

Institution: University of Southampton
Unit of Assessment: 04 Psychology, Psychiatry and Neurosciences
Title of case study: 04-05 Transforming Treatment for Balance Disorders: Booklet-Based Balance Retraining
<p>1. Summary of the impact</p> <p>A decade of research at the University of Southampton has given thousands of people around the world suffering from dizziness and balance disorders access to a self-management resource that can alleviate their symptoms. Professor Lucy Yardley has pioneered the use of a Balance Retraining (BR) booklet to transform the means of delivering cost-effective, life-changing treatment previously offered to less than one in ten UK patients. The booklet, translated into several languages, has been distributed to patients and practitioners as far afield as China and Japan. Yardley's findings have contributed the bulk of good quality evidence to the Cochrane Review on vestibular rehabilitation.</p>
<p>2. Underpinning research</p> <p>More than 10 per cent of working age people and 20 per cent of those aged over 60 suffer from dizziness that impedes their daily lives or interferes with courses of medication. Poor balance associated with chronic dizziness can increase the risk of falling - or fear of falling - in later life, leading to higher morbidity and healthcare costs. Peripheral vestibular disorder is the most common cause of dizziness in primary care, often accompanied by anxiety or depression. An exercise-based form of treatment known as 'vestibular rehabilitation' or 'balance retraining' (BR) is the most effective means of managing this condition, but only a small fraction of eligible dizzy patients ever receive BR since it is provided exclusively by therapists in specialist clinics. Lucy Yardley (Professor of Health Psychology at Southampton from 2002 – present) was the first person to design a booklet teaching patients how to carry out BR at home. The BR booklet teaches patients exercises (eye, head and body movements) which promote neurological adaptation leading to reduced symptoms and improved balance. These exercises can also help patients to overcome fear and avoidance of activities that elicit disorientation. The core research was a series of Southampton-based trials, led by Prof Yardley, of this self-management booklet.</p> <p>Having previously completed a trial in primary care demonstrating the efficacy of booklet-based BR [3.1], Yardley led a Southampton research team in the first of three further trials [Grant A]. The first study was the first trial of BR to meet CONSORT criteria, the first trial of self-management of vestibular imbalance, and the first trial of BR in primary care. 170 adults with chronic dizziness were randomized to the BR booklet and one nurse appointment or usual care. Primary outcomes (assessed at baseline, three and six months) were self-reported symptoms, quality of life, and objective measurement of postural stability. Improvement in the BR group was significantly greater than the usual care group on all primary outcome measures at both follow-ups; 67% treated patients reported clinically significant improvement, compared with 38% controls [3.2].</p> <p>Yardley then carried out a trial in 360 members of a self-help group for patients with severe dizziness (Meniere's disease), who were sent by post the BR booklet, a stress reduction booklet or no booklet [Grant B, 3.3]. Outcomes were again better for the BR booklet than the other groups, but the effect size of the booklet was smaller in this trial; this might be due to lack of support or the more severe symptoms of this sample. Consequently, Yardley led a third trial [Grant C]; in collaboration with a clinician (Barker), in 337 primary care patients, comparing the BR booklet with brief therapist support by telephone to the booklet alone or usual care. This was the first cost-effectiveness study of BR and the first to test the effectiveness of remote support. At one year, both intervention groups improved significantly relative to usual care and were both highly cost effective [3.4].</p> <p>This research led to related work by Yardley on promoting falls prevention exercises, carried out with Help the Aged, a large EC-funded network and the Department of Health (see related grants and papers). Yardley is now leading a trial using the internet to teach patients BR [Grant D].</p>

3. References to the research

Core papers:

- 3.1** Yardley, L. et al. (1998). A randomised controlled trial of exercise therapy for dizziness and vertigo in primary care. *British Journal of General Practice*, 48, 1136-1140. (cited 141 times on Google Scholar)
- 3.2** Yardley, L. et al. (2004). Effectiveness of nurse-delivered vestibular rehabilitation for chronic dizziness in primary care: a randomized controlled trial. *Annals of Internal Medicine*, 141, 598-605. (75 citations)
- 3.3** Yardley, L., & Kirby, S. (2006). Evaluation of booklet-based self-management of symptoms in Ménière's disease: a randomized controlled trial. *Psychosomatic Medicine*, 68, 762-769. (34 citations)
- 3.4** Yardley, L. et al. (2012). Clinical and cost-effectiveness of booklet-based vestibular rehabilitation for chronic dizziness in primary care: pragmatic randomised controlled trial. *British Medical Journal*, e2237. (too early for citations)

Selected related papers:

- 3.5** Yardley, L. & Smith, H. (2002) A prospective study of the relationship between feared consequences of falling and avoidance of activity in community-living older people. *The Gerontologist* 42, 17-23. (204 citations)
- 3.6** Yardley, L., et al. (2008). How likely are older people to take up different falls prevention activities? *Preventive Medicine*, 47, 554-558. (15 citations)

Core grants:

- A. Yardley, L., Walsh, B. & Smith, H. (2000-2003). A pragmatic randomised controlled trial of nurse-delivered vestibular rehabilitation for dizzy patients in primary care. NHS South East Research and Development Project Grant Scheme. £86,053 (+£13,375 NHS service costs).
- B. Yardley, L. & Bronstein, A. (2001-2004). A randomised controlled trial of the effectiveness of bibliotherapy delivered vestibular rehabilitation in Ménière's disease. *Ménière's Society*, £39,896.
- C. Barker, F., Yardley, L, Kirby, S., Raftery, J. (2008-2011). Evaluation of the cost-effectiveness of booklet-based self-management of dizziness in primary care, with and without expert telephone support. NIHR, £249,850.
- D. Yardley, L. et al. (2012-2015). Online Dizziness Intervention for Older Adults. Dunhill Medical Trust, £155,380.

Related grants:

- E. Lamb, S., Yardley, L. et al. (2010-2015). Prevention of falls trial: PreFIT. NIHR, £2,509,848.
- F. Kirby, S. & Yardley, L. (2007-8). Postdoctoral Fellowship: Building a research programme to help people cope with vestibular symptoms in Meniere's disease. *Meniere's Society*, £39,981.
- G. Todd, C. (P.I.) with workpackage leaders Becker, C., Close, J., Lamb, S., Yardley, L., Zijlstra, W. (2002-2007). Prevention of Falls Network in Europe. EC, £1,398,551.
- H. Todd, C., Yardley, L. & Ben-Shlomo, Y. (2005-6). Preventing falls amongst older people: socio-economic and ethnic factors. Department of Health, £190, 035.
- I. Yardley, L. & Todd, C. (2003-4). Understanding older people's views of falls prevention advice and testing ways to improve uptake of advice. Help the Aged, £30,000.

4. Details of the impact

Context of patient need and benefit

The population who could potentially benefit from this research is very large: in population studies up to 25% of adults report current dizziness and peripheral vestibular disorder is the most common cause of dizziness presenting in primary care. Currently, 80-90% dizzy patients are managed in primary care, and very few gain access to the treatment of choice, BR. Primary care staff do not usually have the specialist skills and experience to diagnose and treat vestibular disorders, and so most patients simply receive reassurance and medication for symptomatic relief (though no medication in current use has well-established curative or preventative value or is suitable for long-term use). Access to BR typically involves a costly and lengthy referral process to secondary care for assessment by a variety of specialties, often including imaging, and it can be difficult to locate suitably trained therapists to teach patients BR. In the first of Yardley's trials just 3% (5/170) of participants had previously been offered BR, despite a mean duration of dizziness of 8 years, yet two thirds of participants benefited from it in the trial.

Yardley's research at Southampton has offered thousands, potentially millions, of dizziness sufferers, not just in the UK but also across Europe and Asia, free access to previously inaccessible treatment at no extra cost to national health services. As the 2012 BMJ paper [3.4] concludes: *"At a minimum, simply providing a booklet that explains to patients how to self-manage their symptoms using vestibular rehabilitation exercises appears to have lasting benefits, without incurring any additional resource use relative to routine care."* One participant in Yardley's BMJ clinical trial said: *"Well, it's changed my life. I couldn't believe that such simple exercises could make such a difference to my balance, and the dizzy feeling, because I used to have them during the week, and I don't have them anymore. Having done the exercises, it doesn't happen. So you know, for me it's wonderful."*

How this research has been disseminated to the target population

A proactive campaign by Yardley to disseminate the BR booklet to a twin target audience of dizziness sufferers and clinical practitioners has increased the number of beneficiaries. The primary method of ensuring that this research impacts on clinicians has been to publish trial results in top international journals that are widely read by practising GPs, such as British Medical Journal (Impact Factor 14.09, ranked 6/155 general medical journals), as well as other journals and conferences for relevant practitioners. For example, Annals of Internal Medicine (Impact Factor 16.73) is ranked 4/155 among general medical journals; publication of the trial in this journal generated over 6,879 web hits during the first 3 months after publication. The success of this dissemination strategy can be gauged by several indices.

- The BMJ paper [3.4] was nominated by the BMJ editors as one of the three papers they proposed as keynote lectures for the WONCA (World Organisation of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians) Conference in Vienna, 2012. Since this presentation there have been requests from clinicians for permission to translate the booklet for use in France, Belgium, Austria, Germany, Switzerland, The Netherlands, Finland, Sweden, Romania, Turkey, Saudi Arabia, China and Japan.
- Following the 2012 BMJ publication, information about use of the BR booklet was disseminated to practitioners via numerous secondary routes, including websites e.g. NHS Choices [5.3], and providers of medical education to over 18,000 GPs [5.5, 5.6, 5.7].
- Copies of the BR booklet are supplied to patients and practitioners worldwide by the patient self-help group for people with dizziness, the Meniere's Society UK. The Meniere's Society [5.1, 5.2] has to date supplied around 17,000 printed booklets, around two-thirds to patients, and one third to practitioners. These figures are likely to greatly under-estimate the actual numbers of patients who have received booklets, as most clinicians request an electronic copy, which they can then duplicate freely. Patients have learned about the effectiveness of BR through coverage of Yardley's research in the media (e.g. Saga, Reader's Digest) and

request booklets directly and can also download the booklet from the Meniere's Society website (linked to the NHS Choices site).

- There are no NICE guidelines for management of dizziness, but this programme of research was the main source of high quality evidence for the Cochrane Review of vestibular rehabilitation [5.4] which noted: "*There is a growing and consistent body of evidence to support the use of vestibular rehabilitation for people with dizziness and functional loss as a result of UPVD (unilateral and peripheral disorders).*" Yardley also contributed expert evidence to the relevant Department of Health guidelines 'Provision of Adult Balance Services: A Good Practice Guide' (2009) [5.9].

5. Sources to corroborate the impact

5.1 The provision of BR booklets worldwide can be corroborated by the Director of Meniere's Society.

5.2 The booklet is advertised prominently on the front page of the Meniere's Society UK website <http://www.menieres.org.uk/>.

It is also made available in the US through the website of the leading patient self-help group, the Vestibular Disorders Association <http://vestibular.org/>.

The Dutch patient self-help group (Meniere's Committee of the Dutch Hard of Hearing Society) have also translated the booklet to supply to their members (this can be confirmed by Sandra Rutgers).

5.3 The booklet is advertised on the NHS Choices website on treatment for vertigo: <http://www.nhs.uk/Conditions/Vertigo/Pages/Treatment.aspx>

5.4 Yardley's trials are cited as high quality evidence in this Cochrane review: Hillier SL, McDonnell M. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. Cochrane Database of Systematic Reviews 2011, Issue 2. Art. No.: CD005397. DOI: 10.1002/14651858.CD005397.pub3. <http://summaries.cochrane.org/CD005397/vestibular-rehabilitation-for-unilateral-peripheral-vestibular-dysfunction-to-improve-dizziness-balance-and-mobility>

The following can provide corroboration of dissemination of the use of the BR booklet to thousands of GPs through continuing medical education:

5.5 The Head of Academic Centre for General Practice has translated the leaflet into Dutch and French and is making it available throughout Belgium through the Centre for Belgian Centre for Evidence-Based Medicine (of which he is President) <http://www.cebam.be/nl/Paginas/default.aspx>

5.6 Dr. Cave, GP of the Downland Practice summarised the research in his Autumn 2012 – Summer 2013 handbooks, which were disseminated to around 9000 GPs through the 'GP Update' network: <http://www.gp-update.co.uk/The-GP-Update-Handbook-Online>

5.7 The Medical Director of NB Medical Education has used the booklet for continuing professional education for around 9,000 GPs during the past year. www.nbmedical.com

5.8 Coverage on Saga website: <http://www.saga.co.uk/health/body/dizziness-treatment.aspx>

5.9 There is no NICE guidance for management of vestibular disorder, but Yardley was an advisor to the Department of Health publication 'Provision of Adult Balance Services: A Good Practice Guide' (2009), and her early research is cited in the report. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_093862