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Towards evidence-based physiotherapy – research challenges and needs

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The evidence-based practice (EBP) movement has gained ground steadily in physiotherapy over the past decade. Influential researchers and clinicians have argued that physiotherapists have a moral and professional obligation to move away from assessment and treatment methods based on anecdotal testimonies or opinion (Grimmer-Somers 2007). However, the growing volume of high-quality clinical research makes it difficult for clinicians to keep pace with the latest evidence. Simultaneously, the practice of physiotherapy has become increasingly complex due to changes in health care systems that entail higher demands on physiotherapists to provide effective and efficient management of patients amidst high patient turnover.

Research on implementation of EBP in physiotherapy has established many barriers to developing a more evidence-based physiotherapy practice. Most frequently identified barriers include factors such as time restrictions, limited access to research, poor confidence in skills to identify and critically appraise research, and inadequate support from colleagues, managers and other health professionals (Jette et al 2003, Iles & Davidson 2006, Grimmer-Somers et al 2007). Limited research in some areas of physiotherapy also constitutes an obstacle to practising evidence-based physiotherapy (Fruth et al 2010).

Some authors express the influences on EBP in physiotherapy as facilitators rather than barriers. For example, Bridges et al (2007) identified several personal characteristics that may facilitate EBP: self-directed learning, a postgraduate degree, a belief that research (particularly in a digested format such as clinical guidelines) can be used in everyday clinical decision-making without interfering with productivity and an efficient patient flow, and nonconformity, ie, not being afraid to diverge from traditional or common practice if newer research reveals more effective methods. Salbach et al (2011) identified online access to research summaries and systematic reviews as a potentially important facilitator because this can save time to search and critically evaluate research articles.

Studies on barriers and facilitators for EBP are potentially useful for designing and implementing interventions to change these factors and increase the extent to which EBP is implemented. However, this research has certain challenges and limitations. Surveys of EBP barriers and facilitators have assessed the individual importance of a number of factors. However, there might be synergistic effects such that two seemingly minor barriers constitute an important obstacle to EBP if they interact. It is also plausible that changes in specific barriers affect other barriers, suggesting that there are no simple cause-and-effect relationships between individual factors and the extent to which EBP is implemented. Rather, it is reasonable to assume that many factors are associated and interrelated in various ways that are not always predictable (or measurable by means

of surveys). Studying various barriers and facilitators to EBP in isolation makes research more manageable, but it may hinder in-depth understanding of how evidence-based physiotherapy can be increased.

Another issue is whether *all* relevant barriers are examined in the barrier studies. Most studies have used quantitative designs, being based on survey questionnaires. These questionnaires usually consist of a number of barriers (such as 'the research is not reported clearly and readably' and 'the amount of research information is overwhelming') which the respondents are requested to rank on a Likert scale (eg, Iles and Davidson 2006, Grimmer-Somers et al 2007) or in terms of selecting 'your 3 greatest barriers to the use of EBP in your clinical practice' (eg, Jette et al 2003). The studies also incorporate questions regarding attitudes to EBP (eg, 'EBP is an essential component of physiotherapy practice'), skills/self-efficacy in practising EBP (eg, 'I do not feel capable of evaluating the quality of the research') and knowledge of EBP-related terms. Although these studies have covered many aspects of EBP, they probably do not encompass all potentially inhibiting factors. Surveying the perceived importance of a finite set of pre-determined barriers can yield insights into the relative importance of these particular barriers, but may fail to identify factors that independently affect EBP outcomes.

Further, there is the issue of whether the barriers that have been identified by physiotherapists are the *actual* barriers. An important question is whether these barriers actually have been encountered and experienced by the physiotherapists or whether they are only perceived to exist, ie, being more hypothetical barriers. Unfortunately, it is not always made clear in the survey questions of these studies whether barriers have been 'personally experienced'. Perceived importance of particular factors may not necessarily correspond with actual importance.

The application of EBP in physiotherapy has been found to be associated with modifiable individual factors such as attitudes, skills, knowledge, higher levels of education and more post-graduate training; modifiable organisational factors such as access to evidence and managerial support; and non-modifiable factors such as younger age and less time in the profession. However, these factors have been established in cross-sectional research which precludes causal inferences concerning the mechanisms by which EBP can be achieved.

Several types of implementation interventions or strategies exist for promoting the transfer of research findings into clinical practice. These have been classified by the Cochrane Effective Practice and Organisation of Care (EPOC) group into interventions oriented towards health professionals, financial interventions, organisational interventions, and regulatory interventions (Mowatt et al 2001). In physiotherapy, research is limited on the

effectiveness of implementation interventions for increased EBP. One randomised controlled trial examined the effects of an evidence-based education package using local opinion leaders (Stevenson et al 2006). A before-after study examined the effects of presentations of EBP-relevant information (such as effective interventions for patients with breast cancer) (Fruth et al 2010). Both interventions had very modest impact on the physiotherapists' clinical practice. This finding is largely consistent with research on educational measures across different health care settings and professions. Overall, effects of most educational programs to change clinical behaviour tend to be small, but there are indications that interactive and personal education (eg, small-scale meetings and outreach visits) is more effective than passive education (eg, written material and large-scale meetings) (Wensing and Grol 2005).

Clinical guidelines represent another approach to transferring research findings into clinical practice. Efforts to synthesise the evidence for interventions to facilitate guideline implementation in physiotherapy have yielded two systematic reviews (Van der Wees et al 2008, Menon et al 2009). The reviews, which both included the same two randomised controlled trials of guideline implementation strategies, concluded that active, multifaceted strategies were superior to passive strategies for improving knowledge and changing behaviour, but they had no significant effect on patient health or costs of care. However, there is tentative evidence from two observational studies that guideline adherence can improve patient health outcomes and reduce costs (Fritz et al 2007, Rutten et al 2010). These findings are consistent with research in other health care contexts and professions. A recent meta-analysis on the implementation of clinical guidelines in various health care settings indicated that effective strategies often have multiple components (Francke et al 2008). Similar conclusions were drawn in another recent 'review of systematic reviews', ie, multifaceted interventions were more likely to improve practice than single interventions, with effect sizes ranging from small to moderate (Boaz et al 2011).

Despite the fact that barriers to EBP are likely to be present at multiple levels, Walker et al (2003) have estimated that '80% of existing interventions used in implementation research focus on the individual practitioner'. Yano (2008) argues that implementation research has 'failed to fully recognize or adequately address the influence and importance of health care organisational factors.'

Mixed results of implementation interventions have also been attributed to a limited theoretical basis for these interventions. To address this shortcoming, theory-based interventions have increasingly been advocated by implementation researchers. Such interventions are typically linked to one or more specific social-cognitive theories (eg, the Theory of Interpersonal Behaviour, the Theory of Planned Behaviour, or the Social Cognitive Theory) and derive relevant factors from such theories. Interventions based on theories potentially allow for the identification of the 'active ingredients' of interventions and may thus contribute to better understanding of the mechanisms by which interventions cause behaviour change. However, 'there is a bewildering range of theories from which to choose,' as noted by ICEBeRG (2006). Davies et al (2010) identified 25 different theories used in various interventions to achieve clinical guideline implementation and concluded

that justification of choice of intervention was generally poor. Personal preferences of the researchers rather than evidence often seemed to guide the choice of theory.

Ultimately, there are no magic bullets to achieve more widespread implementation of EBP in physiotherapy. However, we believe EBP research must expand beyond its current parameters and address several issues to achieve improved understanding of how a more evidence-based physiotherapy practice can be attained. Qualitative studies are necessary to explore further barriers and facilitators than those identified in surveys and to provide more in-depth understanding of EBP problems and solutions. Studies of barriers must be complemented with studies of facilitating conditions for EBP implementation. There is also a need to broaden the current focus on individually-oriented educational measures and clinical guidelines. More experimental research is needed to establish the effects of interventions to increase EBP. Intervention studies need to be conducted with more rigorous designs and they need to go beyond measuring only process outcomes. Manipulation of various barriers and facilitators in intervention groups for comparison with control groups would strengthen the evidence by potentially showing that certain factors do indeed influence EBP outcomes. Experimental research can also contribute to improved understanding of the causal mechanisms by which EBP is attained, ie, opening the black box of EBP in physiotherapy.

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