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Nursing, Midwifery and Allied Health Professions Research Unit

Improving health through research — Chief Scientist Office

Achieving clinically relevant evidence synthesis: Involvement of patients, carers and clinicians in a Cochrane systematic review leads to development and use of a new taxonomy of physiotherapy treatment approaches for stroke

Background

- Cochrane systematic review are widely recognised as providing the best quality evidence in relation to healthcare conditions. However, there is an emerging literature which points to limited success in routinely transferring systematic review evidence into clinical practice.
- Studies have suggested that systematic reviews should 'emphasise the usefulness of research and clinical practice' (Wallace et al, 2012). One approach to overcoming many of these barriers is to actively involve people with a health care condition (Boote 2012).
- Physiotherapy treatment approaches are generally inadequately defined and lack universal international acceptance. In order to achieve a useful synthesis of evidence within a Cochrane systematic review of physiotherapy approaches for stroke, clear and clinically relevant descriptions of treatment approaches must be developed.

Objectives

- We aimed to engage key stakeholders in a Cochrane systematic review update (Pollock et al 2007) of physiotherapy treatment approaches for patients with stroke, in order to ensure clinical relevance of the completed review.
- Specific aims were to:
  i. ensure that the method of categorising physiotherapy treatment approaches within the review was clinically relevant, and
  ii. determine how evidence from international trials should be incorporated within the review.
- Using an iterative process, these aims led to the development of a new method of categorising and classifying physiotherapy treatment approaches.

Methods

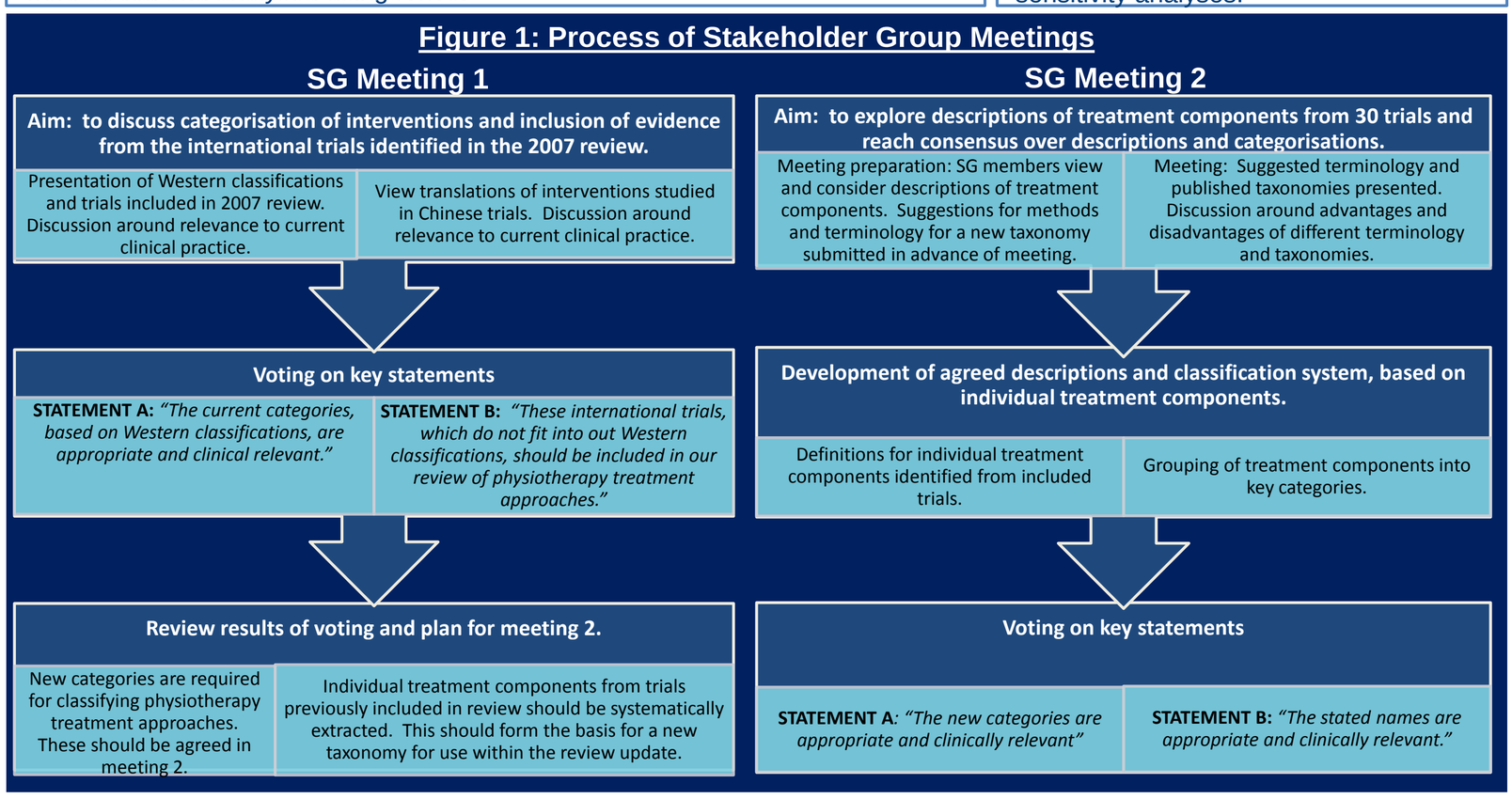
Stakeholder Group Meetings

- A stakeholder group (SG), comprising 13 purposively selected stroke survivors/carers, physiotherapists and educators was convened. Physiotherapists were selected to ensure a variety of grades, years of experience, post-graduate courses (e.g. Bobath course) and geographical work base (across Scotland).
- Two SG meetings were held, each with a clearly identified aim, and structured to enable effective discussion and voting on a number of key statements (Figure 1).
- Nominal group techniques were used to reach consensus on review aims and methods, focusing on clinical relevance.
- The proportion agreeing with each statement was determined. Consensus decision meetings were audio-recorded and transcribed verbatim. Qualitative data were coded and analysed using Nvivo.

Incorporation into Cochrane systematic review

- Two independent reviewers coded the individual treatment components, based on the description of the intervention, for each included trial. Any disagreements were resolved through discussion involving a 3rd reviewer.
- The categories were used to structure sub-group analyses and the treatment components were explored using sensitivity analyses.

Figure 1: Process of Stakeholder Group Meetings



Results

SG Meeting 1

- 84% of group members **disagreed** with statement A, that 'the current categories [based on western approaches] are appropriate and clinically relevant'.
- 100% **agreed** with statement B, that 'these international trials [which do not fit into the categories of western approaches] should be included in our review of physiotherapy treatment approaches' .
- Two key themes were identified from qualitative data: (1) current intervention categories should be amended to enable inclusion of all international evidence and (2) there are limitations with current physiotherapy taxonomies and concerns surrounding the relevance to clinical practice in the UK.

SG Meeting 2

- Twenty-seven individual treatment components were identified and grouped into 7 categories (Table 1).
- The categories were informed by the taxonomy described by DeJong 2004.
- 100% **agreed** with statement A and with statement B, that the categories and names were appropriate and clinically relevant.

Use of taxonomy within review

The updated review included 96 trials, with 122 active interventions:

- 101/122 active interventions included Functional Task Training (FTT) treatment components; 20/101 included only FTT components, and 81/101 combined FTT with one or more other category.
- 17/122 interventions included Neurophysiological (NP) treatment components; 12/17 included only NP and 5/17 combined NP with musculoskeletal or modalities.
- 4/122 interventions included MI (active) , MI (passive) components and/or modalities.

Meta-analyses grouped interventions according to category of treatment components.

CATEGORY	Treatment component	Description of individual treatment component
Assistive devices	Walking aids	Devices to assist walking, including sticks and frames
	Orthoses for walking	Externally applied orthoses to assist walking, including AFO, knee braces
	Resting splints	Externally applied orthoses to maintain or improve limb alignment
CI[1]	Aerobic/fitness/endurance training	Activities to improve cardiopulmonary fitness
Functional task training	ADL training	Practice of tasks relevant to daily life, including both part and whole task practice
	Sitting &/or standing balance training	Various activities performed sitting &/or standing with the aim of improving the ability to balance safely and independently
	Sit-to-stand practice	Practice of tasks aimed at improving ability to stand up and sit down safely and independently
	Transfer practice	Practice of tasks aimed at improving ability to move from one position to another
	Walking	Practice of tasks aimed at improving ambulation
	Stair climbing	Practice of tasks aimed at ability to go up and down stairs
	Upper limb function training	Practice of tasks aimed at improving the ability to move and use the arm, such as reach, grasp, and hand-to-mouth activities
	Described as "MRP" (MRP – Motor Relearning Programme)	Described as MRP
Modality	Acupuncture	As an adjunct, delivered for either pain relief or movement therapy
	Physical agents (including hot, cold, TENS)	As an adjunct, delivered for either pain relief or movement therapy
MI[2] (active)	Muscle strengthening	Practice of activities to progressively increase the ability to generate muscle force, including using body weight and external resistance
	Active & active-assisted movement	Moving a limb through its range of movement, under the patient's active control with or without assistance
Musculoskeletal intervention (passive)	Increasing angle of upright sitting	A form of positioning, to promote early sitting
	Tilt table	To promote early lower limb loading
	Passive movement	Moving a limb through it's range of movement, whilst the patient is passive
	Body & limb positioning	placing a limb or body part in a supported position, to maintain optimal alignment
	Massage	Manipulation of soft tissue, using the hands or a tool designed for the purpose
Neurophysiological intervention	Hands on facilitation of ('normal') movement (Bobath)	Intervention which is described as facilitation of movement, referenced to Bobath or Davies
	Inhibition of abnormal muscle tone / normalising tone (Bobath)	Intervention which is described as inhibition of abnormal muscle tone or as normalising muscle tone, referenced to Bobath or Davies
	Described as "Bobath"	Described as Bobath
	Trunk mobilisations / postural reactions (Bobath)	Intervention which is described as trunk mobilisations or postural reactions to perturbations, referenced to Bobath or Davies
	Proprioceptive Neuromuscular facilitation(PNF)	Described as PNF
	Sensorimotor facilitation	The use of excitatory techniques, such as brushing, striking, tapping, icing, to improve sensory awareness and promote muscle activity

Table 1: Categories, treatment components & associated definitions.

KEY: [1] CI – Cardiovascular Intervention; [2] MI – Musculoskeletal Intervention

Discussion & Conclusions

User-involvement in this review update:

- influenced decisions around the classifications of interventions within the review, and ensured relevance and accessibility of the output.
- lead to development of a new taxonomy of physiotherapy treatment approaches, enabling synthesis and analysis of evidence in a clinically meaningful manner, with potential for translation into clinical practice.
- considerably removed potential biases from the process of reaching conclusions from this review, ensuring that the conclusions reflect the views of expert clinicians, stroke survivors and carers, rather than the potentially-biased viewpoints of researchers and academics.
- led to development of summaries of evidence which are:

"well laid out, easy to read and the messages and evidence is very clear" (physiotherapist)

User-involvement in Cochrane systematic reviews:

- is feasible; valued; and can significantly impact on review structure and methods.
- is perceived to increase the clinical relevance of evidence synthesised within a review.

Limitations: This taxonomy has been developed specifically for synthesis of interventions described within clinical trials. The relevance to routine practice within clinical settings has not been explored. Further research is required to determine the reliability and validity of these components and categories. There were only 13 SG members, and all were from Scotland; acceptance of this taxonomy has not been explored with wider populations.

Conclusions: This review benefited from user-involvement. We recommend similar models of user-involvement within other Cochrane reviews and evidence syntheses.

References

Boote J, Baird W, Sutton A. Involving the public in systematic reviews: a narrative review of organizational approaches and eight case examples. J Comp Eff Res 2012; 5:409-20.

DeJong G, Horn S, Gassaway J, Slavin M, Dijkers M. Toward a taxonomy of rehabilitation interventions: using an inductive approach to examine the 'Black Box' of rehabilitation. Archives of Physical Medicine and Rehabilitation 2004;85:678-86.

Pollock A, Baer G, Pomeroy VM, Langhorne P. Physiotherapy treatment approaches for the recovery of postural control and lower limb function following stroke. Cochrane Database of Systematic Reviews 2007, Issue 1.

Wallace J, Nwosu B, Clarke M. Barriers to the uptake of evidence from systematic reviews and meta- analyses: a systematic review of decision makers' perceptions. BMJ Open 2012;2:e001220.

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