Results and recommendations following an in-depth case file review of 28 patient suicides in Cumbria


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**EVALUATION/QUALITY**

**A Case Controlled Study Investigating the Short-term Effectiveness of a Supervised Exercise and Education Programme for Non-Specific Low Back Pain (NSLBP)**

Iain Hedley Quinn & David M. Webster

**Abstract**

Non-Specific Low Back Pain (NSLBP) is a highly prevalent musculoskeletal disorder. Evidence based management guidelines have been published by the National Institute of Clinical Excellence (NICE 2009) for NSLBP. A case controlled study was completed to establish the effectiveness of a supervised group exercise and education programme in patients with NSLBP based on these guidelines. The results demonstrated a significant short-term impact of the six session intervention. Further research is required to determine the long-term effectiveness of this intervention for NSLBP.

**Keywords**

non-specific low back pain; back to fitness; back pain; exercise; education; Roland-Morris disability questionnaire

**Introduction**

Low back pain is a common disorder, affecting around one third of the United Kingdom adult population each year (National Institute of Clinical Excellence [NICE], 2009). As a result, around 20% of people with low back pain will consult their General Practitioner (GP) (Macfarlane et al., 2006). NSLBP is a highly prevalent clinical presentation identified through the assessment process in our Musculoskeletal Physiotherapy Outpatient Department in the Furness locality of Cumbria (Barrow-in-Furness, Dalton-in-Furness, Askam-in-Furness and Kirkby-in-Furness). NSLBP describes symptoms in the area between the 12th rib and buttock crease caused by no specific pathology (NICE, 2009). It is classified as lasting for more than six weeks but less than 12 months (NICE, 2009). Appropriate management has the potential to reduce the number of people with NSLBP and thus reduce its personal, social and economic impact (Maniadakis & Gray, 2000). It was decided to review the treatment options of care provided for NSLBP in accordance with the NICE (2009) guidelines.

NICE set the standards of high quality healthcare. The current NSLBP guidelines released by NICE (2009) advocate exercise and education as primary options for treatment. Therefore, the purpose of this study was to establish the effectiveness of a supervised group exercise and education programme in the management of NSLBP.

**Methods**

A case controlled study was completed from 1 October 2012 to 30 April 2013.
**Patients**
Specialist musculoskeletal physiotherapists assessed patients seeking treatment for low back pain referred by GPs. Patients with NSLBP should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals (NICE, 2009). Accordingly, informed consent was obtained from each patient.

To be eligible for inclusion, patients had to be 16 years old or over, present with a diagnosis of acute episode of NSLBP and able to attend up to six exercise group sessions. A diagnosis of NSLBP was defined as pain in the area between the 12th rib and buttock crease without leg pain. Patients were excluded if they had any of the following: nerve root compromise; ‘red flags’ for serious spinal pathology (for example, infection, fracture); spinal surgery in the past six months; pregnancy; severe cardiovascular or metabolic disease; or the inability to read and understand English. In addition, patients with significant psychosocial factors were also excluded due to the potential necessity of other intervention techniques. Significant psychosocial factors were assessed using The Distress and Risk Method (DRAM) (Main et al., 1992) with specific reference to threshold scores for somatic pain and depression. Excluded patients were subsequently seen individually in the musculoskeletal physiotherapy outpatient department.

**Intervention**
During the intervention patients were asked not to seek treatment for their NSLBP other than that provided in the case controlled series. However, patients on a course of analgesia or Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) were advised to continue with the use of this medication.

Treatment was provided by two practitioners, one specialist musculoskeletal physiotherapist and one exercise therapist in a gym environment. The supervised group exercise programme consisted of up to 10 patients attending on a weekly basis. A 10-minute warm-up was undertaken prior to an exercise circuit consisting of aerobic exercise, range of movement exercises and stretching exercises. Each patient completed the exercise circuit under the instruction of the physiotherapists. A total of 10 stations with exercises of three levels of difficulty were available. Each exercise in the circuit was of two minutes in duration. Patients were able to progress in each exercise every week as they felt able. A 10-minute cool-down followed the exercise circuit; this consisted of aerobic exercise, range of movement exercises and stretching exercises. In addition to the scheduled treatment sessions, patients were encouraged to perform prescribed exercises at home and to follow postural education and pain management advice.

An education session was integrated after the supervised group exercise programme. This consisted of weekly physiotherapist led discussion sessions regarding lumbar spine anatomy, pain management techniques, manual handling and ergonomics, and exercise guidance.

**Measures**
Rolland-Morris Disability Questionnaire (RMDQ) is a health status measure designed to be completed by patients to assess physical disability due to low back pain (Roland & Morris, 1983). Patients completing the RMDQ are asked to tick a statement if it applies to them that day. This approach was chosen to make it suitable for following short-term changes in low back pain.

The RMDQ has good psychometric properties as evidenced by internal consistency (Cronbach’s alpha coefficient: 0.93 [Hsieh, Phillips, Adams & Pope 1992], 0.90 [Kopec & Esdaile, 1995] and 0.84 [Jarvikoski, Mellin & Estlander 1995]) and responsiveness (Jordan, Dunn, Lewis & Croft 2006). An important element of a questionnaire’s responsiveness is the smallest effect that is clinically significant. Jordon et al. (2006) suggest that the smallest change likely to be clinically significant is 30% with the RMDQ.

The RMDQ was completed individually with each patient pre and post intervention. The physiotherapists were not blinded to the RMDQ during the assessment procedure.

**Results**
From 1 October 2012 to 30 April 2013, 26 patients were included in the study. Twenty-three completed the study.

Table 1 demonstrates the RMDQ scores. Twenty-three patients completed the class; the mean average number of sessions was five (range 3-6). The mean average RMDQ pre-intervention score was eight (range 3-18), mean average RMDQ post-intervention score was three (range 0-10), and the mean average RMDQ difference pre-post intervention was clinically significant (a RMDQ score of 5).

A clinically significant difference incorporates the measurement error of the RMDQ, and allows patients with different grades of severity to improve: 30% = clinically significant improvement (Jordan et al., 2006). Twenty-two patients showed clinically significant improvements in pain and disability with a mean average of 63% (range 0-100%).

**Discussion**
NICE Guidelines (NICE, 2009) highlight the necessity to self-manage persistent NSLBP. The purpose of this case controlled study was to establish the effectiveness of a supervised group exercise and
education programme in the management of NSLBP. The RMDQ was used to evaluate changes in pain and disability. The results demonstrate that a supervised group exercise and education programme is an effective intervention in management of NSLBP. Furthermore, significant improvements in pain and disability were achieved in up to six supervised sessions. The exercise programme has demonstrated clinical effectiveness. This can provide clinical assistance in regards to future exercise prescription for NSLBP. The management of NSLBP can be further complemented with an educational component. This may consist of lumbar spine anatomy, pain management techniques, manual handling and ergonomics, and exercise guidance.

Anomalies were identified in the results of the case controlled study. Three patients failed to complete the supervised group exercise. Initial RMDQ scores (3, 8 and 19) between the three patients indicated no correlation with pain and disability. No reason for non-attendance was established. One patient had no improvement in their RMDQ but reported a self-perceived improvement of 70% using a secondary outcome (Burgio, Goode, Richter, Locher & Roth 2006). This was attributed to psychosocial factors identified using the DRAM (Main et al., 1992) but they have been included in the results to demonstrate clinical reality in the case controlled study.

The case controlled study is predisposed to selection bias which limits the confidence in the results. Patients within our geographical locality had to travel and be available at a specific location and time to access the supervised group exercise programme. The therapist knowledge of treatment implemented can also influence the patient selection and management of patients. Blinding of the patients and physiotherapists did not occur in the assessment procedure which could potentially yield larger treatment effects. As a result, the methodology and thus the internal validity of the study, is not without potential bias. This should be acknowledged in the interpretation of the results and application to other patient groups.

Improved understanding of low back pain and its management are identified as key components of care by both patients and healthcare professionals. The case controlled study supports the current NICE Guidelines which advocate the frontline management of NSLBP with exercise and education. Detailed exercises and patient education have been integrated into a supervised group exercise and education programme which is effective in the management of NSLBP.

### Table 1: RMDQ scores pre- and post-intervention with RMDQ difference and percentage change

<table>
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<tr>
<th>Patient</th>
<th>RMDQ Score Pre- Intervention</th>
<th>RMDQ Score Post- Intervention</th>
<th>RMDQ Difference</th>
<th>RMDQ Change (%)</th>
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However, further research is required to determine the long-term effectiveness of a supervised exercise and education programme for NSLBP. Moreover, the written component to patient education was not investigated in the case controlled study and future studies would clarify the potential effectiveness of this adjunct.

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References


From research to practice: Adapting low intensity (LI) interventions for individuals with common mental health problems and a co-morbid physical health long-term condition (LTC)

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Abstract
People with a long term physical health condition (LTC) are two to three times more likely to experience a common mental health problem such as anxiety or depression. This pilot study investigated a collaborative care approach to delivering a low intensity psychological intervention to this population. Six Psychological Wellbeing Practitioners (PWP) received referrals for 161 people, of whom 81 people engaged in between two to seven sessions of guided self-help and achieved a recovery rate of 59%. A case study is presented to illustrate how the collaborative approach worked in practice. The study demonstrated that low intensity psychological intervention with additional practitioner training can be effective with this population.

Keywords:
collaborative care; Improving Access to Psychological Therapies (IAPT); guided self-help; Long Term Conditions (LTC)