Developing a Theory-Based Intervention Manual to Enhance Self-Care of Patients with Heart Failure

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Background

• International guidelines recommend self-care as integral part of routine heart failure (HF) management
• HF can be managed effectively with on-going self-care, yet patients are frequently unable to adhere
• Previous interventions that were not theory-based have shown limited success in improving adherence to self-care
Aim of Study

• To develop an intervention manual containing theory-based BCIs that are well-defined using eight descriptors proposed to describe BCIs in a standardised way
Research Question

• Can a detailed intervention manual for designing theory-based behaviour change interventions using the COM-B behaviour model improve self-care in HF patients?
Study Design

• **Study design:** Use of COM-B model (Stage 1-3); Normalisation Process Theory (NPT) & Delphi technique (Stage 4) + Patient & Public Involvement

• **Duration:** 26 months (1FTE)

• **Value:** €220,114

• **Funding:** German Research Foundation (DFG)

• **Fund code:** DFG HE 7352/1-2

• **Ethical approval:** Ethics committee of HHU (Ref #: 2018-30)
COM-B Model: Universal Behavioural Theory

- **Capability**: Physical capability, Psychological capability
- **Opportunity**: Physical opportunity, Social opportunity
- **Motivation**: Reflective processes, Automatic processes, Psychological capability

- Under-adherence
- Behaviour (Self-care-adherence): Psychological capability
- Over-adherence
Stage 1: Extracting Behaviours

- Identification & extraction of all “target behaviours” associated with self-care (non-)adherence from two meta-studies (QUAN + QUAL)
  - QUAL meta-summary (Herber et al. 2017) → based on 31 reports
  - QUAN meta-analysis (Kessing et al. 2016) → based on 65 reports
- Identification of behaviours by two researchers independently
- Final list of *common* behaviours from both reviews
Stage 2: Mapping Behaviours onto COM-B

- Each of the factors identified in Stage 1 were mapped onto the COM-B model components (Capability, Opportunity, Motivation)
- If there were difficulties in classifying the factors onto the COM-B model, a second opinion was obtained
- The COM-B model assists in understanding of why patients with HF (non-)adhere to self-care
Behaviour Change Wheel
Stage 3: Identifying Behaviour Change Techniques

• Appropriate behaviour change techniques (BCTs) were identified for changing undesirable behaviours
• Use of Taxonomy (v1) that contains 93 BCTs
Narrowing Determinant List: Less is More

• Merged target behaviours from QUAN + QUAL meta-studies
• Eliminated behaviours with effect sizes <25% (QUAL)
• Eliminated behaviours with unknown quality (QUAN)
• Combined overlapping determinants
• Focus on barriers only for larger intervention impact
• Enquired HF patients’ preferences if several BCTs were available
Role of Patient & Public Engagement

• 35 HF patients were asked to rate different BCTs in relation to its likeliness of use (0= „Not likely at all“ ; 3= „Extremely likely“)

• Friedman and Wilcoxon tests were performed to analyse which BCTs patients preferred

• Finally, the number of interventions to be further developed was reduced to **15**
<table>
<thead>
<tr>
<th>#</th>
<th>Undesirable behaviours (“barriers to self-care”)</th>
<th>COM-B component</th>
<th>Behaviour Change Technique (BCT) according to BCT Taxonomy (v1)</th>
</tr>
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<tbody>
<tr>
<td>1a</td>
<td>Patients had <em>difficulties interpreting</em> their symptoms, <em>attributed them to existing comorbidities, medication side effects</em> or <em>emotional responses</em> (Herber et al. 2017)</td>
<td>Psychological capability</td>
<td><strong>5.1 Information about health consequences</strong> (e.g. simple explanations such as being told to expect swelling in the legs, tiredness, shortness of breath, etc. <strong>8.1 Behavioural practice/rehearsal</strong> (e.g. short test of ability to attribute symptoms to existing comorbidities)</td>
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Next Steps

Starting in November 2019
Stage 4: Considering Contextual Factors

• Consultation of key stakeholders to identify wider factors needed for successful implementation of BCIs into routine work

• Qualitative semi-structured interviews with 15–17 key stakeholders (e.g. patients, nurses, doctors, researchers, …)

• Use of Normalisation Process Theory (NPT) provides guiding questions to overcome difficulties of implementing theoretically derived interventions into everyday practice
**Stage 4: Determination of Descriptors**

- Interviews with key stakeholders will help determining the eight descriptors needed to describe BCIs in a standardised way

<table>
<thead>
<tr>
<th>(1) Content of intervention elements</th>
<th>(5) Mode of delivery (group-based)</th>
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<tr>
<td>(2) Characteristics of self-care tutors</td>
<td>(6) Format (e.g. lectures)</td>
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<td>(3) Target population characteristics</td>
<td>(7) Intensity (contact time)</td>
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<td>(4) Delivery location (e.g. home)</td>
<td>(8) Duration (e.g. # of sessions)</td>
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Stage 4: Delphi Technique

• Use of Delphi technique (formal consensus method) involving all key stakeholders to elicit consensus on final interventions

• The Delphi questionnaire will deal specifically with any mixed responses (ambiguities) regarding the descriptors

• Threshold for consensus set at 75% of participating stakeholders; otherwise rank order will be used
Final Product

• At end of stage 4, we will have a final version of the intervention manual containing well-defined theory-based BCIs

• Feasibility study to pilot test interventions described in the manual (follow-up study in 2021)

• Full-scale randomised controlled trial to test the interventions including health economic evaluation (follow-up study in 2021)
Take Home Message for Practice

• The intervention manual contains theory-based interventions that are most applicable for overcoming certain self-care barriers in order to enhance adherence in HF patients.
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