

Multidisciplinary Treatment of Chronic Low Back Pain: What do the Randomized Controlled Trials Tell Us?

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Abstract

The aim of this short communication was to highlight the evidence informed from randomized controlled trials on multidisciplinary rehabilitation of people with chronic low back pain (CLBP). From the reviewed randomized controlled trials, there is moderate evidence for efficacy of an individualized comprehensive multidisciplinary biopsychosocial rehabilitation program on people with CLBP. However the efficacy was provider-dependent and time-dependent, as demonstrated by lack of efficacy when treatments were delivered by non-trained professionals, and the length of the follow-up on change in outcome measures.

Keywords: Multidisciplinary Rehabilitation; Biopsychosocial Model; Chronic Low Back Pain; Orthopedic Rehabilitation.

The aim of this short communication was to highlight the evidence informed from randomized controlled trials on multidisciplinary rehabilitation of people with chronic low back pain (CLBP).

Abbasiet al [1] compared the efficacy of three interventions: a spouse-assisted coping skills training protocol for patients undergoing a multidisciplinary pain management programme (SA-MPMP), conventional patient-oriented multidisciplinary pain management programme (P-MPMP) and standard medical care (SMC) on 36 chronic low back pain (CLBP) patients and their spouses who were randomly assigned to one of the three conditions. The patients receiving SA-MPMP were found to report improvements in kinesiophobia and rumination about pain compared to those receiving P-MPMP and SMC.

Bendixet al [2] evaluated a Danish program of functional restoration combined with behavioral support in 106 CLBP patients who were randomly assigned to either a 3-week intensive treatment program (n = 55) or an untreated control group (n =

51). "29/45 of treated patients were able to work, compared with 14/49 in the control group. The treated patients had used fewer days of sick leave, had contacted health care professionals fewer times, and had lower pain and disability scores."

Dufouret al [3] compared the efficacies of 2 active therapies (multidisciplinary biopsychosocial rehabilitation program and an intensive individual therapist-assisted back muscle strengthening exercise program) for 286 patients with chronic low back pain (CLBP) who were randomized to either a group-based 12-week program comprising 73 hours of therapist exposure (approximately 12 h/patient): 35 hours of hard physical exercise, 22 hours of light exercise/occupational therapy, and 16 hours of education (group A) or a 12-week program comprising 1 hour of personal training twice a week, i.e., therapist exposure 24 h/patient (group B). Both groups improved in pain, disability, and most of the quality of life dimensions which were sustained at 24-month follow-up period. Roland-Morris disability questionnaire, and in the MOS 36-Item Short-Form

Health Survey the “physical functioning” dimension and the “physical component summary changes were more in the group-based multidisciplinary rehabilitation program.

Henchoz et al [4] assessed the cost-utility of an exercise programme vs usual care after functional multidisciplinary rehabilitation in 105 patients with chronic low back pain who completed a 3-week functional multidisciplinary rehabilitation. “Quality of life improved significantly at 1-year follow-up in both groups. Similarly, both groups significantly reduced total monthly costs over time. No significant difference was observed between groups. The incremental cost-effectiveness ratio was 79,270 euros.”

Roche-Leboucher et al [5] studied 132 CLBP patients and compared the effectiveness of a functional restoration program (FRP), including intensive physical training and a multidisciplinary approach, with an outpatient active physiotherapy program at 1-year follow-up.

Both groups, at 1-year follow-up, showed improvements in intensity of pain, flexibility, trunk muscle endurance, Dallas daily activities and work and leisure scores, and number of sick-leave days (lower in the FRP group).

Skouen et al [6] studied 195 CLBP patients to evaluate the outcome in terms of return to work and cost-effectiveness of a light multidisciplinary treatment program with an extensive multidisciplinary program and treatment as usual initiated by their general practitioner. “In men significantly better results for full return to work were found for the light multidisciplinary treatment compared with treatment as usual, but no differences were found between extensive multidisciplinary treatment and treatment as usual. No significant differences between any of the two multidisciplinary treatment programs and the controls were found for women. Productivity gains for the society from light multidisciplinary treatment versus “treatment as usual” of 57 male patients with low back pain would during the first 2 years accumulate to U.S. \$852,000.”

Spinhoven et al [7] studied 148 CLBP patients and examined the effects of cognitive-behavioral treatment on pain coping and cognition; and whether changes in pain coping and cognition during treatment mediate treatment outcome. 59 patients were attending a multidisciplinary treatment program consisting of operant-behavioral treatment plus cognitive coping skills training; 58 patients in group discussion and 31 patients as waiting list controls. “Patients improved with respect to level of

depression, pain behavior and activity tolerance at posttreatment and 12-month follow-up. Treatment also resulted in a short- and long-term decrease in catastrophizing and an enhancement of internal pain control. Changes in catastrophizing and to a lesser degree in internal pain control mediated the reduction in level of depression and pain behavior following treatment.”

Tavafian et al [8] examined the efficacies of a group-based multidisciplinary rehabilitation program and oral drug treatment versus oral drug treatment alone in 197 CLBP patients who were randomized to either intervention group (n=97) receiving a group-based, 5-session multidisciplinary rehabilitation program plus oral medication or to control group (n=100) receiving just oral medication. “There were significant differences within each group by time in terms of all subscales of 36-item Short-form except for mental health. Furthermore, there were significant differences between groups in terms of all domains of SF-36 scale except for general health, social function and role emotional. Furthermore, according to the scores of Ronald-Morris Disability Questionnaire and Quebec Disability Scale, the disability of patients in the intervention group was improved over time significantly.”

van der Hulst et al [9] determined the predictors of treatment outcome based upon a predefined multivariate prognostic model to explore the potential prognostic factors using the data of 163 patients from a randomized controlled trial on the effect of a multidisciplinary rehabilitation program for chronic low back pain compared with usual care. The confirmatory model predictors were pain intensity, work status, and Multidimensional Pain Inventory subgroup membership; and the exploratory model predictors included sick leave, compensation, depression, and fear-avoidance beliefs. “More pain, more depression and more fear avoidance beliefs were prognostic for more improvement in the rehabilitation group.

Vollenbroek-Hutten et al [10] investigated the effects of a multidisciplinary back school programme compared with usual care in 163 CLBP patients who were randomly assigned either to a multidisciplinary, physically oriented group treatment or to their usual care. The study found that only 30-50% of the patients in the RRP group showed improvement and this number was not significantly different from the control group.

From the reviewed randomized controlled trials, there is moderate evidence for efficacy of an individualized comprehensive multidisciplinary biopsychosocial rehabilitation program on people

with CLBP. However the efficacy was provider-dependent and time-dependent, as demonstrated by lack of efficacy when treatments were delivered by non-trained professionals, and the length of the follow-up on change in outcome measures.

References

1. Abbasi M, Dehghani M, Keefe FJ, Jafari H, Behtash H, Shams J. Spouse-assisted training in pain coping skills and the outcome of multidisciplinary pain management for chronic low back pain treatment: a 1-year randomized controlled trial. *Eur J Pain*. 2012; 16(7): 1033-43.
2. Bendix AF, Bendix T, Vaegter K, Lund C, Frølund L, Holm L. Multidisciplinary intensive treatment for chronic low back pain: a randomized, prospective study. *Cleve Clin J Med*. 1996; 63(1): 62-9.
3. Dufour N, Thamsborg G, Oefeldt A, Lundsgaard C, Stender S. Treatment of chronic low back pain: a randomized, clinical trial comparing group-based multidisciplinary biopsychosocial rehabilitation and intensive individual therapist-assisted back muscle strengthening exercises. *Spine (Phila Pa 1976)*. 2010; 35(5): 469-76.
4. Henchoz Y, Pinget C, Wasserfallen JB, Paillex R, de Goumoëns P, Norberg M, et al. Cost-utility analysis of a three-month exercise programme vs usual care following multidisciplinary rehabilitation for chronic low back pain. *J Rehabil Med*. 2010; 42(9): 846-52.
5. Roche-Leboucher G, Petit-Lemanac'h A, Bontoux L, Dubus-Bausière V, Parot-Shinkel E, Fanello S, Penneau-Fontbonne D, Fouquet N, Legrand E, Roquelaure Y, Richard I. Multidisciplinary intensive functional restoration versus outpatient active physiotherapy in chronic low back pain: a randomized controlled trial. *Spine (Phila Pa 1976)*. 2011; 36(26): 2235-42.
6. Skouen JS, Grasdal AL, Haldorsen EM, Ursin H. Relative cost-effectiveness of extensive and light multidisciplinary treatment programs versus treatment as usual for patients with chronic low back pain on long-term sick leave: randomized controlled study. *Spine (Phila Pa 1976)*. 2002; 27(9): 901-9.
7. Spinhoven P, TerKuile M, Kole-Snijders AM, Hutten Mansfeld M, Den Ouden DJ, Vlaeyen JW. Catastrophizing and internal pain control as mediators of outcome in the multidisciplinary treatment of chronic low back pain. *Eur J Pain*. 2004; 8(3): 211-9.
8. Tavafian SS, Jamshidi AR, Mohammad K. Treatment of chronic low back pain: a randomized clinical trial comparing multidisciplinary group-based rehabilitation program and oral drug treatment with oral drug treatment alone. *Clin J Pain*. 2011; 27(9): 811-8.
9. van der Hulst M, Vollenbroek-Hutten MM, Groothuis-Oudshoorn KG, Hermens HJ. Multidisciplinary rehabilitation treatment of patients with chronic low back pain: a prognostic model for its outcome. *Clin J Pain*. 2008; 24(5): 421-30.
10. Vollenbroek-Hutten MM, Hermens HJ, Wever D, Gorter M, Rinket J, Ijzerman MJ. Differences in outcome of a multidisciplinary treatment between subgroups of chronic low back pain patients defined using two multi-axial assessment instruments: the multidimensional pain inventory and lumbar dynamometry. *Clin Rehabil*. 2004; 18(5): 566-79.

