tings. Each group produced over 200 initial statements, which were reduced to sets of 98 and 97 for sorting by the local and international group respectively. The final map produced by the local group contained 12 conceptual clusters and the international group produced a map with 15 clusters. There was substantial similarity in the content of the two maps and following thematic analysis and synthesis of the maps, an overall conceptual framework of six primary domains was established. These domains were: Bio-clinical, therapeutic relationship, individual patient aspects, emotions, social and work. Each domain (except emotions) contains a number of secondary, and in some instances tertiary domains.

Conclusion(s): The resultant framework has a clear emphasis on the biological and assessment elements of the biopsychosocial approach. It also includes a far wider range of social constructs than are currently incorporated into routine clinical practice. Although psychological aspects of the approach are represented less distinctly than in the literature to date, they inform much of the therapeutic relationship domain.

Implications: This study provides a robust and comprehensive conceptualisation of the biopsychosocial approach towards the treatment of people with MSK pain. This framework offers great potential to physiotherapists as well as other clinicians and researchers wishing to develop, deliver and evaluate biopsychosocial clinical practice.

Keywords: Biopsychosocial approach; Conceptual framework; Concept mapping

Funding acknowledgements: Kirsty Duncan (Keele University ACORN Fund and CSP ILF); Nadine Foster and Annette Bishop (NIHR Research Professorship for NE Foster-NIHR-RP-011-015).

Ethics approval: Ethical approval for this study was granted by Keele University's Ethical Review Panel on the 19th September 2012.

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THE REDEVELOPMENT OF THE PAIN ATTITUDES AND BELIEFS SCALE: A MEASURE OF HEALTHCARE PRACTITIONERS' ATTITUDES AND BELIEFS ABOUT MUSCULOSKELETAL PAIN

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Background: The attitudes and beliefs that healthcare practitioners (HCPs) hold about musculoskeletal (MSK) pain influence their clinical behaviour. The Pain Attitudes and Beliefs Scale (PABS) is the most widely used and tested measure of HCPs' attitudes and beliefs. However, while the PABS biomedical orientation subscale is robust, the biopsychosocial subscale has proven inadequate.

Purpose: Development and initial psychometric testing of a new biopsychosocial subscale for the PABS and development of a generic MSK version of the scale.

Methods: A two-staged, nationwide postal survey of UK-based physiotherapists, chiropractors and general practitioners ($n = 1993$) was conducted to test a pool of 45 new candidate biopsychosocial scale items alongside the existing biomedical ($n = 10$) and biopsychosocial ($n = 9$) PABS items. The new biopsychosocial items were previously developed using concept mapping methodology to provide a new conceptual framework for the biopsychosocial clinical orientation.

In stage one, structural validity and internal consistency of the new and existing PABS items were tested using exploratory and confirmatory factor analysis (EFA, CFA). For the biopsychosocial items, the data were split into two datasets for EFA and CFA. CFA of the biomedical scale items was performed on the full dataset.

EFA was conducted with principal axis factoring and direct oblimin rotation. The performance and substantive meaning of a number of forced factor solutions were examined and a new biopsychosocial scale proposed. CFA was conducted with maximum likelihood estimation and model fit assessed against a battery of fit indices.

In stage two, a retest survey of 150 respondents from stage one was used to investigate the test-retest reliability, standard error of measurement (SEM) and smallest detectable change (SDC) of the new biopsychosocial and existing biomedical scales.

Results: Baseline responses were received from 671 participants (46% of physiotherapists, 49% of chiropractors, 20% of GPs) of which 587 were valid for analysis (350 used in EFA, 237 in CFA). Response rate for the retest survey was 77% ($n = 116$). A 10-item, single factor solution was found to be the most statistically robust and theoretically coherent representation of the biopsychosocial items, with explained variance of 34.2% and Cronbach's alpha of 0.83.

The single factor models proposed for both the new biopsychosocial and existing biomedical scales were confirmed, and although minor modifications were required, all fit indices reached acceptability for both scales ($df < 2$, $SRMR < 0.8$, $CFI > 0.95$).

The new biopsychosocial and existing biomedical scale were both reliable with ICCs (2,1) of 0.77 and 0.74, respectively. The new biopsychosocial scale demonstrated a $SEM_{agreement}$ of 3.63 and SDC_{ind} of 5.28. For the existing biomedical scale these parameters were 2.30 and 4.20, respectively.

Conclusion(s): The structure and performance of a generic version of the existing PABS biomedical scale has been upheld. The new biopsychosocial scale shows

promising structural validity and test-retest reliability. This redeveloped measure has been named the Pain Attitudes and Beliefs profile (PAB-p).

Implications: Although further validation and testing of the new PAB-p is required, the thorough scale development methods used provide a promising start to the redevelopment of the PABS and a means of profiling HCPs' biomedical and biopsychosocial orientation to MSK pain.

Keywords: Healthcare practitioner; Attitudes; Measurement

Funding acknowledgements: Kirsty Duncan (Keele University ACORN Fund); Nadine Foster and Annette Bishop (NIHR Research Professorship for NE Foster - NIHR-RP-011-015).

Ethics approval: Ethical approval for this survey was granted by Keele University's Ethical Review Panel on 09.10.13 and NHS Assurance on 06.11.13.

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Exhibit halls 401–403

CULTURE-NEUTRAL INSTRUCTIONAL MATERIAL DESIGN FOR GLOBAL REHABILITATION PROJECTS

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Background: Global educational materials are often designed from the perspective of the educator and intended for a specific audience in one country. Content, format, activities and examples designed from an ethnocentric perspective may not be suitable for global audiences or applicable to different environments. There is a need to present a framework for culture-neutral instructional material design.

Purpose: To describe the framework and process used to redesign materials developed by multiple authors for use in a rehabilitation technician training program in Haiti. The redesign was intended to create a culture-neutral product that was easy to read and translate. The goal was to deliver essential material while decreasing educational cognitive load by removing complex or country specific language, content and examples.

Methods: Initial materials were compiled with varied formats and levels of detail by multiple curriculum experts or volunteers teaching in a rehabilitation technician training curriculum in Haiti. The first phase of the redesign included an analysis of the learners, tasks and goals. The initial educational training materials were reviewed by two content experts for each area to determine:

1) critical objectives and content,
2) level of difficulty and content consistent with rehabilitation technician scope of practice and
3) language suitable for translation and a low reading level.

In the second phase, content was reorganized to improve readability, provide generic rather than culture specific examples and activities, and remove culture specific language. During phase three, materials were further reviewed for consistency, followed by formatting and editing. Changes were confirmed with reviewers. Material was shared using a learning resource website to allow reviewers to view all materials and changes.

Results: Content was distilled from 11 separate courses to 5 Modules. Questions used to guide review included:

(1) Does the content meet benchmarks of universally accepted content?
(2) Is the level of content appropriate for the learners?
(3) Is the order of the content appropriate? and
(4) Are the activities clear, relevant and feasible?

Extensive time was spent on determining critical objectives and flow across the modules to decrease duplication and ensure consistency. Guidelines for review and revision for a culture-neutral product included exclusion of abbreviations, culture specific graphics, technical jargon, complex explanations, and local names and examples. Common functional activities were included. Concise presentation using visual organizational structures replaced prose to decrease cognitive load.

Conclusion(s): Global culture-neutral design can be used to facilitate translation and share resources across multiple countries and cultures. Key factors for culture-neutral design are elimination of local examples, simplification and consistency of language, no use of abbreviations, and use of a clear simplified format. Key redesign processes include a system for reviewers to view all documents and changes, clear guidelines, and multiple levels of review. Challenges included agreement on level of content for providers at a technician level in countries without established rehabilitation education systems.

Implications: The use of a culture-neutral design or redesign framework may facilitate translation and provide educational materials which are potentially useful for other countries for global rehabilitation education projects.

Keywords: Educational materials; Global design; Culture-neutral design