@selfhealthtech Using self-administered health monitoring technologies to support the self-management of long-term conditions: what about behaviour change?

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Self-administered health monitoring technologies research by @hm_morgan
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Is Under Armour About to Crush Fitbit? -
How do health services and professionals support the self-management of long-term conditions through patients’ uses of self-administered health monitoring technologies?
Methods

The foundation project builds on our previous work on health care users: the conceptualising support for self-management. It is being conducted at the University of York.

This project aims to develop a conceptual analysis of long-term conditions that, together with a summary conceptual model and a set of nettes, can guide practice development and evaluation. The project will make use of stories about people’s valued capabilities.
Analysis

1 + 1 = 3

larify, make clear, make plain,
More
Findings

51 titles and abstracts

186 full text papers requested

83 full text papers are relevant

32 studies included

1 systematic review 29 primary studies 2 commentary pieces

103 not included:
- 38 kept for background reference;
- 65 excluded as follows:
  - 6 use traditional/analogue tools;
  - 2 refer to medical devices (therapeutic);
  - 4 relate to medical standards and/or professional development;
  - 51 involve technology, but it is not self-administered;
  - 2 deliver therapy through self-administered technologies rather than monitoring

51 relate to strict management of one indicator for hypertension, diabetes, asthma or thromboembolic disorders:
- 13 use or refer to home blood pressure monitoring (hypertension);
- 32 use or refer to self-monitoring of blood glucose (diabetes):
  - 28 for intermittent testing;
  - 4 for continuous testing
- 3 use or refer to electronic peak flow log (asthma);
- 2 discuss computerised approaches to anticoagulation management (thromboembolic disorders)
### Descriptive table of included studies

<table>
<thead>
<tr>
<th>Author Date</th>
<th>Setting</th>
<th>Study type</th>
<th>Chronic condition</th>
<th>Specific population</th>
<th>Self-administered health monitoring technology/description and/or name</th>
<th>Self-administered health monitoring technology purpose</th>
<th>How does it work?</th>
<th>Users involved in design?</th>
<th>Can it be tailored/personalised by user?</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams 2003 (Adams et al., 2003)</td>
<td>MA, USA</td>
<td>Descripti on of design of the system, features and considerations prior to evaluation in a randomised clinical trial of n=500 children with Persistent asthma.</td>
<td>Asthma</td>
<td>Computer-based Telephone-Linked Communication system (TLC-Asthma).</td>
<td>To ask the patient questions to monitor their health conditions; to provide education and behavioural counselling for targeted health-related behaviours, such as recognising symptoms, and triggers, medication taking at prescribed times, dealing with exacerbations, pre-treatment, appropriate use of healthcare system, diet and exercise - assesses knowledge to target education.</td>
<td>At-home monitoring device, educator, and counsellor for patients with chronic health conditions comprising: 1. Patient-centred telephone-linked communication system; 2. Web-based alert reporting and nurse case-management system; 3. Electronic Medical Record (EMR)-based provider communication to support clinical decision making at the point-of-care.</td>
<td>TLC carries out totally automated conversations with patients. The system speaks to patients using computer-controlled digitised human speech. Patients communicate with TLC by pressing the keys on their telephone keypads or speaking into the telephone. The patient or TLC may initiate a conversation. A typical conversation lasts between 3-5 minutes.</td>
<td>No</td>
<td>No</td>
<td>System offers model for new level of connectivity for health information that supports customised monitoring, IT-enabled nurse case-managers, and the delivery of longitudinal data to clinicians to support the care of children with persistent asthma. Systems like the one described are well-suited, perhaps essential, technologies for the care of children with chronic conditions such as asthma.</td>
</tr>
</tbody>
</table>
Figure 2: Role of various collaborators in answering multidimensional informational needs (AMIN).

Fig. 5: Architecture of the system.

Figure 1: The FOX11 information collection device.
The Behavior Change Technique taxonomy (v1) of 93 Hierarchically Clustered Behavior Change Techniques: Building an International Consensus of Behavior Change Interventions

Susan Michie, DPhil, CPsychol · Michelle Johnston, PhD · Martijn Schuerman, PhD · Catherine Abraham, CPsychol · Charles Michie, DPhil, CPsychol · Jill Francis, PhD · Wendy Hardeman, PhD · Martin P. Eccles, MD · James Cane, PhD · Caroline E. Wood, PhD

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Abstract

Background CONSORT guidelines call for the systematic reporting of behavior change interventions: we needed an agreed taxonomy of techniques to enhance the clarity and reliability of reporting. We assessed inter-rater agreement amongst six researchers using 85 intervention descriptions by BCTs was 0.65. Inter-rater agreement amongst six researchers using 85 intervention descriptions by BCTs was 0.65. This resulted in 93 BCTs clustered into 16 groups.

Objectives The objective of this study is to develop a taxonomy of behaviors.

Methods In a Delphi-type exercise, 14 experts reviewed and refined definitions of 124 BCTs from six previous taxonomies. Twenty-two distinct BCTs occurring at least five times, 23 had adjusted kappas of 0.60 or above.

Conclusions “BCT taxonomy v1,” an extensive taxonomy used in behavior change interventions.

Electronic supplementary material The online version of this article doi:10.1007/s12160-013-9486-6 contains supplementary material, which is available to authorized users.
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BEHAVIOUR
The Behavior Change Technique Taxonomy (v1)
of 93 Hierarchically Clustered Techniques: Building
an International Consensus for the Reporting
of Behavior Change Interventions

Susan Michie, DPhil, CPsychol - Michelle Richardson, PhD - Marie Johnston, PhD,
CPsychol - Charles Abraham, DPhil, CPsychol - Jill Francis, PhD, CPsychol -
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Abstract
Background CONSORT guidelines call for precise reporting of behavior change interventions: we need rigorous methods of characterizing active content of interventions with precision and specificity.

Objectives The objective of this study is to develop an extensive, consensually agreed hierarchically structured taxonomy of techniques (behavior change techniques (BCTs)) used in behavior change interventions.

Methods In a Delphi-type exercise, 14 experts rated labels and definitions of 124 BCTs from six published classification systems. Another 18 experts grouped BCTs according to similarity of active ingredients in an open-sort task. Inter-rater agreement amongst six researchers coding 85 intervention descriptions by BCTs was assessed.

Results This resulted in 93 BCTs clustered into 16 groups. Of the 26 BCTs occurring at least five times, 23 had adjusted kappas of 0.60 or above.

Conclusions "BCT taxonomy v1," an extensive taxonomy of 93 consensually agreed, distinct BCTs, offers a step change as a method for specifying interventions, but we anticipate further development and evaluation based on international, interdisciplinary consensus.

Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide

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Thank you for your attention.

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