# Overview of Methodological Challenges

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Outline

- Brief background

  - projects
  - approach to assessing implementation problems and designing interventions

- Reflections on methodological challenges

  - using the TDF in interview and survey studies

- Key messages

Projects in primary care
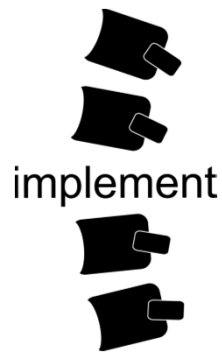
IMPLEmenting a clinical practice guideline for acute low-back pain evidence-based manage**MENT** in general practice

Investigating
Research
Implementation
Strategies in the care of dementia in general practice

Acute
Low-back pain
Implementing
Guidelines
i**N**to physiotherapy and chiropractic practice

Approach

Step 1. Who needs to do what differently?

- Identify the evidence-practice gap
- Specify behaviour change needed to reduce gap
- Specify target health professional group whose behaviour needs changing

Step 2. Using theory(ies) or theoretical framework(s), which barriers and enablers need to be addressed?

- Select theory(ies)/framework(s) likely to inform pathway(s) of change and possible barriers and enablers to pathway
- Use qualitative and/or quantitative methods to identify barriers and enablers to behaviour change

Step 3. Which intervention components (behaviour change techniques, mode(s) of delivery) could overcome the modifiable barriers and enhance enablers?

- Use chosen theory/framework to identify potential BCTs and modes of delivery
- Identify what is supported by evidence, is likely to be feasible, locally relevant, and acceptable and combine into intervention

Step 4. How can behaviour change be measured and understood?

- Identify mediators of change
- Select appropriate outcome measures
- Determine feasibility of proposed measures

French et al, *Imp Sci* 2012, 7: 38

Step 2. Using the TDF, which barriers and enablers need to be addressed?
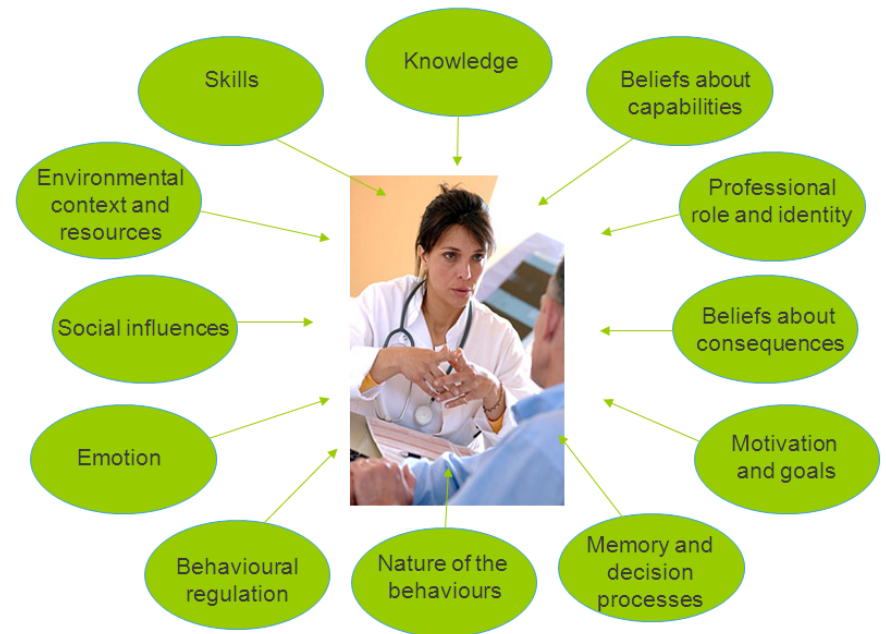
Review literature

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Conduct qualitative interviews using the TDF with target health professional group to explore barriers and enablers

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Content of theoretical domains and interview findings inform survey development

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Implement survey in larger random sample of health professional group to identify predictors

Skills

Knowledge

Beliefs about capabilities

Environmental context and resources

Professional role and identity

Social influences

Beliefs about consequences

Emotion

Motivation and goals

Behavioural regulation

Nature of the behaviours

Memory and decision processes

Theoretical Domains Framework
Michie et al QSHC 2005
Cane et al Imp Sci 2012

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Methodological challenges

1. Understanding the theoretical content of the domains

2. Asking the right questions in interview studies

3. Analysing the data appropriately in interview studies

4. Translating the theoretical content of domains into survey items

5. Balancing burden vs. comprehensiveness in survey studies

1. Understanding the theoretical content of the domains

- Understanding the content of domains can be difficult for those without training/experience in behaviour change theory

- Need to have a good feel for what each domain constitutes

- Helpful to look at the component constructs and illustrative questions relevant to each domain

- 2012 TDF paper has domain and construct definitions

1. Understanding the theoretical content of the domains

Domain (def)	Constructs (def)
Beliefs about capabilities	**Self-confidence** (Self-assurance or trust in one's own abilities, capabilities and judgment)
(Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use)	**Perceived competence** (An individual's belief in his or her ability to learn and execute skills)
	Self-efficacy (An individual's capacity to act effectively to bring about desired results, as perceived by the individual)
	Perceived behavioural control (An individual's perception of the ease or difficulty of performing the behaviour of interest)
	Beliefs (The thing believed; the proposition or set of propositions held true)
	Self-esteem (The degree to which the qualities and characteristics contained in one's self- concept are perceived to be positive)
	Empowerment (The promotion of the skills, knowledge and confidence necessary to take great control of one's life as in certain educational or social schemes; the delegation of increased decision-making powers to individuals or groups in a society or organisation)
	Professional confidence (An individual's belief in his or her repertoire of skills, and ability especially as it is applied to a task or set of tasks)

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2. Asking the right questions in interview studies

- What you ask will directly influence what participants tell you
- Semi-structured interviews, interview guide informed by TDF
- Start with broad open-ended questions; supplement with follow-up probe questions relevant to the domains of the TDF to explore barriers and enablers to achieving the target behaviour

  Example probe questions from IRIS interview study

  – Target behaviour: conduct a cognitive assessment using the Mini Mental State Examination (MMSE) in patients with suspected cognitive impairment

  – *"what difficulties, if any, do you have in conducting a cognitive assessment using the MMSE with these patients?" ,"do you find conducting a cognitive assessment using the MMSE with these patients easy or difficult to do?", "why?/what makes it easy/difficult?"* [Beliefs about capabilities]

  – *"what are the benefits/advantages of conducting a cognitive assessment using the MMSE with these patients?", "what are the disadvantages?"* [Beliefs about consequences]

  – *"would you ever forget to conduct a cognitive assessment using the MMSE in these patients?"* [Memory, attention and decision processes]

2. Asking the right questions in interview studies

- Our probe questions have evolved over time; some initially didn't give us the information we were seeking so they needed refinement

    Example from ALIGN interview study

    - Target behaviour: manage patients with acute uncomplicated low-back pain without referring for plain x-ray of the lumbar spine

    - [Emotion]: "*to what extent do emotional factors influence whether or not you manage these patients without referring for plain x-ray? If so, what are they?*" (e.g. stress, anticipated regret, anxiety, fear, threat, etc)

    - Example response: ... "*Well nothing with regards me because I mean I just see my job as doing my job. So I mean that's what we're paid to do I suppose and how I'm feeling doesn't really matter, it's really what the patient situation is so …*

    - Elsewhere in interview suggested emotion may be important – e.g. fear of missing underlying sinister pathology. This occurred in several interviews.

    - Probe question rephrased for next interview study: "*does [doing x] present a difficult (or uncomfortable) situation to deal with? Is it something you would prefer to avoid?*"

- Important to pilot test interview guide

3. Analysing the data in interview studies

- General approach – identify themes then map to domains

- Mapping to the *appropriate* domains

    Example from ALIGN interview study

    – Target behaviour: manage patients without referring for plain x-ray of lumbar spine

    – Mapping themes to appropriate domains

        • Patient actively pressures clinician for x-ray (Social influences)

        • Clinician worried about missing underlying sinister pathology (Emotion)

        • Concern about losing patient to another provider (Beliefs about consequences)

- Learning curve in analysis

- Good to have another researcher coding independently, then compare, discuss

3. Analysing the data in interview studies

- Identifying important domains
  - Salience as an indicator of importance
    - theme is raised on multiple occasions, within or across interviews
    - the degree of intensity or amount of elaboration about an issue may indicate it is important
  - Responses to unprompted vs. prompted questions
    - probing more could conceivably lead to more domains being identified as relevant/important
    - but, asking broad open-ended questions, followed by probe questions based on domains is likely to provide good coverage of possible influencing factors

4. Translating the theoretical content of domains into survey items

- Want items to reflect the theoretical content of domains and to relate to the target behaviour

- Item content can also be informed by themes identified in qualitative interviews and/or reviews of literature

- Items and measures need psychometric testing (validity, reliability)

Items	Domain
I consider myself to be competent in *doing x*	Beliefs about capabilities
It is my responsibility as a GP to *do x*	Social/professional role and identity
I may forget to *do x*	Memory, attention and decision processes
My working environment is not conducive to *doing x*	Environmental context and resources
I'm not comfortable *doing x*	Emotion
I would make it a high priority to *do x*	Motivation and goals

Rated on 7-point Likert scales: Strongly disagree (1) to strongly agree (7)

5. Balancing burden vs. comprehensiveness in survey studies

- Number of items used to measure each domain
- Number of behaviours
- All vs. selected domains

Key messages

- TDF provides a useful framework for assessing implementation problems with good theoretical coverage
- Several methodological challenges exist, e.g.
  - understanding theoretical content
  - formulating interview and survey questions to reflect theoretical content
  - analysing data and identifying important domains for targeting
- Experience with using the TDF and strategies for addressing these challenges is increasing, but more guidance is likely to be helpful

Thanks for listening

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