# Using the Theoretical Domains Framework to identify implementation challenges and design behavior change strategies

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BMC Health Services Research

RESEARCH ARTICLE    Open Access

Barriers and enablers to implementing multiple stroke guideline recommendations: a qualitative study

Annie McCluskey[1*†], Angela Vratsistas-Curto[1,2†] and Karl Schurr[2†]

**Abstract**

**Background:** Translating evidence into practice is an important final step in the process of evidence-based practice. Medical record audits can be used to examine how well practice compares with published evidence, and identify evidence-practice gaps. After providing audit feedback to professionals, local barriers to practice change can be identified and targetted with focussed behaviour change interventions. This study aimed to identify barriers and enablers to implementing multiple stroke guideline recommendations at one Australian stroke unit.

**Methods:** A qualitative methodology was used. A sample of 28 allied health, nursing and medical professionals participated in a group or individual interview. These interviews occurred after staff had received audit feedback and identified areas for practice change. Questions focused on barriers and enablers to implementing guideline

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Delivering an evidence-based outdoor journey intervention to people with stroke: Barriers and enablers experienced by community rehabilitation teams

Annie McCluskey[1*†], Sandy Middleton[2,3*†]

**Abstract**

**Background:** Transferring knowledge from research into practice can be challe involves a change in attitudes, roles and behaviour by individuals and teams. H potential barriers may aid the knowledge transfer process. The aim of this study enablers, as perceived by allied health professionals, to delivering an evidence-intervention for people with stroke.

**Methods:** A qualitative design and semi-structured interviews were used. Allied heal community rehabilitation teams were interviewed, before and after receiving feedbac

# Theoretical Domains Framework

## ORIGINAL ARTICLE

### Making psychological theory useful [for] evidence based practice: a consens[us...]

S Michie, M Joh[...] Theory'' Grou[p]

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## RESEARCH

### Validation of the theoretical [...] for use in behaviour change [...] research

James Cane[1], Denise O'Connor[2] and Susan Michie[3]*

#### Abstract

**Background:** An integrative theoretical framework, developed for [...] behaviour change research, has been applied across a wide range [...] of this framework.

**Methods:** Validity was investigated by behavioural experts sorting [...] and open sort tasks. The extent of replication was tested by Discri[minant] Analysis.

**Results:** There was good support for a refinement of the framew[ork...] constructs (average silhouette value 0.29): 'Knowledge', 'Skills', 'Soc[ial...] Capabilities', 'Optimism', 'Beliefs about Consequences', 'Reinforcem[ent...] Decision Processes', 'Environmental Context and Resources', 'Socia[l...] Regulation'.

**Conclusions:** The refined Theoretical Domains Framework has a s[ound...] method for theoretically assessing implementation problems, as w[ell as...] behaviours as a basis for intervention development.

**Keywords:** Theoretical domains framework, Behaviour, Change, I[...]

IMPLEMENTATION SCIENCE

## RESEARCH — Open Access

### Measuring determinants of implementation behavior: psychometric properties of a questionnaire based on the theoretical domains framework

Johanna M Huijg[1]*, Winifred A Gebhardt[1], Elise Dusseldorp[2], Marieke W Verheijden[2], Nicolette van der Zouwe[3], Barend JC Middelkoop[4] and Mathilde R Crone[4]

#### Abstract

**Background:** To be able to design effective strategies to improve healthcare professionals' implementation behaviors, a valid and reliable questionnaire is needed to assess potential implementation determinants. The present study describes the development of the Determinants of Implementation Behavior Questionnaire (DIBQ) and investigates the reliability and validity of this Theoretical Domains Framework (TDF)-based questionnaire.
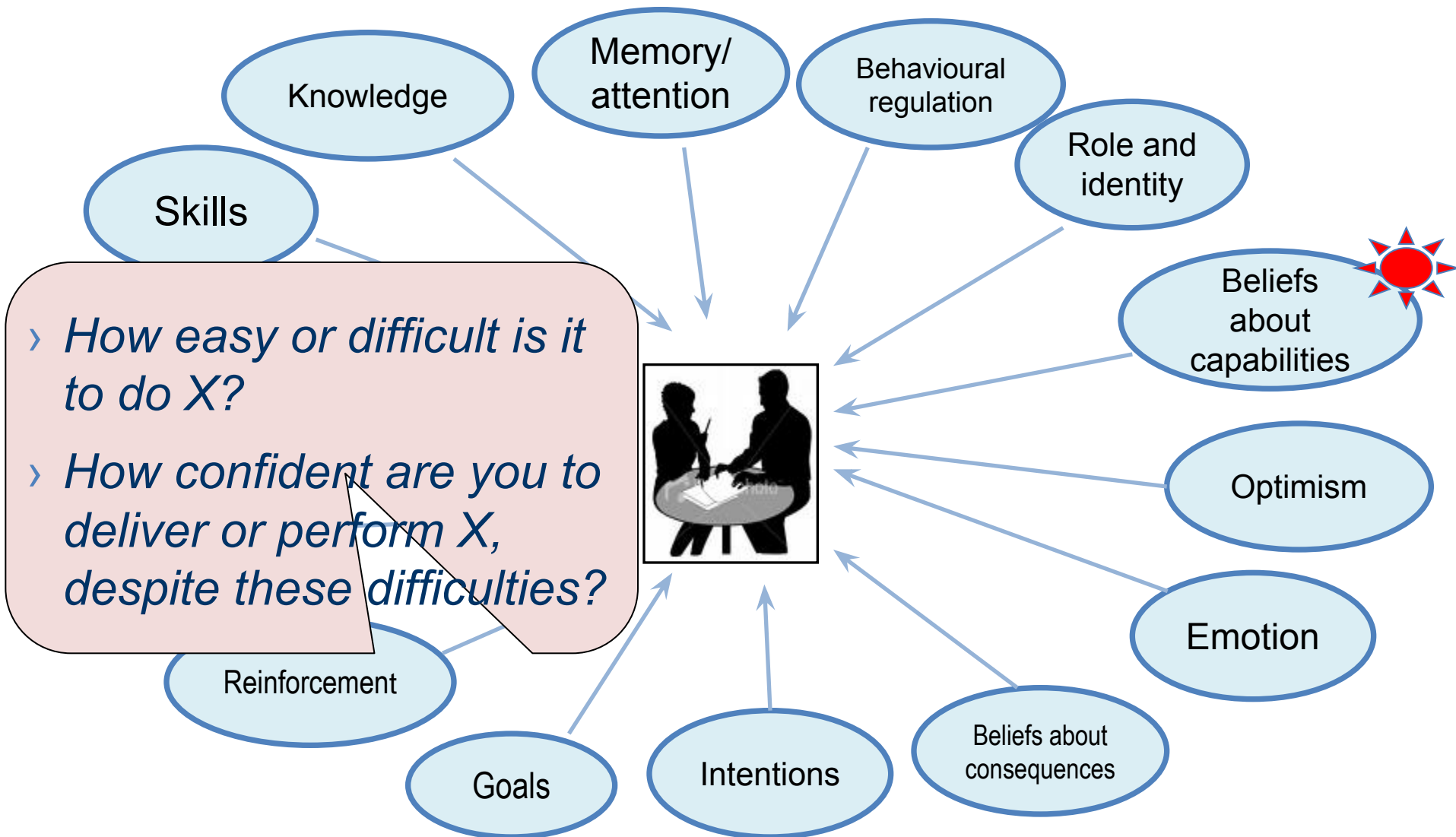
**Methods:** The DIBQ was developed to measure the potential behavioral determinants of the 12-domain version of the TDF (Michie et al., 2005). We identified existing questionnaires including items assessing constructs within TDF domains and developed new items where needed. Confirmatory factor analysis was used to examine whether the predefined structure of the TDF-based questionnaire was supported by the data. Cronbach's alpha was calculated to assess internal consistency reliability of the questionnaire, and domains' discriminant validity was investigated.

**Results:** We developed an initial questionnaire containing 100 items assessing 12 domains. Results obtained from confirmatory factor analysis and Cronbach's alpha resulted in the final questionnaire consisting of 93 items assessing 18 domains, explaining 63.3% of the variance, and internal consistency reliability values ranging from .68 to .93. Domains demonstrated good discriminant validity, although the domains 'Knowledge' and 'Skills' and the domains 'Skills' and 'Social/professional role and identity' were highly correlated.

**Conclusions:** We have developed a valid and reliable questionnaire that can be used to assess potential determinants of healthcare professional implementation behavior following the theoretical domains of the TDF. The DIBQ can be used by researchers and practitioners who are interested in identifying determinants of implementation behaviors in order to be able to develop effective strategies to improve healthcare professionals' implementation behaviors. Furthermore, the findings provide a novel validation of the TDF and indicate that the domain 'Environmental context and resources' might be divided into several environment-related domains.

**Keywords:** Implementation behavior, Determinants, Theoretical Domains Framework, Questionnaire, Physical activity interventions

# 14 Domains of the TDF



Knowledge

Memory/attention

Behavioural regulation

Role and identity

Skills

Beliefs about capabilities

Optimism

Emotion

Reinforcement

Goals

Intentions

Beliefs about consequences

> › *How easy or difficult is it to do X?*
>
> › *How confident are you to deliver or perform X, despite these difficulties?*

*Michie et al (2005); Cane et al (2012)*

# Study 1 Aims

- To increase the proportion of stroke inpatients receiving best practice screening, assessment and intervention

- To identify barriers and enablers to implementing multiple guideline recommendations

# Study 1: Improving stroke inpatient care: The process of Implementation

1. Audit (n=15 files) & Feedback
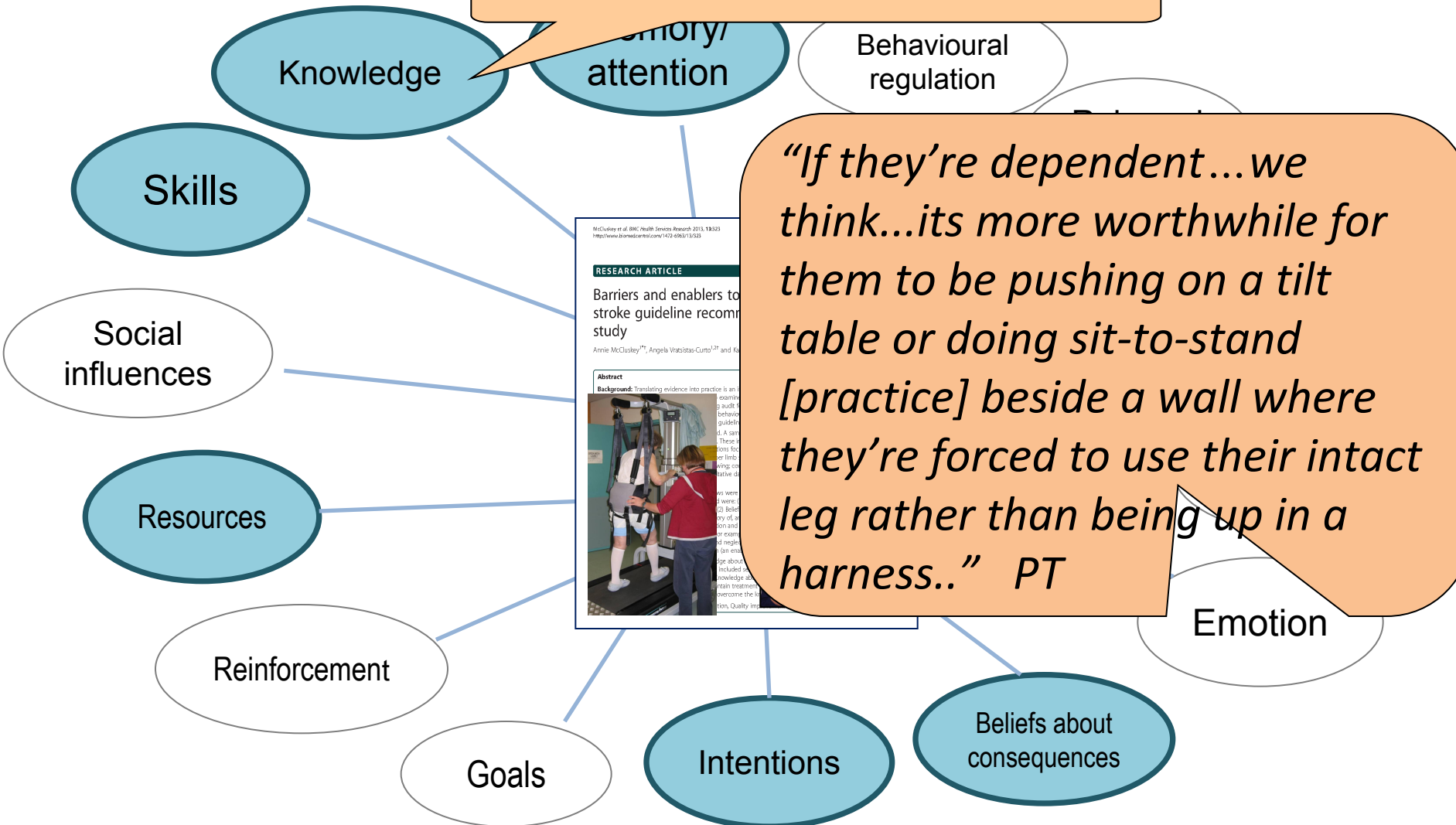


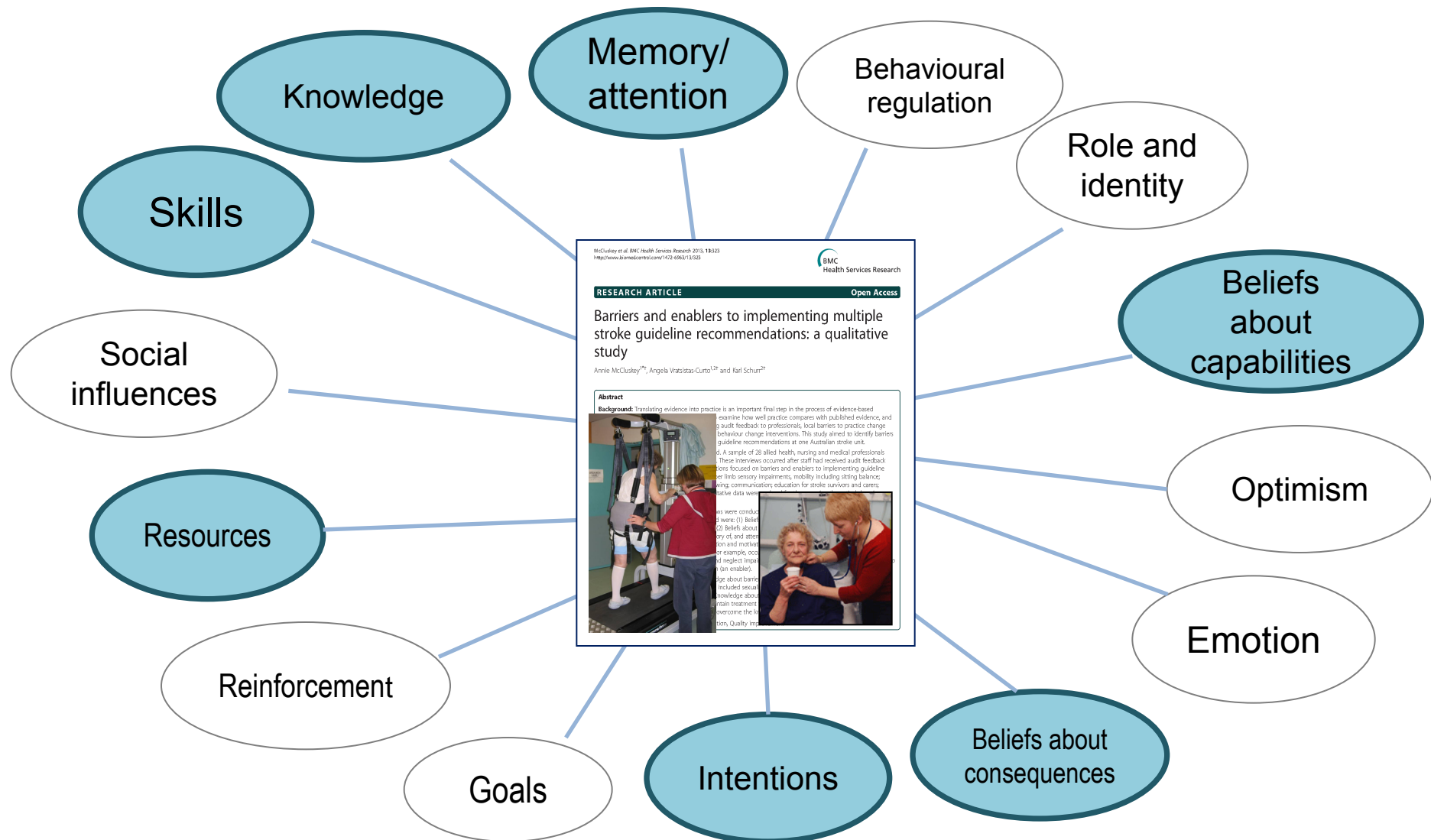2. Interviews Barriers/Enablers



(n=28 staff)



3. Behaviour change interventions

# Improving stroke domains



"I really don't much know much neglect (training) .....I wouldn't know what to do…"   OT

"If they're dependent…we think...its more worthwhile for them to be pushing on a tilt table or doing sit-to-stand [practice] beside a wall where they're forced to use their intact leg rather than being up in a harness.."   PT

Knowledge

Memory/ attention

Behavioural regulation

Skills

Social influences

Resources

Reinforcement

Goals

Intentions

Beliefs about consequences

Emotion

# Improving stroke inpatient care: 7 Domains



Knowledge

Memory/attention

Behavioural regulation

Role and identity

Skills

Social influences

Beliefs about capabilities

Resources

Optimism

Reinforcement

Emotion

Goals

Intentions

Beliefs about consequences

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RESEARCH ARTICLE                    Open Access

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Annie McCluskey, Angela Vratsistas-Curto and Karl Schurr

Abstract

Background: Translating evidence into practice is an important final step in the process of evidence-based

# Study 2: Aims

- To increase the proportion of community stroke survivors receiving best practice intervention targetting community participation

- To identify barriers and enablers to implementing one guideline recommendation
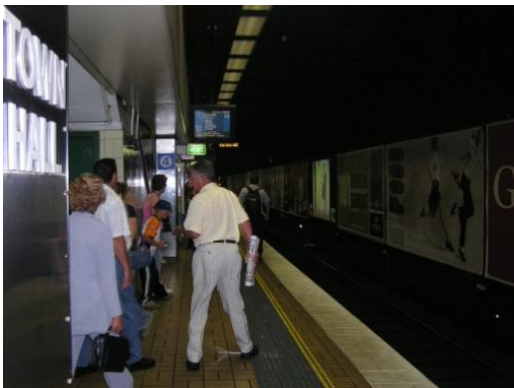
# Stroke guideline recommendation 6.4

| 6.4 Activities of daily living (ADL) | Grade |
|---|---|
| d) People faced with difficulties in community transport and mobility should set individualised goals and undertake tailored strategies such as multiple (i.e. up to seven) escorted outdoor journeys (which may include practice crossing roads, visits to local shops, bus or train travel), help to resume driving, aids and equipment, and written information about local transport options/alternatives. | B [604] |

Study 2: Improving stroke outpatient care: The process of Implementation

1. Audit (n=20 files) & Feedback

2. Interviews Barriers/Enablers

(n=13 staff)

3. Behaviour change interventions

# Determinants of Implementation Behaviour Q (DIBQ)

**Table 2 Final questionnaire**

| Domains | Constructs | Items | Source |
|---|---|---|---|
| D1 Knowledge | Knowledge (1) | I know how to deliver [PA intervention] following the guidelines. | Adapted from Amemori *et al.* [37] |
| | Role clarity (3) | Objectives of [PA intervention] and my role in this are clearly defined for me. | Adapted from Wännström [66] |
| | | With regard to [PA intervention], I know what my responsibilities are. | |
| | | In my work with [PA intervention], I know exactly what is expected from me. | |
| D2 Skills | Skills (3) | I have been trained in delivering [PA intervention] following the guidelines. | New items |
| | | I have the skills to deliver [PA intervention] following the guidelines. | |
| | | I am practiced to deliver [PA intervention] following the guidelines. | |
| D3 Social/professional role and identity | Professional role (3) | Delivering [PA intervention] following the guidelines is part of my work as a PT. | New items |
| | | As a PT, it is my job to deliver [PA intervention] following the guidelines. | |
| | | It is my responsibility as a PT to deliver [PA intervention] following the guidelines. | |
| D4 Beliefs about capabilities | Self-efficacy (4) | I am confident that I can deliver [PA intervention] following the guidelines. | Adapted from Content based on Huijg, van der Zouwe *et al.* [43] and Huijg, Gebhardt *et al.* [13] |
| | | I am confident that I can deliver [PA intervention] following the guidelines even when other professionals with whom I deliver [PA intervention] do not do this. | |
| | | I am confident that I can deliver [PA intervention] following the guidelines even when there is little time. | |
| | | I am confident that I can deliver [PA intervention] following the guidelines even when participants are not motivated. | |
| | Perceived behavioral control (7) | I have control over delivering [PA intervention] following the guidelines. | Adapted from Ajzen [41] |

| D8 | Environmental context and resources | Characteristics of the innovation (6) | 45. | It is possible to tailor [PA intervention] to participants' needs |
|---|---|---|---|---|
| | | | 46. | It is possible to tailor [PA intervention] to professionals' needs |
| | | | 47. | [PA intervention] costs little time to deliver |
| | | | 48. | [PA intervention] is compatible with daily practice |
| | | | 49. | [PA intervention] is simple to deliver |
| | | | 50. | [PA intervention] has advantages compared to standard care |
| | | Characteristics of the socio-political context (4) | 51. | Government and local authorities provide sufficient support to interventions such as [PA intervention] |
| | | | 52. | Insurance companies provide sufficient support to interventions such as [PA intervention] |
| | | | 53. | PHC is sufficiently oriented towards prevention |
| | | | 54. | There is a good collaboration between professionals who deliver [PA intervention] |
| | | Characteristics of the organization (4) | 55. | In the organization I work, are sufficient potential participants of [PA intervention] present |
| | | | 56. | In the organization I work, is enough time to deliver [PA intervention] |
| | | | 57. | In the organization I work, all necessary resources are available to deliver [PA intervention] |
| | | | 58. | In the organization I work, there is a good collaboration between professionals who deliver [PA intervention] |
| | | Characteristics of the [PA intervention] participants (3) | 59. | I know participants of [PA intervention] personally |
| | | | 60. | Participants of [PA intervention] are motivated |
| | | | 61. | Participants of [PA intervention] are positive about [PA intervention] |
| | | Characteristics of the innovation strategy (7) | 62. | [Implementing organization] provides professionals with a training to deliver [PA intervention] |
| | | | 63. | [Implementing organization] provides the possibility to experience delivering [PA intervention] before professionals need to commit to it |
| | | | 64. | [Implementing organization] provides sufficient intervention materials |
| | | | 65. | [Implementing organization] provides assistance to professionals with delivering [PA intervention] |

# Key Messages

- TDF recently amended to include 18 domains *(Huijg et al 2014)*

  - DIBQ: Determinants of Implementation Behaviour Questionnaire *(Huijg et al 2014)*

- TDF and DIBQ useful for:

  - Designing surveys and interview schedules

  - Analysing qualitative data

  - Matching behaviour change interventions to known barriers

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