Designing evidence and theory-based ICT tools for weight loss maintenance: The H2020 NoHoW Toolkit

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Aims to test whether theory- and evidence-based behavior change techniques delivered via an ICT Toolkit (TK), promote successful WLM.
Factorial design to test the contribution of each framework:

- Building Autonomous Motivation – Self-Determination Theory
- Self-Regulation skills – Self-Regulation Theory
- Emotional Regulation skills – Mindfulness-based, ACT.

<table>
<thead>
<tr>
<th>Emotional Regulation</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation + Behavioral Self-regulation</strong></td>
<td><strong>YES</strong></td>
<td><strong>SELF-MONITORING</strong> Motivation + SRegulation Emotional Regulation</td>
</tr>
<tr>
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Evidence Foundation
- Learning more about WLM -

✓ **Systematic review** on the **components** (theories, techniques and modes of delivery) of **ICT interventions** targeting WL/WLM.

✓ **Survey** with representative sample of individuals who have previously lost weight, and **in-depth interviews** about patterns of WL/WLM and use of ICT.
• 2x2 factorial RCT, 6M intervention (FU=18 M).

• N=1600 adults (≥ than 5% of their weight, last 12 months).

• 3 centres: UK, DK and PT.

• Outcomes: Changes in body weight and health markers; Changes in PA, diet, sleep, well-being.
✓ Set of **web-app** tools, and **inputs from other technologies**, such as smart scales and activity trackers.

✓ **Thematic content**
  - Priority and Complimentary Areas
  - Interactive sessions
  - Prompt by weekly contact
Development of the content of the TK
- Systematic approach -

1. **Target behaviors** explicit

2. Identify key theoretical constructs – **mechanisms of action**

3. Develop **theory-driven models** of the TK

4. **Select intervention techniques** that are expected to impact on target constructs

5. **Translate** these **techniques into the TK** principles and technical specifications
**Theoretical Principles underlying Modular Design**

### Promote Autonomy

1. Offer choice on how users engage with the toolkit and implement the content provided – specific behavioural and weight goals are formulated and planned by the individual; type of strategies used; contact (e.g. frequency of contact, additional prompts).
2. Use autonomy-support language in the implementations (non-directive and non-judgmental tone; avoid “shoulds”, “musts”, “we recommend”).

### Promote Competence

1. Provide rationale for behaviour changes and structure from where to choose from (e.g. use multiple choices/drop-down boxes; select goals from a list of common strategies for WLM);
2. Promote selection of optimal challenging goals.

### Promote self-regulation capacity and skills

1. Encourage and provide support on the formulation and planning for specific behavioural (physical activity and/or dietary) and weight goals, against which users can assess their performance;
2. Encourage and provide support on the formulation of coping plans (identification of difficult situation and strategies to avoid/deal with it)
### Module 2 - Myths and Facts about exercise, eating and weight

**Session** - The best way to avoid a trap is knowing of its existence

<table>
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<tr>
<th>Goals</th>
<th>Theoretical constructs</th>
<th>Intervention techniques</th>
<th>Rationale</th>
<th>General description implementation</th>
</tr>
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<tbody>
<tr>
<td>Promote factual knowledge about energy balance-related behaviors (exercise and diet) and WLM.</td>
<td>Competence</td>
<td>- Identify misconceptions about condition or behaviors (SDTT_C34)</td>
<td>By clarifying which practices (behaviors) are more associated with WLM, and linking with the practices listed in module 1.2., we promote users' increased knowledge on what is important for WLM in terms of behavior change (competence).</td>
<td>A quiz followed by a fact sheet with myths and facts on WLM and related behaviors (exercise and diet) is shown. At the end, users are asked to go back to the practices/strategies stated on module 1.2., and reflect on their utility for WLM, based on this new information.</td>
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TK Development Challenges

- Translation of psychological components to the digital world
- Engaging features of the TK
- Interaction TK - Users
- Integrating real-world apps
Feasibility and Pilot Studies

✓ Feasibility study of the Toolkit – User testing, and qualitative data.

✓ Toolkit feature and functionalities are refined and finalized; translated to 3 languages.

✓ Various incremental feasibility tests for piloting measures, training, and testing other components.

✓ Pilot of the protocol and TK - 10 subjects at each centre.

Full trial
What we expect from NoHoW

✓ Increase knowledge about theory-based mechanisms of action involved in successful WLM.

✓ Test behavior change principles and theory translated into digital intervention.

✓ Contribute to scalable and sustainable solutions to weight loss maintenance across the Europe.
Learn more about our project at

http://nohow.eu/