

An Observational Study on Recurrences of Low Back Pain During the First 12 Months After Chiropractic Treatment



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ABSTRACT

Objectives: The purpose of this study was to investigate recurrence rate and prognostic factors in a large population of patients with low back pain (LBP) up to 1 year after chiropractic care using standardized definitions.

Methods: In Switzerland, 722 patients with LBP (375 male; mean age = 44.5 ± 13.8 years) completed the Numeric Rating Scale for pain (NRS) and the Oswestry Disability Index (ODI) before treatment and 1, 3, 6, and 12 months later (ODI up to 3 months). Based on NRS values, patients were categorized as “fast recovery,” “slow recovery,” “recurrent,” “chronic,” and “others.” In multivariable logistic regression models, age, sex, work status, duration of complaint (subacute: ≥ 14 days to < 3 months; chronic: ≥ 3 months), previous episodes, baseline NRS, and baseline ODI were investigated as predictors.

Results: Based on NRS values, 13.4% of the patients were categorized as recurrent. The recurrent pattern significantly differed from fast recovery in duration of complaint (subacute: odds ratio [OR] = 3.3; chronic: OR = 10.1). The recurrent and chronic pattern significantly differed in duration of complaint (chronic: OR = 0.14) and baseline NRS (OR = 0.75).

Conclusion: Recurrence rate was low in this LBP patient population. The duration of complaint before treatment was the main predictor for recurrence. The fact that even subacute duration significantly increased the odds for an unfavorable course of LBP is of clinical relevance. (*J Manipulative Physiol Ther* 2017;40:427-433)

Key Indexing Terms: *Chiropractic; Low Back Pain; Recurrence*

INTRODUCTION

Low back pain (LBP) is the leading cause for years lived with a disability globally,¹ and the burden of LBP is expected to rise as the population ages.^{1,2} Only about 1 in 3 LBP episodes completely resolves within a year,^{3,4} and the percentage of LBP that goes from acute to chronic varies among studies from 2% to 34%.⁵ However, apart from the quickly resolving acute and the lengthy chronic course there are vast numbers of patients—approximately 3 in 5³—who suffer from recurrent LBP episodes.⁶⁻¹⁰ It is difficult to predict which patients will experience LBP recurrence within the next year¹⁰ because the pattern of recurrent episodes is unpredictable and still not fully understood. Nevertheless, recurrent LBP episodes have a tremendous impact on physical and social functioning¹¹ and are considerably more expensive than the original episode.¹² Thus, the prevention of future relapse episodes is crucial.

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Solid evidence about risk factors for recurrence of LBP is sparse because the majority of research has focused on prognostic factors for poor outcome, disability, or chronicity instead of recurrence. Those that did find prognostic factors for the recurrent course have reported conflicting information, most probably because a variety of definitions for recurrent LBP have been used. A systematic review concluded that among the studies in this field, only 38% used a specific but self-created definition for recurrence, whereas in 62% it was unclear how recurrence had been measured.¹³ This lack of standardization is reflected in the 1-year recurrence rate ranging from 25% to 73%.^{9,10} Moreover, most studies lacked a definition of recovery as part of the definition of recurrence, probably including patients with persistent pain instead of recurrent episodes.¹³ Thus, the following consensus definition for a recurrence of an episode of LBP was reached in a modified Delphi approach: “return of LBP lasting at least 24 hours with a pain intensity of > 2 on an 11-point Numeric Rating Scale (NRS) following a period of at least 30 days pain-free.”¹²

Thus, the main aim of this study was to determine the amount of LBP recurrences using the consensus definition of recurrence, according to Stanton et al,¹² in patients up to 1 year after chiropractic care based on pain intensity (NRS). The second aim was to compare the recurrent patients to all other patients (grouped according to various trajectories) in

terms of certain baseline factors and to investigate whether certain baseline factors increased the risk for LBP recurrence.

METHODS

Study Design and Setting

This observational study is a secondary analysis of data that were collected between 2010 and 2014 in a prospective cohort study with 1-year follow-up. The Canton of Zürich ethics review board gave ethical approval for this study (EK-16/2009). All patients signed a written informed consent. All chiropractors throughout Switzerland were asked by the Swiss Chiropractic Association (ChiroSuisse) to recruit patients for this study and instructions were sent to all chiropractors by e-mail. No standardization of treatment methods or numbers was performed. Instead, chiropractors were requested to use their usual treatment method, because the aim of the study was to assess outcomes of routine chiropractic practice. Immediately before their first treatment, patients completed the NRS and the Oswestry Disability Index (ODI) in their respective chiropractic offices. The ODI was selected as the questionnaire of choice as it has been translated and validated in German and French^{14,15} at the time data collection commenced. The ODI is made up of 10 sections, including 1 item on pain intensity and 9 questions on interference with daily activities such as sleeping, self-care, sex life, social life, and traveling. Each section can be answered on a scale from 0 to 5 with a total score of 50 that can be converted into a percentage. The NRS is an 11-point rating scale to assess patient's pain intensity, ranging from 0 ("no pain") to 10 ("the worst imaginable pain").¹⁶ Further baseline information such as patient's age, sex, work status, duration of current complaint, and number of previous episodes was sent by the respective treating chiropractor to the research assistant. At intervals of 1, 3, 6, and 12 months after the initial treatment, the NRS and ODI were collected by trained research assistants from the coordinating university hospital through standardized telephone interviews (ODI up to 3 months). The research assistants were trained to do the interviews but did not know either the patient or the treating chiropractor. All patients were interviewed up to 12 months irrespective of whether or not they were still receiving chiropractic treatment.

Participants

Adult patients (≥ 18 years) with LBP of any duration who had not been treated with chiropractic therapy in the prior 3 months were included. Exclusion criteria were relative contraindications to chiropractic manipulative treatment, such as tumors, infections, inflammatory spondyloarthropathies, acute fractures, and severe osteoporosis.

For this particular study, only patients with complete data sets for NRS at the respective points of time were included.

Variables

The outcome variable "recurrence" was defined in accordance with the consensus definition of recurrent LBP (LBP that occurred at least twice over the past year with each episode lasting at least 24 hours, with a pain intensity of >2 on a 11-point NRS and at least a 30-day pain-free interval in between episodes¹²) and with the definition of recovery (absolute recovery: visual analog scale ≤ 10 mm at follow-up measurement).¹⁷ Consequently, patients were defined as "recurrent" as follows: NRS ≤ 1 at a preceding assessment and NRS >2 at the consecutive assessment. In order to gain homogeneous groups to be compared with the recurrent patient group, the rest of the patient population was subdivided into the following subgroups: "fast recovery," "slow recovery," "chronic," and "others" (for those patients who did not fit into any of these subgroups.) Patients were considered as "fast recovery" if NRS was ≤ 1 at 1, 3, 6, and 12 months. "Slow recovery" was defined as NRS ≤ 1 at 3, 6, and 12 months or NRS ≤ 1 at 6 and 12 months.^{17,18} Patients were categorized as "chronic" if they reported at least moderate pain (NRS ≥ 3.5 ¹⁹) at 1, 3, 6, and 12 months. Any data that did not match these definitions were defined as "others." The latter included patients who were fluctuating or stable on a low pain intensity level (NRS <3.5) but never fell below NRS ≤ 1 , thus not qualifying for "recurrent."

The parameters sex, age, work status, duration of current complaint, previous LBP episodes, mean baseline NRS, and mean baseline ODI were investigated as possible predictors for recurrence. As for the categorization of duration of current complaint, there is agreement that the differentiation between acute and chronic pain should be 3 months.²⁰ However, there is discrepancy for the definition of subacute pain, with cutoff points between acute and subacute pain ranging from 2 to 6 weeks.²⁰ Nevertheless, it has been reported that regardless of pain intensity, as soon as pain lasts for more than 14 days prognosis is poor and the risk for chronic disability starts to rise.^{20,21} Consequently, the duration of complaint was categorized in the present study into acute (<14 days), subacute (≥ 14 days up to <3 months), or chronic (≥ 3 months). Work status was categorized into "working" (full time, part time, housewife), "retired," and "not working" (unemployed, incapable to work).

Statistical Methods

To calculate the amount of recurrences, descriptive statistics were used. To compare the recurrent subgroup to the other subgroups, 1-way analysis of variance with post hoc Bonferroni tests were used for the continuous variables (age, previous episodes, baseline NRS, and baseline ODI). As

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