagement protocols to deliberately focus on which contribution each group can offer to the project.

With regards to our approach to platform development, the scope, cost, and time constraints that are present in projects relying on external development is naturally also present in projects utilizing in-house development. However, the distance between ideation and production is greatly shortened and reduces the overhead typically induced through communication with external partners or vendors. Furthermore, the short distance also minimizes the risk of waste with regards to development hours being spent on matters of low importance to the research project.

One pending challenge that needs to be addressed in the future, is how to transfer the knowledge and end-product from research to operational status. Not only does this transfer impose requirements for maintenance that may be alien for the organization, but

also the matter of ownership and responsibility has yet to be solved. In some cases, the solution is to hand over the product to spin-off start-ups.

Limitations

The small number of co-researchers and short-term participants as well as their skewed gender distribution is a limitation that impedes our ability to make generic recommendations. Also, the overrepresentation of males may have affected the design of the treatment program, especially with regards to some of the voice guided mindfulness exercises. Yet, our experience is that the prolonged collaboration with co-researchers counter the limitation in numbers.

Lessons learned and recommendations for future work

In summary, our work contributes not only with the development of a treatment program and accompanying platform, but also a presentation of a grouped participatory design approach which provided multiple advantages. These are highlighted in Table 3.

The advantages outlined in Table 2 only fully emerge when contrasted by involving both groups. Simply relying on short-term participation would not draw out the subtleties of familiarity. Likewise, solely involving long-term participants can cause the team to become overly assured of the usefulness and usability of program and platform alike. For example, comparing how the two groups evaluated the platform differently based on their respective starting points provided insight into the process of familiarization that is essential for mitigating the risk of early stage dropout.

In conclusion, the collaboration with co-researchers has been invaluable. At the outset of our project, most project members had little experience with extended collaboration with co-researchers. In hindsight, this approach was time consuming, but also helped us to better understand how it is to live with IHD as well as comorbid anxiety and depression; how their lives are affected and which specific problems they experience

also yielded better results and a much deeper understanding of the situation and struggles of patients with IHD. Overall, our collaboration with co-researchers benefitted platform development, customization of the treatment program, and selection of clinical effect instruments. Of key importance to the project, the collaboration with co-researchers helped us gain a deeper understanding of the impact of language on self-perception and potential stigma associated with certain concepts. Wording matters, as exemplified by the shared preference for using the term ‘therapist’ instead of ‘psychologist’. This finding indicates that there is still stigma associated with seeing a psychologist, even if solely treated by online tools, at least amongst patients with IHD.

Extended collaboration enabled fine-tuning of content to an extent not made possible by single workshops. This was especially obvious with regards to the multi-media content (drawings, audio-clips, and video). Assumedly, this is because such content stirs more immediate emotions and consequently is easier to relate and respond to. An example of this is how our alliance with co-researchers helped us better grasp the more subtle traits of patients with IHD through the inclusion of a treatment module that addressed shame and guilt as a consequence of an unhealthy lifestyle or relational stress with significant others.

Prolonged participation resulted in a higher level of familiarity amongst the co-researchers and also between the project members and the co-researchers. This increased trust and a feeling of security that led to discussions amongst co-researchers, we probably would not have experienced given a shorter timeframe. A substantial part of these discussions revolved around their own experiences as patients and coping with IHD. As such, the project team almost mimicked a support group, and thus some caution was exerted by the coordinating researchers to ensure that no personal and ethical boundaries were infringed upon.

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Disclosure statement

The authors report no conflict of interest.

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Table 1 Overview of program evaluation tasks

- Reading through modules while timing progression and noting down impressions and reflections along the way.
- Reviewing multi-media content:
 - Illustrations exemplifying familiar situations and dilemmas.
 - Vodcasts on how to live with chronic disease (<https://helbredsprofilen.dk/en>).
 - Listening to guided audio exercises.
- Evaluating exercises, including:
 - In-module exercises relating to the aim of the specific module.
 - Post-module exercises to catalyze contemplation on impact.
- Positioning the specific modules into the broader context and plan of the entire program.
- Assessment of predefined questionnaires aimed at evaluating study endpoints.

Table 2. Suggestions for improvements

Category	Typical remarks
Content restrictions	<p>Participants expressed mixed feelings regarding either enforcing or loosening control over content access. Some preferred unlocking of content only after completion of preceding content, others wanted the ability to browse freely. This applied to both modules and exercises within each module.</p>
Additional information	<p>Participants requested the ability to seek out additional information regarding illness and symptom specific phrases and terms through:</p> <ul style="list-style-type: none"> • Pop-up/Mouse-over explanation of complicated or expert specific words. • Information boxes to provide further explanation of selected concepts like cognition, and evolutionary aspects of psychology. • External links to third party resources.
Communication	<p>As something that can take place between therapist to patient, patient to patient, and platform to patient:</p> <ul style="list-style-type: none"> • Reminders to engage with the ongoing program via text messages. • Easy access to the therapist via email – to ensure a sense of alliance. • Coordination with other rehabilitation programs. • Involvement with other patients through an online forum.
Navigation	<p>Both groups would like the platform to support a better overview of:</p>

	<ul style="list-style-type: none">• Module progression, either using soft guidance with emphasis on current and next modules, or by only enabling navigation to specific modules.• Overview and easy access to completed or pending exercises.• Automatic tracking of overall progression.
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Table 3 Advantages of conducting a grouped participatory design study

	Group 1 (Long-term participants)	Group 2 (Short-term participants)
Program	<ul style="list-style-type: none"> • Familiarity with participants enabled deeper insight into reactions and patterns of use. • More honest and unbiased feedback. • Better ability to reflect upon the entire composition of the program. 	<ul style="list-style-type: none"> • ‘First-impression’ response to program content, language used, and module length. • Feedback focused on the specific module evaluated.
Platform	<ul style="list-style-type: none"> • Ability to propose solutions that are coherent with the overall design philosophy of the solution. 	<ul style="list-style-type: none"> • Insight into challenges separating content from platform.

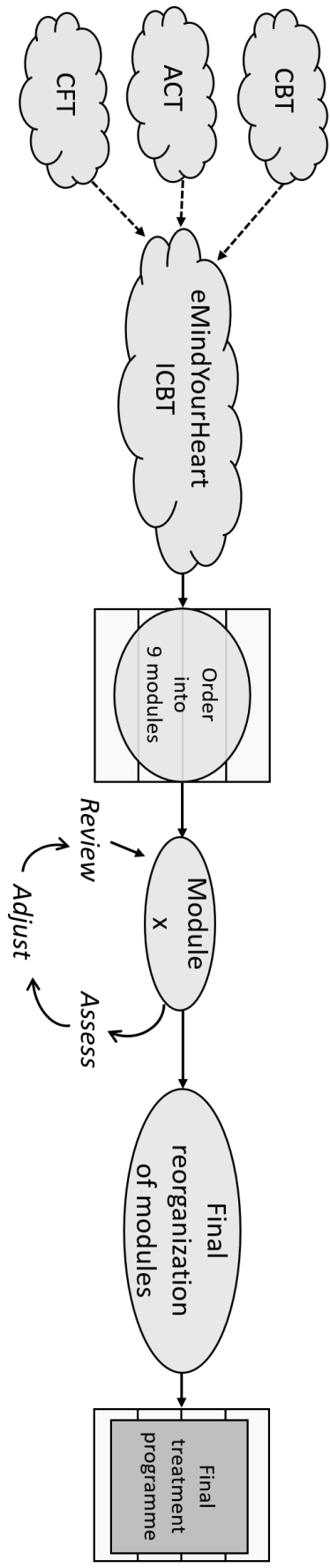


Figure 1.

I INTRODUCTION

- 1** ANXIETY AND DEPRESSION – YOUR TREATMENT JOURNEY
- 2** DIFFICULT EMOTIONS
- 3** RESHAPING YOUR THOUGHTS ANEW
- 4** PAYING MORE ATTENTION TO THOUGHTS AND ACTIONS
- 5** EXPOSURE
- 6** BARRIERS AND KINDNESS TOWARDS SELF
- 7** ACTIVATION AND MOVEMENT
- 8** ACCEPTANCE AND VALUES – LIVING A VALUABLE LIFE
- 9** PREVENTING RELAPSE

E EXTRA STEP – LIVING LIFE WITH IHD

E EXTRA STEP – BETTER SLEEP

Figure 2.

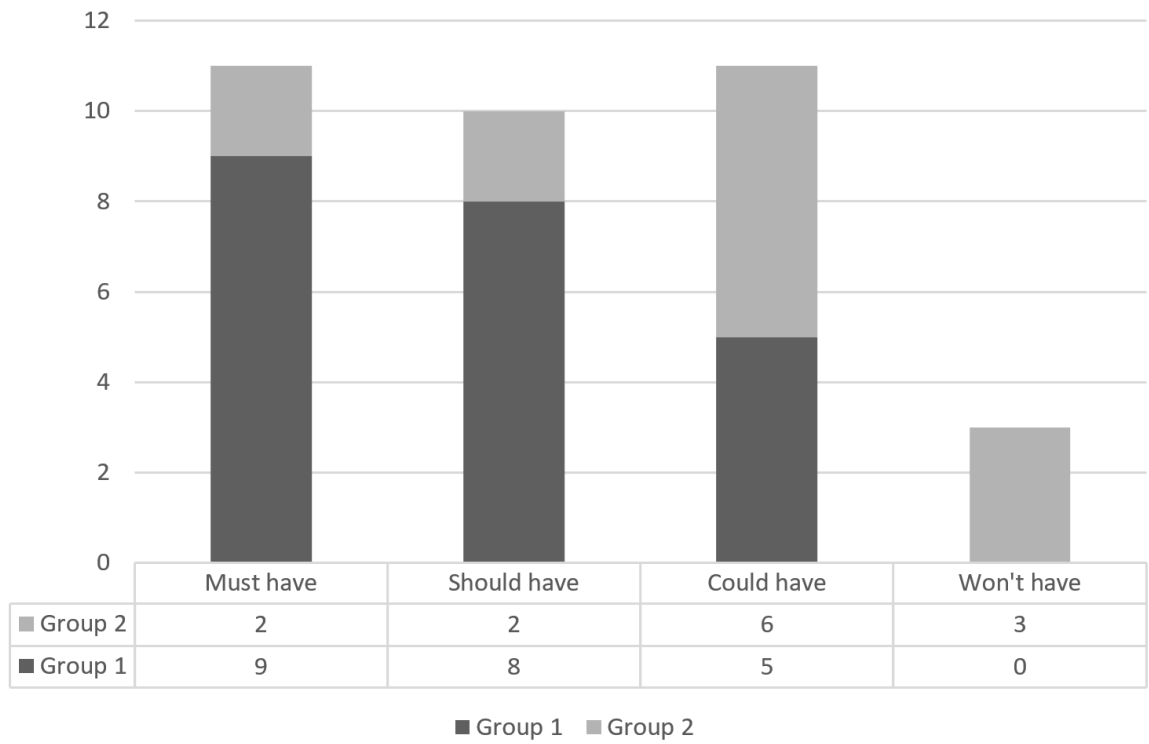


Figure 3.



I Introduktion til din behandling Vis indhold	1 Angst og depression - din vej gennem dette behandlingsforløb Vis indhold	2 Svære følelser Vis indhold
3 At forme tankerne på ny Vis indhold	4 Mere opmærksomhed på tanker og handlinger Vis indhold	5 Eksponering Vis indhold
6 Barrierer og venlighed over for sig selv Vis indhold	7 Aktivering og bevægelse Vis indhold	8 Accept og værdier - at leve et værdifuldt liv Vis indhold
9 Tilbagefaldsforebyggelse Vis indhold	E Ekstra trin - Få mere ud af livet med iskæmisk hjertesygdom Vis indhold	E Ekstra trin - God søvn Vis indhold

Figure 4.



Tilbage



Næste side

Trin 1

Angst og depression - din vej gennem dette behandlingsforløb

Dette trin fokuserer på:

- Om at få hjertesygdom
- Hvad er angst og depression?
- Hvorfor får man angst og depression?
- Din egen historie med hjertesygdom og angst/depression
- Hvad du kan forvente af behandlingen

Velkommen til Trin 1 i din behandling. Du er nu i gang med at tage de første skridt mod at få det bedre, og det er rigtig flot. Du glæder dig måske til at komme i gang? Måske er du også skeptisk og usikker på, om det her nu er noget for dig? Begge reaktioner er normale, når man skal starte op i en ny behandling.

I dette modul vil du lære mere om, hvordan mange reagerer på at få iskæmisk hjertesygdom. Du kommer til at høre mere om symptomer på angst og depression, som mange oplever i tiden efter diagnosen. Og så skal du arbejde med dine forventninger, både til behandlingen og til din egen indsats i behandlingen.

God arbejdslyst.

Tilbage



Næste side

Figure 5.

Min tankecirkel



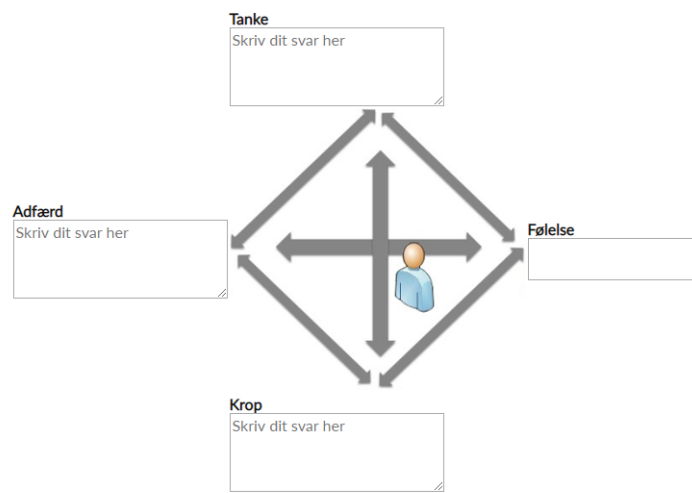
Udfyld "Min tankecirkel" ved hjælp af den introduktion du har fået.

Du må gerne udfylde flere eksempler.

Du kan for eksempel tage udgangspunkt i én af de første episoder, du kan huske med depressions- eller angstsymptomer og bekymringer relateret til din hjertesygdom. Du kan vælge noget, der er aktuelt lige nu, noget du har oplevet for nylig, eller en episode for længere tid siden.

Husk at alle elementerne hænger sammen. Det betyder, at hvis du synes det er nemmere at starte ved ét af de andre punkter end tanker, så må du også gerne det!

Min tankecirkel



Hvordan var det at udfylde din egen tankecirkel? Lærte du noget nyt om din angst, og hvis ja i så fald hvad?

Skriv dit svar her

Figure 6.

Figure captions

Figure 1. Origins and process for development of treatment program in the eMindYourHeart project

Figure 2. Final eMindYourHeart treatment program

Figure 3. Improvement points from workshop

Figure 4. eMindYourHeart landing page

Figure 5. eMindYourHeart content page example

Figure 6. Example of exercise in the treatment program