



Centre for Clinical Effectiveness

Enhancing patient outcomes through clinical application of the best available evidence

**EVIDENCE CENTRE
CRITICAL APPRAISAL**
Series 2003: Therapy

Multidisciplinary care for chronic low back pain

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SUMMARY STATEMENT

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REQUEST

Do multidisciplinary pain management programs improve function and quality of life in patients who have chronic low back pain compared to single strategies?

REQUESTED BY

Dr Kwong Teo, Senior Medical Staff, Kingston Centre, Cheltenham.

METHODOLOGY

Search Strategy

The Centre for Clinical Effectiveness defines the 'best available evidence' as that research we can identify that is least susceptible to bias. We determine this according to pre-defined National Health and Medical Research Council (NHMRC, 2000) criteria (see Appendix 1).

First, we search for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised controlled trials. If we identify sound, relevant material of this type, the search stops. Otherwise, our search strategy broadens to include studies that are more prone to bias, less generalisable or have other methodological difficulties. We include case-control and longitudinal cohort studies in our critical appraisal reports. While we cite observational and case series studies, narrative reviews and consensus statements in our reports, we do not critically appraise them. Such studies can produce accurate results but they are generally too prone to bias to allow determination of their validity beyond their immediate setting.

Details of Evidence Request

Patients (Subjects): Chronic (>3 months) non-specific low back pain.

Intervention: Multidisciplinary pain management programs that include psychosocial therapy as one of the disciplines.

Comparisons: Single interventions.

Outcomes: Pain, function, QOL.

Search terms

(see Appendix 2 for exact search strategy)

Patient (Subject): Low back pain, back pain, lumbago, backache.

Intervention: Patient care team, multidisciplinary, interdisciplinary, multiprofessional, multimodal.

Resources Searched

We searched the following databases and internet websites. The search revealed a relevant systematic review (Guzman 2003). The search for this systematic review was conducted in June 1998, and therefore we performed a search from this date up until the present (September 2003).

| Resource | Issue or Access Date |
|---|--------------------------------|
| Australasian Medical Index (Informit) | September 2003 |
| CINAHL (OVID) | 1998 to September Week 4 2003 |
| The Cochrane Library (Online) | Issue 3, 2003 |
| Current Contents (OVID) | 1 st October 2003 |
| EBM Reviews (OVID): | |
| • Cochrane Database of Systematic Reviews | 3 rd Quarter, 2003 |
| • Database of Abstracts of Reviews of Effectiveness | 3 rd Quarter, 2003 |
| • Cochrane Controlled Trials Register | 3 rd Quarter, 2003 |
| MEDLINE (OVID) | 1998 to September Week 3, 2003 |
| National Guideline Clearinghouse | October 1 2003 |
| MEDLINE [®] In-Process (OVID) | October 1 2003 |
| PsycINFO (OVID) | September Week 5 2003 |

Refinements, Searching & Reporting Constraints

Inclusion and exclusion criteria were applied to the studies identified by the search strategy.

Inclusion criteria:

- Studies with patients complaining of non-specific low back pain of greater than three months duration
- The intervention must be multidisciplinary and include usual medical care combined with psychosocial therapy and/or allied professional care
- Outcomes measured in study participants must include pain, function or quality of life.

Exclusion criteria:

- Patients with specific causes of low back pain, eg infection, cancer, fracture
- Patients with pain at sites other than the low back pain and/or low back pain data not reported separately
- Narrative review
- Case study or case series.

Critical appraisal was performed on the subset of studies identified by the search that were published in English.

RESULTS

The search strategy identified 33 potentially relevant articles. The abstracts of these articles were reviewed to determine their relevance, and full text was ordered if the abstract did not reveal the article's relevance.

After examination of the 33 articles, the following were excluded as follows:

| Reason for exclusion | Number |
|--|-----------|
| Level IV evidence | 13 |
| Narrative review | 15 |
| Included patients with multiple complaints and low back pain data not presented separately | 3 |
| No relevant outcomes reported | 1 |
| Total | 32 |

One article then remained for appraisal. This study is classified as follows:

| Study Design | Number included |
|---|-----------------|
| Systematic reviews or meta-analyses | 1 |
| Evidence-based clinical practice guidelines | 0 |
| Randomised controlled trials | 0 |
| Total | 1 |

Based on our refinements, searching and reporting constraints, we are reasonably confident this article represents the most relevant findings published to date.

Brief summary of results of appraisal

One systematic review was identified that met the inclusion criteria. A search of subsequent literature from the date the search was conducted for this review (June 1998) did not locate any other high quality, relevant studies.

The systematic review included 10 trials with a total of 1964 patients with chronic LBP. The reviewers concluded there was strong evidence that intensive multidisciplinary bio-psycho-social rehabilitation (MBPSR) with a functional restoration approach improved function when compared with inpatient or outpatient non-multidisciplinary treatments. They also found there was moderate evidence that intensive MBPSR with a functional restoration approach improved pain when compared with outpatient non-multidisciplinary rehabilitation or usual care. They found few trials that reported effects on QOL.

The systematic review identified was of high quality with a clear objective, an appropriate search strategy and assessment of the quality of included studies. The weaknesses of the review related to the weakness of the literature identified. Significant clinical differences across trials did not allow for a pooling of the results of the individual studies. The reviewers recommended that more high quality research is required in this area, especially studies that evaluate cost-effectiveness of this intervention for chronic low back pain.

EVIDENCE SUMMARIES

Format

Evidence summaries are presented as spreadsheets attached to this report. Each spreadsheet contains the article citation, details of the study design, patient description, scientific validity of the article, results, and pertinent remarks from the authors and Centre for Clinical Effectiveness reviewer.

REFERENCES

ARTICLES CRITICALLY APPRAISED FOR THIS REPORT

Guzmán J, Esmail R, Karjalainen K, et al (2003). Multidisciplinary Bio-Psycho-Social Rehabilitation for Chronic Low Back Pain (Cochrane Review). In: The Cochrane Library, Issue 3, 2003. Oxford: Update Software.

ARTICLES NOT CRITICALLY APPRAISED

Descriptive Case Reports or Case Series (Level IV Evidence)

Aakvik A, Holmas TH & Kjerstad E (2003). A low-key social insurance reform-effects of multidisciplinary outpatient treatment for back pain patients in Norway. *Journal of Health Economics* 22(5): 747-62.

Robbins H, Gatchel RJ, Noe C, et al (2003). A prospective one-year outcome study of interdisciplinary chronic pain management: Compromising its efficacy by managed care policies. *Anesthesia and Analgesia* 97(1): 156-62.

Claiborne N, Vandeburgh H, Krause TM & Leung P (2002). Measuring quality of life changes in individuals with chronic low back conditions: A back education program evaluation. *Evaluation & Program Planning* 25(1): 61-70.

Fisher K & Hardie RJ (2002). Goal attainment scaling in evaluating a multidisciplinary pain management programme. *Clinical Rehabilitation* 16(8): 871-7.

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Taylor W, Simpson R, Gow D & McNaughton H (2001). Rehabilitation that works--vocational outcomes following rehabilitation for occupational musculoskeletal pain. *New Zealand Medical Journal* 114(1130): 185-7.

Coughlin AM, Badura AS, Fleischer TD & Guck TP (2000). Multidisciplinary treatment of chronic pain patients: Its efficacy in changing patient locus of control. *Archives of Physical Medicine and Rehabilitation* 81(6): 739-40.

Rogers WH, Wittink H, Wagner A, Cynn D & Carr DB (2000). Assessing individual outcomes during outpatient multidisciplinary chronic pain treatment by means of an augmented SF-36. *Pain Medicine* 1(1): 44-54.

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Casser HR, Riedel T, Schrembs C, Ingenhorst A & Kuhnau D (1999). New therapeutic strategy for chronifying back pain. The multimodal, interdisciplinary therapeutic program. *Orthopade* 28(11): 946-57.

Vendrig AA (1999). Prognostic factors and treatment-related changes associated with return to work in the multimodal treatment of chronic back pain. *Journal of Behavioral Medicine* 22(3): 217-32.

Becker N, Hojsted J, Sjogren P & Eriksen J (1998). Sociodemographic predictors of treatment outcome in chronic non-malignant pain patients. Do patients receiving or applying for Disability Pension benefit from multidisciplinary pain treatment? *Pain* 77(3): 279-87.

Narrative Review

Foster NE, Pincus T, Underwood M, et al (2003). Treatment and the process of care in musculoskeletal conditions - A multidisciplinary perspective and integration. *Orthopedic Clinics of North America* 34(2): 239-44.

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Low back pain data not presented separately

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- Jensen IB & Bodin L (1998). Multimodal cognitive-behavioural treatment for workers with chronic spinal pain: a matched cohort study with an 18-month follow-up. *Pain* 76(1-2): 35-44.

No relevant outcomes reported

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APPENDIX 1

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Levels Of Evidence

Based on "How to use the evidence: assessment and application of scientific evidence" (National Health & Medical Research Council, Canberra, 2000):

- | | |
|------------------|---|
| Level I | Evidence obtained from a systematic review (or meta-analysis) of all relevant randomised controlled trials. |
| Level II | Evidence obtained from at least one randomised controlled trial. |
| Level III | -1 Evidence obtained from pseudo-randomised controlled trials (alternate allocation or some other method). |
| | -2 Evidence obtained from comparative studies (including systematic reviews of such studies) with concurrent controls and allocation not randomised, cohort studies, case control studies or interrupted time series with a control group. |
| | -3 Evidence obtained from comparative studies with historical control, two or more single-arm studies or interrupted time series without a parallel control group. |
| Level IV | Evidence obtained from case series, either post-test or pretest/post-test. |

APPENDIX 2

Search strategy (only MEDLINE search is shown)

| | Search terms for MEDLINE |
|---|---|
| 1 | Low back pain/ |
| 2 | (Back pain or lumbago or backache or back ache).tw. |
| 3 | 1 or 2 |
| 4 | exp Patient care team/ |
| 5 | (Multidisciplinary or interdisciplinary or multiprofessional or multimodal).tw. |
| 6 | 4 or 5 |
| 7 | 3 and 6 |
| 8 | limit 7 to (english language and yr=1998-2003) |

| | |
|--|--|
| <p>Evidence Summary Systematic Review</p> <p>Multidisciplinary care for chronic low back pain</p> | <p>Review</p> <p>Guzmán J, Esmail R, Karjalainen K, et al (2003). Multidisciplinary Bio-Psycho-Social Rehabilitation for Chronic Low Back Pain (Cochrane Review). In: The Cochrane Library, Issue 3, 2003. Oxford: Update Software.</p> |
| <p>STUDY DESIGN</p> | <p>Level I Cochrane systematic review</p> |
| <p>DESCRIPTION: Patient (subjects), Interventions, Comparisons, Outcomes, Inclusion & Exclusion Criteria</p> | <p>Patients (Subjects): Adults (>18 years) with disabling back pain of > 3 months duration. Severe disability was considered present when the patient had been unable to work or conduct their regular activities of daily life during the previous 3 months. Intervention: MBPSR – consisting of a minimum of a physical therapy (pharmacological or exercise/physical therapy) and one of psychological or social/occupational therapy. Comparison: Non-MBSPR therapy. Outcomes: Pain, function, employment status, QOL or global improvement. Incl and Excl criteria: Pure educational interventions (back schools) and pure physical interventions were excluded.</p> |
| <p>VALIDITY: Methodology, rigour, selection, analysis</p> | <p>Focused question: To systematically assess the effect of MBPSR on clinically relevant outcomes in subjects with chronic LBP, based on available RCTs. Search strategy: Database search (MEDLINE, EMBASE, PsychLIT, CINAHL, Health STAR, The Cochrane Library), citation tracking and consultation with content experts up until June 1998. Assessed validity: Methodological quality was graded by two independent reviewers on a scale of 1 to 10. Consistent results: Significant clinical differences across trials. Appropriate analysis of results: Due to marked heterogeneity in study settings, interventions and control groups, the authors did not pool trial results in a meta-analysis. Instead they summarised findings by strength of evidence and nature of intervention and control treatments.</p> |
| <p>RESULTS: Generally favourable or unfavourable, specific outcomes of interest, estimate of experimental effect and precision if appropriate</p> | <p>Ten trials were included, with a total of 1964 patients with chronic LBP. Strong evidence that intensive MBPSR with a functional restoration approach improved function when compared with inpatient or outpatient non-multidisciplinary treatments. Moderate evidence that intensive MBPSR with a functional restoration approach improved pain when compared with outpatient non-multidisciplinary rehabilitation or usual care. There was contradictory evidence regarding vocational outcomes of intensive MBPSR. Less intensive outpatient psycho-physical treatments did not improve pain, function or vocational outcomes compared with non-multidisciplinary outpatient therapy or usual care. Few trials reported effects on QOL or global assessments.</p> |
| <p>AUTHORS COMMENTS: Limitations, implications for practice and research</p> | <p>Implications for practice: 'The reviewed studies provide evidence that intensive (>100 hours) MBPSR with a functional restoration approach produces greater improvements in pain and function for patients with disabling low back pain than non-multidisciplinary rehabilitation or usual care...Whether the improvements are worth the expense of these intensive programs is open for discussion.' Implications for research: 'There is room for improvement in the conduction and the reporting of trials testing MBPSR...Cost-benefit analyses of MBPSR are clearly needed.'</p> |
| <p>OUR COMMENTS: Opportunity for bias, weaknesses and strengths</p> | <p>Potential for bias: Low. This is a high quality systematic review. Weaknesses: Significant clinical differences across trials does not allow for a pooling of the results of the individual studies; few trials reported on QOL.</p> |

EXPLANATION OF TERMINOLOGY USED IN SPREADSHEET

Level of evidence: A hierarchy of study evidence that indicates the degree to which bias has been eliminated in the study design.

Intervention: A therapeutic procedure such as treatment with a pharmaceutical agent, surgery, a dietary supplement, a dietary change or psychotherapy.

Randomisation: A process of allocating participants to treatment or control group within a controlled trial by using a random mechanism, such as coin toss, random number table or computer-generated random numbers. Study subjects have an equal chance of being allocated to an intervention or control group; thus, the two groups are comparable. Randomisation ensures that the results are not biased by the selection of particular types of patients to receive a specific therapy.

Blinding: Blinding or masking is a process used in epidemiological studies and clinical trials in which the observers and the subjects have no knowledge as to which treatment groups subjects are assigned. It is undertaken in order to minimise bias occurring in patient response and outcome measurement.

All patients accounted for: Once patients are randomly allocated to a specific group and withdraw before study conclusion, they have to be accounted for in order to ensure that patients withdrawing from the study are not significantly different from those continuing in the study. The final analysis should be conducted on an intention-to-treat basis, which includes the results of withdrawn patients in the analysis.

Patients treated equally: To be able to attribute any difference in the observed outcome to the intervention, study patients need to be treated equally in every way except for the intervention being evaluated.

Similar groups: Baseline characteristics of patients that are also likely to affect results should be evenly distributed between the intervention and control groups. Following proper randomisation, patients' attributes would be expected to be equally distributed between groups.

Validity:

- **Of measurement:** an expression of the degree to which a measurement measures what it purports to measure; it includes construct and content validity.

- **Of study:** the degree to which the inferences drawn from the study are warranted when account is taken of the study methods, the representativeness of the study sample, and the nature of the population from which it is drawn (internal and external validity, applicability, generalisability).

Potential for bias: Bias is a systematic deviation of a measurement from the 'true' value leading to either an over (or under) estimation of the treatment effect. Bias can originate from many different sources (including allocation of patients, measurement, interpretation, publication and review of data).

Abbreviations used in this report

LBP – low back pain

QOL – quality of life

MBPSR - Multidisciplinary bio-psycho-social rehabilitation

RCT – randomised controlled trial