Using the Behaviour Change Wheel to refine a self-management programme for type 1 diabetes: Developing DAFNEplus

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Dose Adjustment For Normal Eating

The DAFNE programme

- National structured education programme for type 1 diabetes (T1D) self-management
  - Flexible intensive insulin therapy (FIIT) – matched to food intake
- Goal = increase (behaviours associated with) optimal glycaemic control to reduce risk of complications
- Short-term successes:
  - ↓ 1.0% HbA1c at 6 months (target 6.5%)
  - ↓ 67% risk of severe hypoglycaemia, ↓ 61% risk of ketoacidosis
  - ↑ quality of life and perceived well-being
- Longer-term: no universal sustained ↓ HbA1c
Sustaining T1D self-management

- Qualitative research identified several **barriers** to sustained self-management behaviours, including:
  - Difficulties applying learning to everyday life
  - Lack of/inappropriate support: didactic HCP relationships
  - Lack of confidence
  - Emotional factors: fear of complications or hypos; feelings of guilt or hopelessness; fear of disclosing diabetes status

- Need for enhanced attention to, and support for, behaviour change and maintenance

- Framework: Behaviour Change Wheel (Michie et al., 2011)
• Behaviour change technique (BCT) = smallest ‘active ingredient’ of an intervention
  o Taxonomy: BCTT(v1) – 93 BCTs, hierarchically clustered
Using the BCW to refine DAFNE (1)

1. Key behaviours defined
   - T1D self-management is behaviourally **complex**!
   - Many behaviours are interlinked, recurring and **cyclical**
Cycles of behaviours in T1D self-management

Cycle 1: Routine adjustment
- Meal/large snack management
- Pre-activity (outside meal time)
- When drinking alcohol
Using the BCW to refine DAFNE (2)

1. Key behaviours defined
   - Including barriers and enablers previously identified

2. Influences on key behaviours analysed
   - COM-B

3. Intervention functions selected to address influences

4. Long-list of possible BCTs produced
Using the BCW to refine DAFNE (3)

5. Final BCTs selected using APEASE criteria

- Acceptable
- Practicable
- Effective/cost-effective
- Affordable
- Safe/side-effects
- Equitable
Using the BCW to refine DAFNE (3)

5. Final BCTs selected using APEASE criteria

6. BCTs ‘translated’ into content
   - Clinical and health psychologists, clinical diabetes specialists
   - Collaborative design: challenges including elements ‘lost in translation’…
Example: Using the BCW to inform intervention content

**Barrier:** Forgetting course content, e.g. BG targets

**COM-B:** Capability (psychological)

**Intervention functions:** Environmental restructuring, enablement

**BCTs:** Behavioural practice/rehearsal, prompts and cues

Practice embedded throughout sessions and in ‘homework’, e.g. checking blood glucose before meals

Cue cards to prompt recall of key information, e.g. blood glucose targets
The DAFNEplus programme

- 5x group course sessions
  - BCTs embedded in content and delivery
  - New sessions: emotional factors, social support, behaviour change and habits

- Structured follow-up support
  - Individual sessions, progressively spaced

- Technological support
  - Facilitating blood glucose monitoring and data review
Conclusions and next steps

• The BCW is an effective framework for revising existing interventions

• **Now**: Iterative piloting to inform refinements
  - Including review of ‘translation’ of theory into content: ‘fidelity of design’

• **Next**: RCT comparing DAFNEplus with existing DAFNE
  - Including fidelity of delivery assessment
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