

Determining Predictive Outcome Factors for a Multimodal Treatment Program in Low Back Pain Patients: A Retrospective Cohort Study



Rahmat Adnan, MSc,^a Jessica Van Oosterwijck, PhD,^a Barbara Cagnie, PhD,^a Evy Dhondt, PT,^a Stijn Schoupe, PT,^a Jens Van Akeleyen, MD,^b Tine Logghe, MD,^b and Lieven Danneels, PhD^a

ABSTRACT

Objective: The purpose of this study was to determine the factors predictive of outcomes in a multifaceted rehabilitation program for acute and chronic low back pain (LBP) patients.

Methods: A retrospective cohort study was performed on 565 LBP patients (153 acute and 412 chronic) who participated in a multimodal treatment program at an outpatient clinic in Belgium between 2007 and 2010. The predictive value of several factors, including age, sex, body mass index, fat percentage, Oswestry Disability Index score, Beck Depression Index score, Numeric Pain Rating Scale score for back and leg pain intensity, and Tampa Scale for Kinesiophobia score on favorable treatment outcomes was examined using logistic regression analysis.

Results: The results from the multivariate regression indicated that a higher score on the Tampa Scale for Kinesiophobia (odds ratio [OR] = 0.92) decreases the odds of a favorable outcome following a multimodal treatment program in acute LBP. Older age (OR = 0.97), low LBP intensity (OR = 1.191), and higher scores on the Beck Depression Index (OR = 0.96) and the Oswestry LBP Disability Index (OR = 0.93) decreased the odds of a favorable treatment outcome in chronic LBP.

Conclusions: The findings of this study indicate that factors predictive of a (un)favorable treatment outcome differ between acute and chronic LBP. Specifically, kinesiophobia is predictive of poor treatment outcome in acute LBP. In chronic LBP, older age, low LBP intensity, and higher degrees of depression and LBP-related disability are predictive of poor treatment outcome. Therapists should consider assessing these predictive factors at intake to tailor the content of the multimodal treatment program to individual patient needs. (*J Manipulative Physiol Ther* 2017;40:659-667)

Key Indexing Terms: *Logistic Models; Low Back Pain; Prognosis; Rehabilitation; Treatment Outcome*

INTRODUCTION

Low back pain (LBP) is a highly prevalent and costly musculoskeletal syndrome that is associated with high rates of recurrence, chronicity, and disability.¹ It is well documented that about 75% to 85% of adults will have

experienced at least 1 episode of acute LBP during their lifetime.^{2,3} Sixty-two percent of this population will develop chronic LBP symptoms.⁴

Chronic LBP leads to disability⁵ and decreases productivity,⁶ resulting in a substantial economic burden in developed countries. For example, in Belgium, LBP-related drug treatments are estimated to cost between 14.5 and 20.1 million euros; another 992.6 million euros are lost to sick leave salaries, and about 114.5 million euros are expended for rehabilitation services.⁷ This is not surprising, because the prevalence rate of chronic LBP is about 30% among Belgians, which is relatively high compared with rates of other chronic diseases.⁸ Moreover, these prevalence rates are similar to those of other Western countries.^{9,10}

Primary care referrals to physiotherapy programs are a common practice in the rehabilitation of patients with LBP. In particular, a multimodal treatment program comprising a combination of therapeutic exercises, education, manual therapy approaches, and a cognitive-behavioral emphasis is one of the recommended treatment strategies for

^a SPINE Research Unit Ghent, Department of Rehabilitation Sciences and Physiotherapy, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium.

^b Department of Physical and Rehabilitation Medicine, General Hospital St-Dimpna, Geel, Belgium.

Corresponding author: Lieven Danneels, PhD, SPINE Research Unit Ghent, Department of Rehabilitation Sciences and Physiotherapy, Faculty of Medicine and Health Sciences, Ghent University, Campus Heymans (UZ) 3 B3, De Pintelaan 185, 9000 Ghent, Belgium. Tel.: +32 9 332 26 32. (e-mail: lieven.danneels@ugent.be). Paper submitted April 6, 2017; accepted September 26, 2017. 0161-4754

Copyright © 2017 by National University of Health Sciences. <https://doi.org/10.1016/j.jmpt.2017.09.001>

LBP.^{5,11-13} A meta-analysis reported a strong level of evidence supporting the use and efficacy of multimodal treatment programs in LBP rehabilitation.^{14,15} These programs have been proven to have a superior approach compared with other isolated treatment options.^{14,16} In addition, multimodal treatment programs are widely reported to significantly improve major outcomes in LBP patients such as pain, functional ability, mood, and self-esteem, as well as enhance the return to work and decrease the use of health care systems.^{14,15,17}

Although a multimodal treatment program provides a significant advantage with respect to clinical outcomes, no studies have adequately explored the predictive factors that may influence treatment outcomes. However, it is known that baseline characteristics are important factors that can determine whether LBP patients will benefit from a specific intervention or not.¹⁸ Therefore, the purpose of this study was to determine the possible factors predictive of treatment outcomes of patients with LBP following a multimodal treatment program.

METHODS

Subjects

This retrospective study was conducted among 565 LBP patients. The patients were recruited from an exercise-based rehabilitation program that was carried out in a private outpatient rehabilitation center in Belgium between 2007 and 2010. All patients were referred to the program by a physician after adequate medical examination and diagnosis had been established. Patients who had other comorbidities and/or were under consideration for surgery were excluded. Ethical approval to conduct this study was obtained from the local ethics committee.

Treatment Program

The treatment program was conducted with the aims of improving functional capacity, reducing pain, and increasing patients' knowledge of pain management techniques. The program focused mainly on individualized exercise training combined with education. The treatment program was carried out by physiotherapists and physicians who rendered their respective treatment services for the patients.

All patients underwent a total of 36 treatment sessions encompassing 2 hours at a frequency of 2 to 3 times a week. The first 3 sessions began with back school education and were followed by intensive exercise training. The back school educational session comprised talks on anatomical, physiological, and pathophysiologic topics concerning the back and spine.^{19,20} Additionally, topics on pain management, ergonomics, and coping strategies for pain were dealt with when necessary.^{13,21,22}

The main component of the physiotherapy program was exercise training. The exercise training intervention consisted of exercises for the lumbopelvic region, on the one

hand, and cardiovascular reconditioning training, on the other hand. Standardized lumbopelvic exercise training comprised 3 different phases. The first phase entailed basic sensorimotor training. The exercises were directed at improving proprioception and neuromuscular control of the lumbopelvic region. Patients were facilitated to obtain an optimal tone of the deep trunk muscles and were instructed to optimize balance between the different abdominal, back, and hip muscles.²³ When necessary patients were also instructed to focus on posture and movement of the spine. The second phase aimed at integrating this basic training into various static and dynamic conditions. The third and last phase of the exercise training included using and maintaining the apprehended lumbopelvic proprioceptive and control strategies during function-oriented activities and resistance training exercises. In addition, patients also received supplemental cardiovascular reconditioning training in the form of cycling exercises. The exercise was progressively increased from low to high speed and from short to long duration.²⁴ All patients were required to follow the multimodal treatment program at least 2 times per week for their data to be included in the analysis.

Predictive Factors

Demographic, psychological, and functional self-reported parameters, derived from questionnaires and medical reports, were considered potential predictive parameters. These types of self-reported parameters have been reported to be strong predictors of treatment outcomes compared with clinical/physical signs and medication use.²⁵⁻²⁷

The demographic characteristics recorded included sex, age, body mass index (BMI), body fat percentage, and symptom duration.¹⁸

Psychological and functional factors were assessed using 3 questionnaires: the Tampa Scale for Kinesiophobia (TSK), the Beck Depression Index (BDI), and the Oswestry Low Back Pain Disability Index (ODI). The TSK, which consists of 17 items, was used to assess fear of movement. Tampa Scale for Kinesiophobia scores range from 17 to 68, with scores >37 indicating high fear of movement.^{28,29} The BDI is a self-rated questionnaire that contains 21 items evaluating cognitive, behavioral, and somatic symptoms and presence of depression.³⁰ A total score between 0 and 63 is calculated, with higher total scores indicating more severe depressive symptoms.³⁰ The ODI was used to measure LBP-related disability.³¹ This questionnaire examines the disabling effects of LBP on the following 10 domains: pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sexual function, social interaction, and traveling. Domain scores were retrieved, summed, and multiplied by 2 to calculate the percentage of LBP-related disability. The highest percentages refer to more severe degrees of disability. The ODI is known to be valid, reliable, and responsive in LBP patients.³¹

Download English Version:

<https://daneshyari.com/en/article/8560148>

Download Persian Version:

<https://daneshyari.com/article/8560148>

[Daneshyari.com](https://daneshyari.com)