

Rehabilitation Research Review™

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Issue 25 – 2013

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Abbreviations used in this issue

CRPS = complex regional pain syndrome
HRQoL = health-related quality-of-life
LBP = low back pain
PCS = postconcussion symptoms
TBI = traumatic brain injury



Welcome to the twenty-fifth issue of Rehabilitation Research Review.

Three recently published papers in a special issue of Archives of Physical Medicine and Rehabilitation caught my eye because they share a common theme: the process of research and its impact on participants, clinicians, researchers and indeed society. They cover the significance of social validity in participatory research, how to enhance 'research friendliness/mindfulness' of clinical services and the ethical dimensions of knowledge creation, use, and dissemination.

Other topics covered in this issue include an evaluation of child predictors of persistent post-concussion symptoms following mild traumatic brain injury, neurocognitive function in chronic pain, and an evidence-based review of the effectiveness of cognitive rehabilitation in medical conditions known to cause cognitive deficits.

I hope you find the papers in this issue useful in your practice and I welcome your comments and feedback.

Kind regards,

Kath McPherson

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Predictors of child post-concussion symptoms at 6 and 18 months following mild traumatic brain injury

Authors: Olsson KA et al

Summary: This study explored potential pre- and post-injury parent and child predictors of persistent post-concussion symptoms (PCS) following a mild traumatic brain injury (mTBI) in 150 children with mTBI and their parents. Parents completed measures of their own distress and children's PCS and health-related quality-of-life (HRQoL) at baseline (reflecting pre-injury function) and again at 6 and 18 months post-injury. Measures of children's distress and cognitive function were also recorded at 6 and 18 months post-injury. At 6 months post-injury, children's PCS were predicted by both pre-injury parent distress and children's pre-injury PCS. At 18 months post-injury, children's PCS were predicted by higher levels of parent distress and child PCS at 6 months post-injury, as well as poorer post-injury cognitive functioning. Change in PCS between 6–18 months post-injury was predicted by parent's pre-injury anxiety and children's HRQoL.

Comment: What a useful and interesting paper. Most people working in brain injury are well aware that whilst our models to predict outcome are perhaps of acceptable discriminatory power when it comes to death versus survival, beyond that, they remain relatively weak – particularly in mild TBI. I was interested in this work for a few reasons, because it further justifies a focus on pre-injury function in our predictive models (and not just of the injured person but the family/whanau). I'm not sure what the implications for categorisation of severity are, but mild/moderate/severe is a pretty blunt descriptive instrument that I can't help but think we have put up with for too long. We are also looking at this in the BIONIC study so ... watch this space.

Reference: *Brain Inj* 2013;27(2):145-57

<http://informahealthcare.com/doi/abs/10.3109/02699052.2012.729286>



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Participatory action research designs in applied disability and rehabilitation science: protecting against threats to social validity

Authors: Seekins T, White GW

Summary: This paper stresses the important role that consumer involvement plays in the scientific process of research and that a primary scientific function of consumer involvement is to reduce threats to the social validity of research (i.e., the extent to which those expected to use or benefit from research products judge them as useful and actually use them). The paper describes threats to social validity and explains how several forms of consumer involvement protect against those threats. It also suggests procedures for reporting and reviewing consumer involvement in proposals and manuscripts.

Comment: Some of you may look at this issue of RRR and wonder if I have taken out shares in the Archives of Physical Medicine and Rehabilitation, given that I have selected three papers from its January special issue or supplement. I promise I have no such conflict of interest – what can you do – the papers in this special issue are all interesting! This paper is one that leapt out at me for very good reasons. Firstly, it acknowledges that much health research fails to produce results that have meaning to the communities it is intending to serve (that is both patients/whānau and clinicians). Secondly, this paper offers some really useful pointers on what researchers can do and proposes a framework to facilitate 'socially valid' findings. More of that please.

Reference: Arch Phys Med Rehabil 2013;94(1 Suppl):S20-9
[http://www.archives-pmr.org/article/S0003-9993\(12\)00925-2/abstract](http://www.archives-pmr.org/article/S0003-9993(12)00925-2/abstract)

Instilling a research culture in an applied clinical setting

Authors: Jones ML et al

Summary: This paper highlights the importance of evidence-based practice, whereby clinical practitioners ideally have a working knowledge and understanding of scientific methods. However, the paper acknowledges that various challenges conspire against an environment that supports clinical research, such as time constraints, lack of formal training in research methods or mentoring, funding, and the complexity of traditional research methods making them unsuitable for use in a clinical setting. The article proposes a set of recommendations designed to build a research culture in a clinical setting that is not part of a traditional academic setting (e.g., a teaching hospital). First, by providing opportunities for practitioners to participate in research activities, organisations will benefit from attracting and retaining clinicians constantly seeking to improve their practice. Second, a research culture will enable clinicians to develop and demonstrate improvements in clinical practice. Third, a culture that values research will allow access to innovative treatments, which as a result will enhance the organisation's reputation and lead to increased patient admissions and clinical revenues. The paper concludes with suggested methods for judging the success of these efforts.

Comment: Whilst Seekins and White's paper emphasises what researchers might do differently to produce more socially valid results in participatory research (ostensibly client-driven research), Jones et al. describe a set of mechanisms that might enhance 'research friendliness/mindfulness' of clinical services. The day-to-day demands of clinical practice can make people feel too pressed and too short of time to indulge in being active research consumers, far less be a researcher themselves. After all – that is one reason for RRR! However – I also see a real interest amongst some services I work with to better evaluate what they are doing and make 'evidence-based' choices. There are a number of suggestions in here that might be worth considering (and you will be getting the point now that I think everyone should visit their library to read this special issue!).

Reference: Arch Phys Med Rehabil 2013;94(1 Suppl):S49-54
[http://www.archives-pmr.org/article/S0003-9993\(12\)00933-1/abstract](http://www.archives-pmr.org/article/S0003-9993(12)00933-1/abstract)

Ethical perspectives on knowledge translation in rehabilitation

Authors: Banja JD, Eisen A

Summary: These researchers highlight the ethical challenges involved in knowledge creation, use, and transfer as knowledge translation in rehabilitation research. They emphasise three ethical dimensions of knowledge translation: (1) the quality of knowledge disseminated to rehabilitationists; (2) ethical challenges in being too easily persuaded by or unreasonably resistant to putative knowledge; and (3) organisational barriers to knowledge translation. The paper recommends how to ensure ethical soundness of knowledge translation in rehabilitation.

Comment: OK – last paper in the special issue is by a name that may well be familiar to you – John Banja has written about ethics in rehabilitation over many years. He emphasises that as practitioners we are *always* on the giving or receiving end of knowledge translation. The question is not therefore whether we are doing it – but whether we are doing it well. It's a good question for researchers and clinicians alike.

Reference: Arch Phys Med Rehabil 2013;94(1 Suppl):S55-60
[http://www.archives-pmr.org/article/S0003-9993\(12\)00926-4/abstract](http://www.archives-pmr.org/article/S0003-9993(12)00926-4/abstract)

Clinicians' actions associated with the successful patient care process: a content analysis of interviews with paediatric occupational therapists

Authors: Kolehmainen N et al

Summary: These UK researchers undertook a quantitative content analysis of 47 interview transcripts describing outcomes and therapists' (n=25) self-reported actions in 25 "successful" and 22 "unsuccessful" care processes in one community healthcare setting, children's occupational therapy. The successful processes were those with positive outcomes (clear and coherent process with easy discharge; achieved patient goals and positive patient-clinician relationships). Content analysis identified the following key actions that were associated with successful processes: gathering perspectives from others at assessment; identifying therapy goals; agreeing upon and communicating plans, roles and responsibilities; involving the child and parents in treatment; adapting the physical environment and making comparisons between the baseline, current and target levels when reviewing progress.

Comment: I really like it when research facilitates something like this – reflection on *what we are doing* that works and *what we are doing* that doesn't. Of course, this paper only tells us what the therapists 'thought' were the key components of success-enhancing process, but the fact that the stories were elicited in relation to specific cases with either good or bad outcomes makes it feel pretty relevant to me. More and more, our team is interested in examining ways to help clinicians achieve what it is they want to achieve (good outcomes). If you like – intervening with health professionals rather than always intervening with patients! This paper outlines a first step – provide a mechanism by which we formalise reflection on practice, and learn from what has gone well and not so well.

Reference: Disabil Rehabil 2013;35(5):388-96
<http://informahealthcare.com/doi/abs/10.3109/09638288.2012.694960>



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Neglect-like symptoms in complex regional pain syndrome: Learned nonuse by another name?

Authors: Punt TD et al

Summary: These researchers discuss the use of the term 'neglect-like' to characterise symptoms in patients with complex regional pain syndrome (CRPS). They note that while the term has encouraged explorations into spatial perception in affected patients and appeals for further research, the following factors should be taken into account in any future research: firstly, studies that have relied on standard clinical tests typically used to identify spatial neglect after stroke have not confirmed the existence of a related deficit in CRPS. The article points out that the extent of any deficit in spatial perception after CRPS is not comparable with that seen commonly after stroke. Secondly, although the clinical observations that first gave rise to the term 'neglect-like' with regard to CRPS were dominated by observations relating to movement rather than to perceptual difficulties, these motor aspects of behaviour have received scant attention in experimental studies. This paper considers the primary observation of 'motor underuse' in CRPS.

Comment: I had a PhD student who looked at this issue (Jenny Lewis) so my eyes pricked up when I saw this paper. It's a useful review of a problematic topic and particularly useful because they propose a mechanism by which this intriguing (and very disabling) phenomena might develop. I am increasingly interested in papers such as this, because they make you think and question as well as provide clarity on a direction for empirical testing. Advancing theory in rehabilitation is (to me) just as valuable as advancing data-driven knowledge (even if the word 'theory' is a tad scary for some. :)

Reference: *Pain* 2013;154(2):200-3

[http://www.painjournalonline.com/article/S0304-3959\(12\)00619-7/abstract](http://www.painjournalonline.com/article/S0304-3959(12)00619-7/abstract)

The extent of neurocognitive dysfunction in a multidisciplinary pain centre population. Is there a relation between reported and tested neuropsychological functioning?

Authors: Landrø NI et al

Summary: This Norwegian investigation into cognitive complaints in patients with chronic non-malignant pain syndromes reports a significant association with objective test performance in the area of inhibitory control. Around 20% of the patients performed below cut-off for clinically significant impairment on tests of basic neurocognitive functioning. Even more patients with generalised and neuropathic pain performed below this cut-off, whereas patients with localised pain exhibited impaired function to a lesser degree. Chronic pain patients receiving opioids did not perform worse than patients off opioid treatment.

Comment: This paper reminded me of the years gone by when people with subarachnoid haemorrhage were not thought to be at risk of cognitive impairment because ... it was not routinely assessed. I shall not comment here on whether formal assessment of all pain patients is required or not (although my hunch is we don't have enough psychologists!). However – an immediate implication that we should all question concerns how we support knowledge transfer to these patients (i.e., information and education – remember Banja's comments regarding the ethics of knowledge exchange?).

Reference: *Pain* (published online 11 February 2013). Article in Press

<http://tinyurl.com/a6cj77u>

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Does self-assessed physical capacity predict development of low back pain among health care workers? A 2-year follow-up study

Authors: Rasmussen CD et al

Summary: To examine whether self-assessed physical capacity can predict low back pain (LBP), pain-free female health care workers were surveyed about physical capacity in 2004 and days with LBP in 2005 and 2006. Of 1612 female health care workers without LBP in 2005, multiple logistic regression analysis revealed that nonchronic (1–30 days of the past 12 months) LBP in 2006 was predicted among those with low and medium physical capacity (OR 1.52 and OR 1.37, respectively) and persistent (>30 days of the past 12 months) LBP was highly likely among those with low physical capacity (OR 2.13), using health care workers with high physical capacity as the reference group.

Comment: Two take home messages for me here:

- 1) self-report questionnaires are sometimes thought to be 'soft' measures (and weak compared to observed measures), but they can be powerful indicators of risk.
- 2) being active reduces the risk of long-term problems and being inactive increases them. Not news, but our 'knowledge exchange' of this information has to date failed to work for many people!

Reference: *Spine (Phila Pa 1976)* 2013;38(3):272-6

<http://tinyurl.com/d9pagzw>

An evidence-based review of cognitive rehabilitation in medical conditions affecting cognitive function

Authors: Langenbahn DM et al

Summary: These researchers conducted an evidence-based review of cognitive rehabilitation in individuals with diagnosed medical conditions known to affect cognitive function, to classify level of evidence and to generate recommendations for interventions in this area. Of 211 articles selected from an initial abstract review, a total of 34 underwent a full review and classification of a level of evidence based on previously published peer-reviewed methodology used for evidence-based reviews: there was 1 class I study, 6 class II studies, 2 class III studies and 25 class IV studies. Two clinical practice recommendations received support, 1 each in the diagnostic areas of brain neoplasms and epilepsy/seizure disorders.

Comment: I was incredulous that this review found so few high-quality papers (although I guess I should have expected it as stroke and TBI were excluded, given the comprehensive reviews by Keith Cicerone and some of these authors in those populations). Regardless of how many people we stop falling off the proverbial cliff of neurological illness and disability, some will indeed fall and we should have better evidence to support quality interventions and services for them. Too political? I don't think so.

Reference: *Arch Phys Med Rehabil* 2013;94(2):271-86

[http://www.archives-pmr.org/article/S0003-9993\(12\)00931-8/abstract](http://www.archives-pmr.org/article/S0003-9993(12)00931-8/abstract)

CLASSIC PAPER

Primary caregivers' psychological status and family functioning after traumatic brain injury

Authors: Kreutzer JS et al

Summary: These researchers assessed the psychological status and family functioning of 62 primary caregivers of adult outpatients with TBI, at a median 16 months after injury. Thirty-four of the caregivers were parents and 28 were spouses. Caregiving functioning was measured with the Brief Symptom Inventory (BSI) and the Family Assessment Device (FAD). Scores on the BSI General Stress Index indicated increased levels of distress among approximately half of the caregivers. One-third of the respondents had higher scores on the Anxiety scale and one-fourth had higher scores on the Depression subscale. There was evidence of feelings of burden and alienation, as reflected by elevated scores on the Paranoid Ideation and Psychoticism scales. Caregivers' FAD scores revealed greater levels of unhealthy functioning compared to published norms for non-patient and medical patient samples, but better functioning than psychiatric samples. Spouses were significantly more likely than parents to report elevated depression scores. Spouses also tended to report greater unhealthy family functioning than parents.

Comment: This is a seminal and much-quoted paper from a seminal researcher in the field – Jeff Kreutzer. It is particularly pertinent to mention this again now, because Jeff is a keynote speaker at the upcoming NZ rehabilitation conference <http://www.rehabconference2013.com/> on 8–10 March. Jeff has continued his work in the area of families for many years, moving from measuring the extent of the problem to developing solutions – more of that I hear you say!

Reference: *Brain Inj* 1994;8(3):197-210

<http://tinyurl.com/b2dzsa9>

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Independent commentary by Professor Kath McPherson,

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