Institution: University of Leeds

Unit of Assessment: UoA4

Title of case study: Case Study 4: Evidencing the effectiveness of psychological treatment for chronic pain

1. Summary of the impact

Chronic pain, defined as pain lasting for more than 6 months, affects more than 25% of adults in developed nations. Drugs are costly, carry risks of side effects and dependence, and are of limited effectiveness in many cases. **Morley,** at the University of Leeds (UoL), collaborated on a series of definitive reviews and meta-analyses proving that active psychological treatments based on cognitive behavioural therapy (CBT) are effective in treating chronic pain. This led to changes in UK government and world health organization (WHO) guidelines and the adoption of CBT at specialist pain clinics, reducing patient suffering, increasing social role functioning and ensuring more cost-effective treatment.

2. Underpinning research

Morley (Professor, Clinical Psychology) has been working on psychological treatments for pain at the UoL since 1984. Between 1996 and 2010, in collaboration with Dr. Williams at University College London (UCL) and Professor Eccleston at the University of Bath, **Morley** produced a body of work that proved the effectiveness of CBT as a treatment for chronic pain and provided the foundation for its widespread adoption in clinical settings.

CBT is a systematic psychotherapeutic approach that focuses on changing people's behaviour and emotional state. It was originally developed for the treatment of depression and anxiety and its application in pain therapy focuses on changing a wide range of behaviours, expectations and psychological problems that tend to exacerbate suffering.

In 1996, **Morley** started a collaboration with Williams and Eccleston looking at the effectiveness of psychological interventions in the treatment of chronic pain. In 1999, the three researchers, with **Morley** acting as lead author and performing the meta-analysis, published the first large scale synthesis of randomised controlled trials that evaluated CBT for pain relief, integrating the findings of 33 papers, including 25 clinical trials, on psychological treatments for chronic pain in adults. This provided the first comprehensive evidence of the effectiveness of CBT as a treatment for chronic pain **[1]** (729 cites) and provided supporting evidence for the widespread adoption of CBT in clinical practice.

In 2001, **Morley** et al. carried out a similar analysis of 123 papers, including 28 potential therapeutic trials, of CBT treatments of chronic pain in children, proving CBT's effectiveness in this younger age group **[2]** (132 cites). In 2005, they developed and reported a scale for assessing the quality of reports of randomised controlled trials (RCTs) for psychological treatments, providing a sound basis for future meta-analyses **[3]**. In 2008, **Morley** and Williams developed a practise-based study, which provided evidence for the effectiveness of CBT in routine clinical settings. This adopted a simple psychometric technology for evaluating reliable and clinically important changes at an individual level **[4].**

Finally, **Morley**, Eccleston and Williams, as leaders in their field, published a Cochrane review to disseminate their findings **[5]** (108 cites) and an update of their meta-analyses in children and adolescents, confirming and extending their earlier conclusions **[6]** (68 cites). In the papers cited above, **Morley**, Eccleston and Williams led the research (with Palermo, a senior academic in the US in reference **[6]**), with contributions from junior researchers (Yorke & Mastroy) and research students from the US (Lewandowski) and the UoL (Hussain & Yates).

3. References to the research

[1] Morley*, S., Eccleston, C., & Williams, A. (1999). Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache. *Pain, 80,* 1-13. doi: 10.1016/S0304-3959(98)00255-3

This paper was the first major meta-analysis of the available RCT data i.e. it did not include other studies, for psychological treatments for chronic pain and established their effectiveness.

[2] Eccleston, C., **Morley*, S.**, Williams, A., Yorke, L., & Mastroyannopoulou, K. (2002). Systematic review of randomised controlled trials of psychological therapy for chronic pain in children and adolescents, with a subset meta-analysis of pain relief. *Pain, 99,* 157-165. doi: 10.1016/S0304-3959(02)00072-6
This paper extended the range of **[1]** *with respect to the evidence for treatments of pain in young people.*

[3] Yates*, S.L., **Morley*, S.**, Eccleston, C., & Williams, A.C.D. (2005). A scale for rating the quality of psychological trials for pain. *Pain, 117,* 314-325. doi: 10.1016/j.pain.2005.06.018
This paper reported the development of a scale for assessing quality and bias in randomised control trials of psychological therapies for pain. It explicitly recognised that standard double blind methodology is not feasible in such trials.

[4] Morley*, S., Williams, A., & Hussain*, S. (2008). Estimating the clinical effectiveness of cognitive behavioural therapy in the clinic: Evaluation of a CBT informed pain management programme. *Pain, 137*, 670-680. doi: 10.1016/j.pain.2008.02.025
This paper used a simple methodology to illustrate the principles of evaluating real-world clinical data going beyond the simple statistical test of pre-treatment post-treatment mean differences previously reported in the literature.

[5] Eccleston, C., Williams, A.C.deC., & **Morley*, S.** (2009). Psychological therapies for the management of chronic pain (excluding headache) in adults. *Cochrane Database Of Systematic Reviews, 2009*(2), 1-102. doi: 10.1002/14651858.CD007407.pub2
This paper provided an update of **[1]** *using more stringent criteria including the application of the quality scale* **[3]***. Recently updated:*

Williams, A.C.deC., Eccleston, C., & **Morley*, S.** (2012). Psychological therapies for the management of chronic pain (excluding headache) in adults. *Cochrane Database Of Systematic Reviews, 2012*(11), 1-78. doi: 10.1002/14651858.CD007407.pub3

[6] Palermo, T.M., Eccleston, C., Lewandowski. A.S,, Williams, A.C.deC,, & **Morley*, S.** (2010). Randomized controlled trials of psychological therapies for management of chronic pain in children and adolescents: An updated meta-analytic review. *Pain, 148,* 387-397. doi: 10.1016/j.pain.2009.10.004
This paper replicated and extended the findings of **[2]** *also incorporating data on trial quality.*

Note: All UoA4 researchers in **bold**; *research conducted by academics at the UoL.

4. Details of the impact

Chronic pain is common, affecting up to 40% of the population in community samples (Croft, P. R., Blyth, F. M., & van de Windt, D. (Eds.) (2010). *Chronic Pain Epidemiology: From Aetiology to Public Health.* Oxford: Oxford University Press), and is caused by a wide range of medical conditions including back pain, fibromyalgia and chronic musculoskeletal pain. For 25% of the population chronic pain interferes with life and for 10% it is disabling (Croft et al. 2010). In the UK back pain is estimated to cost the NHS £1 billion per annum, with primary care management of patients with chronic pain accounting for 4.6 million appointments per year, equivalent to 793 whole time general practitioners (GPs), at a total cost of around £69 million (Phillips, C. J. (2009). The cost and burden of chronic pain. *Reviews in Pain, 3*(1), 2-4).

Morley et al.'s findings were disseminated to healthcare professionals and policymakers through a series of high-profile presentations, including plenary lectures at the The World Congress on Pain (IASP) 2010 Montreal, The British Pain Society (2009) and The Dutch Rehabilitation Society (2011), as well as numerous talks to national meetings. **Morley** conducted a refresher course at the IASP World Congress on Pain in 2008 and the Cochrane review **[5]** gave an authoritative overview of the efficacy of CBT to a wide clinical audience. **Morley** also engaged directly with

patients and the general public, as a member of the steering group for the production of the chronic pain section of the Database of Individual Patient Experiences database (DIPex:

http://www.healthtalkonline.org/chronichealthissues/Chronic_Pain), contributing to a PainConcern.co.uk podcast on the topic, and delivering a series of public outreach talks.

Impact on policy and practice

The underpinning research and this dissemination effort has played a key part in changing practice in the UK and internationally**. Morley's** research **[1, 2, 5]** has been specifically referenced in, and made a significant contribution to, health guidelines within the UK. Conclusions from these publications, which indicate that CBT is a beneficial form of treatment for chronic pain, have contributed to NICE (National Institute of Clinical Excellence; CG88, Low back pain **[A]**), SIGN (Scottish Intercollegiate Guidelines Network; SIGN106, Cancer Pain **[B]**), GAIN (NI Guidelines and Audit Implementation Network, palliative care) guidelines and Health Commission Wales directives as well as Royal College of Physicians' and Anaesthetists' guidelines. This work has also demonstrated substantial reach, influencing American National Institutes of Health (NIH) **[C]** guidelines on the non-pharmacological treatment of persisting pain and is the only work referenced in relation to CBT for a pain treatment guide published by the WHO **[D]**.

The British Pain Society is the largest multidisciplinary professional organisation in the field of pain within the UK, bringing together doctors, nurses, physiotherapists and other healthcare professionals. **Morley** and Eccleston were on the working party that produced its *Recommended Guidelines for Pain Management Programmes for Adults* **[E]**. The executive summary states:

> *"Pain management programmes (PMPs), based on cognitive behavioural principles, are the treatment of choice for people with persistent pain which adversely affects their quality of life."*

The second item referenced **Morley** et al.'s review in 1999 **[1]** in support of this central statement. Publications **[1]** and **[2]** were referenced throughout the 22-page document (8 times) in support of specific claims of effectiveness and recommendations about delivery **[E].**

Impact on outcomes for patients

Pete Moore is the author of the Pain Toolkit, a book and website (www.paintoolkit.org) aimed at helping people self-manage their pain using CBT principles. He suffers from chronic pain and describes the profound significance of chronic pain for the individual patient and the fact that programmes based on cognitive-behaviour therapy (CBT) have helped change his life **[F]**. He has played an important role in promoting this approach in the UK and internationally and from 2002 – 2011 worked for the UK Expert Patient Programme as a Senior Trainer. Since 2009 more than 200,000 copies of the Pain Toolkit have been printed and are in circulation in the UK, and it has been translated into German, French and Italian for use internationally. Moore describes **Morley** et al.'s work as critical to convincing professionals and patients to adopt the CBT approach:

> *"The scientific paper by Stephen **Morley**, Christopher Eccleston and Amanda Williams (1999) played an invaluable part in documenting the evidence for CBT"* **[F]**.

The widespread introduction of CBT (according to the 2009 National Pain Audit at least 108 pain clinics throughout the UK employ a psychologist) has improved pain management outcomes for patients. There is evidence that drug treatments have limited effectiveness. Success rates were above 50% for only four drugs in postoperative pain and one in migraine. Many conditions have painkiller failure rates of more than 70% **[G]**. The use of CBT alongside, or to replace, drug regimens as recommended by National guidelines described above **[A, B, C, D, E]** that draw on **Morley's** research **[1, 2, 5, 6]** has significantly improved clinical pain management and has the potential to significantly reduce opiate use and dependence (Naylor, M. R., Naud, S., Keefe, F. J., & Helzer, J. E. (2010). Therapeutic Interactive Voice Response (TIVR) to reduce analgesic medication use for chronic pain management. *The Journal of Pain*, *11*(12), 1410–9).

Morley's recent research **[H]** has created a tool with evidence-based benchmarks against which local services can evaluate their delivery of CBT for pain relief. Using data from routine clinical services, they then demonstrate that these benchmarks can indeed be used for local evaluation in order to improve services offered to patients.

Impact on the cost of health provision

Cognitive behavioural treatment of pain is cost effective. A 2010 trial of group CBT treatment of low-back pain in primary care in the UK showed a sustained effect of CBT on subacute and chronic low-back pain at a low cost to the health-care provider; the cost per quality-adjusted life year for a CBT intervention is half that of alternatives **[I]**. A subsequent systematic review found evidence supporting the cost-effectiveness of guideline-endorsed treatments of interdisciplinary rehabilitation, exercise, acupuncture, spinal manipulation and **CBT** for sub-acute or chronic LBP **[J]**. **Morley's** own work has shown that use of CBT improves social role performance, reduces distress **[1]**, and that the adoption of CBT in routine clinical care has a positive impact **[4]**.

5. Sources to corroborate the impact

[A] National Institute for Health and Clinical Excellence (NICE). (2009). *Low back pain: Early management of persistent non-specific low back pain: CG 88* (p. 170). Retrieved from

http://www.nice.org.uk/nicemedia/live/11887/44334/44334.pdf

[B] Scottish Intercollegiate Guidelines Network (SIGN). (2008). *Control of pain in adults with cancer. A national clinical guideline* (p. 8). Retrieved from http://www.sign.ac.uk/pdf/SIGN106.pdf

[C] Medline Plus (US National Library of Medicine and the National Institutes for Health Service). (2011). *Cognitive behavioral therapy for back pain* and *Pain and your emotions.* Retrieved from http://www.nlm.nih.gov/medlineplus/ency/patientinstructions/000415.htm and http://www.nlm.nih.gov/medlineplus/ency/patientinstructions/000417.htm

[D] World Health Organisation. (2012). WHO guidelines on the pharmacological treatment of persisting pain in children with medical illnesses (p. 122). Retrieved from

http://whqlibdoc.who.int/publications/2012/9789241548120_Guidelines.pdf

[E] British Pain Society. (2007- Current). Recommended guidelines for Pain Management Programmes for adults: A consensus statement prepared on behalf of the British Pain Society (pp. 1, 3, 5, 9, 10, 24). Retrieved from

http://www.britishpainsociety.org/book_pmp_main.pdf

[F] Testimonial from the founder of the Pain Toolkit website (www.paintoolkit.org); a site that offers self-help support, advice and information for those with chronic pain (11.06.13).

[G] Moore, A., Derry, S., Eccleston, C., & Kalso, E. (2013). Expect analgesic failure; pursue analgesic success. *British Medical Journal, 346*, f2690. doi: 10.1136/bmj.f2690

[H] Fenton, G., & **Morley, S.** (2013). A tale of two RCTs: using randomized controlled trials to benchmark routine clinical (psychological) treatments for chronic pain. *Pain 154*(10), 2108-19. doi: 10.1016/j.pain.2013.06.033

[I] Lamb, S. E., Hansen, Z., Lall, R., Castelnuovo, E., Withers, E. J., Nichols, V., Potter, R., & Underwood, M. R. (2010). Group cognitive behavioural treatment for low-back pain in primary care: a randomised controlled trial and cost-effectiveness analysis. *The Lancet, 375*(9718), 916-923. doi: 10.1016/S0140-6736(09)62164-4

[J] Lin, C.W., Haas, M., Maher, C., Machado, L. C., & Tulder, M. (2011). Cost-effectiveness of guideline-endorsed treatments for low back pain: a systematic review. *European Spine Journal, 20*(7), 1024-1038. doi: 10.1007/s00586-010-1676-3