

Chronic Non-Specific Low Back Pain

Course and prognosis

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CHAPTER 1

General introduction

Chronic non-specific back pain

In the Netherlands, the annual incidence of back pain in the general population is estimated at 10-15%.¹ In Canada, the annual (cumulative) incidence of low back pain in the general population is 18.6%.² In 1999, in the Netherlands, chronic non-specific low back pain was reported by 16.0% of working men, by 23.1% of non-working men, by 17.9% of working women and by 27.4% of non-working women.³ In 2009, 33.2 per 1,000 patients Registered in general practice contacted the general practitioner (GP) because of low back pain.⁴ On average, these patients had contact with their GP two times in the form of a consultation (42.4%). Of these patients, over 15% were referred to another healthcare discipline, mainly to a physiotherapist (63.8%).⁴

The clinical guidelines recommend to focus on identification of 'red flags' to determine whether the patient is suffering from non-specific back pain or whether there is a suspicion of serious pathology.^{5,6} The GP and physiotherapist are advised to initially treat patients with non-specific back pain in a conservative way, which includes informing the patient about the expected course, prescription of (pain) medication (by the GP) and the general recommendation that the patient should remain as active as possible.^{5,6} After 12 weeks, low back pain is labelled as chronic non-specific low back pain and the Dutch GP Guideline⁶ recommends to consider cognitive behavioural therapy; this is because it is increasingly likely that psychological factors (e.g. fear of movement, illness perception) and/or the workplace, play a role. In this case, referral by a GP to multidisciplinary treatment is then advised. If there is suspicion of a specific (physical) cause, this should first be excluded by an orthopaedic surgeon, neurologist or rheumatologist, before the patient is referred to a multidisciplinary centre.⁶

In this thesis, chronic 'non-specific low back pain' is defined as low back pain without a specific physical cause, such as nerve root compression (the radicular syndrome), trauma, infection, or the presence of a tumour.

Pain in the lumbosacral region is the most common symptom in patients with non-specific low back pain. Pain may also radiate to the gluteal region to the thighs, or to both. The duration of this type of back pain is defined as lasting longer than 3 months.⁵

Course of (chronic) non-specific back pain

The term 'course' can refer to both the natural and the clinical course of low back pain.⁷ The natural course (in contrast to the clinical course) refers to the 'normal' course of low back pain without any intervention. We expect that the natural and clinical course will differ for each phase, starting with acute (< 12 weeks) and progressing to chronic (> 12 weeks) non-specific low back. We also expect different prognostic factors for the natural and clinical course of non-specific low back pain.⁸ A systematic review on the prognosis and long-term course of low back pain indicates that, after an episode of low back pain, 44% to 78% of the patients suffer from a relapse of back pain, and that 26% to 37% suffer from recurrent sick leave.⁹

Furthermore, after 3 months the pain and disability level decrease, although disability tends to persist for at least 12 months or patients will have at least one recurrence within 12 months.⁷ Cassidy et al. describe similar results, indicating that low back pain is a common, chronic and recurrent condition in the general population.² Younger people are less likely to have persistent low back pain and more likely to have complete resolution of symptoms.² A recent meta-analysis confirms earlier findings describing the course for patients with acute (< 12 weeks) or persistent (> 12 weeks to 12 months) low-back pain for the outcome pain, disability, or recovery.¹⁰

After an intervention, both acute and persistent low back pain improve in the first 6 weeks and, thereafter, improvement slows down. Low to moderate levels of pain and disability may still be present at 12 months, especially in cohorts with persistent pain. Other studies show that the course can differ per patient or group: some improve more rapidly, some more slowly, whereas others may fluctuate.¹¹ This difference might be explained by the inclusion of different study populations and/or the use of different outcomes to define recovery.^{8,10,11}

Prognosis of (chronic) non-specific back pain

Chronic non-specific low back pain is assumed to be a multi-factorial affliction, implying that a number of different risk factors contribute to its development and persistence.^{8,10,12,13} After onset, prognostic factors can potentially predict the future course.

Risk factors for the development of chronic pain (i.e. transition from acute to chronic pain) are well documented in the literature.^{8,12,14,15} However, when pain becomes persistent, less knowledge is available on the risk factors for future outcome. Increased knowledge on the prognostic factors for chronic complaints will allow to better inform and advise patients, by supporting clinical decisions about the type of treatment and identifying patients at risk of a poor outcome.^{8,14} A study from Australia reported that the prognosis is less favourable for those who: a) have taken previous sick leave for low back pain, b) have more disability or severe pain intensity at onset of chronic non-specific low back pain, c) have a lower education level, d) perceive themselves as having a high risk of persistent pain, and e) were born outside Australia.¹²

Outcome of (chronic) non-specific back pain

The objective of this thesis is to describe the clinical course of chronic non-specific low back pain in patients referred to a rehabilitation centre in tertiary care, to identify prognostic factors for recovery, and to analyse the influence of various outcomes and statistical techniques on the development of a prognostic model. We used outcome measures that are similar to those utilised since 2000, when an international panel of experts on low back pain agreed on a core set of outcome measures. This core set includes five domains: 1) low back pain intensity, 2) low-back-pain-specific disability, 3) return to work, 4) generic functional status, and 5) patient's satisfaction with the process of care and treatment outcome.¹⁶

Ostelo et al. stated that, when measuring outcomes in patients, there is no consensus in the literature on the most appropriate technique to use to determine the 'minimal clinically important change' (MCIC).^{17,18} Two adequate and frequently used methods to estimate the MCIC are the smallest change possible to detect improvement (between baseline and follow-up) and to estimate the optimal cut-off point. For example, the Quebec Back Pain Disability Scale (QBPDS; range 0-100) was dichotomised into "no improvement in disability" and "improvement in disability," using a reduction of 30% at follow-up compared to baseline as a clinically relevant difference¹⁷⁻¹⁹ and 'absolute recovery' was defined as a QBPDS score of ≤ 20 points at follow-up.^{13,17,20,21} Ostelo et al. reported that the change from baseline to follow-up can be defined as 'clinically important' (e.g. a 30% improvement) because individual patients determine their own health status.¹⁷ For each outcome, except for generic functional status, an indicator is suggested to determine the MCIC between baseline and follow-up.^{17,18,20-22} However, an ongoing discussion is whether the MCIC is better expressed as a percentage of improvement (e.g., $> 30\%$ improvement on the scale) or as a cut-off point (dichotomisation) in order to determine recovery.^{17,18,20-22}

In our study, recovery as assessed with various outcome measures was operationalised according to two definitions: 1) a 30% improvement compared to baseline scores with regard to the outcomes back pain intensity, disability, work participation and quality of life (SF-36; 10% improvement)¹⁷⁻¹⁹ and 2) 'absolute recovery' was defined with a Visual Analogue Scale score of pain intensity ≤ 10 mm, disability with the QBPDS score of ≤ 20 points, work participation (0-100% working) $\geq 90\%$ at follow-up, and global perceived effect (GPE) on a 5-point scale dichotomised into 'clinically improved' vs. 'clinically not improved'.^{13,17,20,21,23}

Multidisciplinary treatment in the Spine & Joint Centre

Management of chronic non-specific low back pain in the sense of treatment after a lack of successful recovery in primary care (e.g. GP, physiotherapist) consists of behavioural treatment and/or multidisciplinary rehabilitation.^{5,6,24,25} A systematic review showed moderate quality of evidence that, for pain relief on the short-term, operant therapy is more effective than a waiting list and that behaviour therapy is more effective than usual care.²⁵ However, no specific type of behaviour therapy has been shown to be more effective than another. On the long term, there appears to be little difference between behaviour therapy and group exercises for pain or depressive symptoms.²⁵

Another systematic review using the same core set of outcomes as used in this thesis, reported moderate evidence that intensive multidisciplinary bio-psychosocial rehabilitation with functional restoration is more effective in reducing pain compared with outpatient nonmultidisciplinary rehabilitation or usual care.²⁴

There is contradictory evidence regarding vocational outcomes of an intensive multidisciplinary bio-psychosocial intervention. Some trials report improvements in work readiness, whereas others shows no significant reduction in sick leave. Less intensive outpatient psychophysical treatments did not improve pain, function or vocational outcomes when compared with nonmultidisciplinary outpatient therapy or usual care. Few trials have reported on the effects on quality of life or global assessments.²⁴

In the cohort study presented in this thesis, all patients received multidisciplinary treatment at the Spine & Joint Centre (Rotterdam) using a bio-psychosocial approach to stimulate patients to adopt adequate (movement) behaviour aimed at physical and functional recovery. The therapy program consisted of 16 sessions of 3 hours each during a 2-month period (a total of 48 hours), coached by a multidisciplinary team (physical therapist, physician, health scientist, psychologist). Behavioural principles were applied to encourage patients to adopt adequate normal behavioural movement aimed at physical recovery.