

Reasons for patients discontinuing chiropractic care and  
subsequent recurrences of low back pain

By

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# Abstract

## **Rationale**

Low back pain is ranked as the primary cause of disability and inability to work in today's society. However, most of the research on chiropractic care focuses on the short term effects of the treatment and does not look at the long term outcomes in patients treated for low back pain.

## **Objectives**

This study investigates the reasons patients discontinue their chiropractic treatment and the course of low back pain once treatment has stopped.

## **Design**

Survey questionnaire, investigating the course of low back pain over time.

## **Patients (subjects)**

Three hundred low back pain patients from a chiropractic clinic in Holland who had been treated for non-specific low back pain. These patients were sent a questionnaire after the end of this treatment.

## **Methods**

The questionnaire covered the status of the patient's low back pain before chiropractic treatment, at the end of treatment and during the follow-up period. It also covered the reasons for discontinuing treatment, satisfaction with chiropractic care and recurrences of low back pain after the end of treatment.

## **Results**

Of the respondents, 70% stated that their low back pain was clearly better. At the time of completing the questionnaire, a similar proportion of subjects were recovered. Levels of satisfaction with chiropractic care were generally high amongst the subjects; 90.4% of subjects were either very satisfied or satisfied.

In the sample, 71 % of subjects had a recurrence of low back pain in the follow-up period with most of these recurrences occurring within six weeks after discontinuing chiropractic care. The frequency and severity of these recurrences were significantly lower in acute patients and in women.

## **Conclusion**

Although most low back pain patients recover at the end of chiropractic treatment, a significant number of them will have a recurrence of their low back pain. The present study showed that duration of back pain and gender were factors significantly predicting the frequency and severity of those recurrences.

## **Abbreviations**

GP	General practitioner
LBP	Low back pain
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs

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## Introduction

Low back pain (LBP) is a common problem in society today and is ranked as the primary cause of disability and inability to work. It is predicted that it will affect up to 90% of the world's population at some point in their lives, mostly affecting the age group between 35 and 55 years (Ehrlich 2003; van Tulder and Koes 2006). It is usually defined as “pain, muscle tension or stiffness localized below the costal margin, above the inferior gluteal folds and laterally within an imaginary line to the lateral borders of the lumbar erector spinae muscle with or without leg pain (sciatica)” (Koes *et al.* 2006).

If LBP is not caused by an underlying pathological disorder it is called non-specific LBP; this accounts for 85% of all LBP patients. Risk factors for non-specific LBP include heavy physical work; frequent bending, twisting and lifting; and prolonged static postures. Psychosocial risk factors include anxiety, depression and mental stress at work. Having a history of LBP and a longer duration of the present episode are significant risk factors for chronicity (van Tulder and Koes 2006).

LBP can be arbitrarily divided into acute, sub-acute or chronic, depending on the duration of the complaints. Acute LBP persists for less than six weeks, sub-acute is between six weeks and three months and chronic LBP lasts longer than three months (Koes *et al.* 2006). It is believed that 80-90% of LBP episodes are acute and resolve within six weeks irrespective of the administration or type of treatment. However 5-10% of LBP patients will develop chronic problems (Croft *et al.* 1998; Manchikanti 2000).

Chronic LBP has a major impact on a patient's life and work, and is responsible for high levels of work absenteeism and escalating medical expenses (Waddell 1996).

Recurrences are common in LBP patients; Pengel *et al.* (2003) stated that the risk of at least one recurrence in patients suffering from LBP within a twelve month period is 73%. Furthermore, they found that the severity of these recurrences is often less than the initial episode.

This study set out to investigate patients undergoing chiropractic treatment for non-specific LBP. It investigated the reasons patients discontinue their treatment and what happens to these patients in terms of their back pain when they are no longer seeing their chiropractor.

## Literature review

### **Prognosis of LBP**

Present evidence suggests that LBP is rarely a self-limiting disorder but characterized by unpredictable variations in pain status, with temporary rather than permanent remissions (Hestbaek *et al.* 2006). Pengel *et al.* (2003) stated that the prognosis of an episode of acute LBP seems favourable, and most pain and related disability are self-limited. None the less, pain and disability are typically ongoing, and recurrences are common.

The prognosis of LBP can be described by the natural history, which is the development of a condition in the absence of treatment, or by the clinical course, which is the development in the presence of treatment (Kent and Keating 2005). Not many studies have been conducted on the natural course of LBP; often they are potentially compromised by the health care received by any study population, as it is not ethical to deny treatment to patients in order to observe the natural course of a disorder (Kent and Keating 2005). However, Mortimer *et al.* (2006) carried out a prospective cohort study on the natural course of pain and disability due to LBP during a five year follow-up period. Over two hundred and fifty (n=259) subjects who were seeking care for LBP were interviewed and were sent follow-up questionnaires at six months, two years and five years after the baseline interview. Pain intensity and disability scores were improved after five years in both men and women. The greatest improvement however occurred after six months, and less so thereafter. After five years, 21% of men and 21% of women reported no pain at all, and 38% of men and 36% of women reported no disability.

LBP as it presents in general practice appears to take more than just a few weeks to resolve (Croft *et al.* 1998). Croft *et al.* (1998) investigated the claim that 90% of LBP episodes resolve within a month. The study included four hundred and sixty three subjects aged 18-75 years who consulted their general practitioner about LBP at least once in a twelve month period. This was an annual consultation rate of LBP patients in general practice of 6.4%. The subjects were interviewed at three months and twelve months after the initial consultation. Of these, only 21% and 25% respectively had completely recovered in terms of pain and disability. From this study, Croft *et al.* (1998) concluded that even though 90% of patients with LBP in primary care will have stopped consulting with their symptoms within three months, most patients will still be experiencing LBP and related disability one year after consultation.

The course of LBP varies greatly between people depending on adverse prognostic factors such as fear avoidance behaviours, leg pain or low job satisfaction (Pengel *et al.* 2003). In the transition from acute to chronic LBP, the main implications are distress/depression, heightened somatic concern, passive coping strategies and other psychological factors (Burton *et al.* 2004).

As stated above, recurrences are very common in the course of LBP. Pengel *et al.* (2003) carried out a systematic review on the prognosis of acute LBP which included fifteen studies. It confirmed the widely held view that most people with acute LBP have rapid improvements in pain and disability within one month, and between 68% and 86% of participants initially off work due to LBP had returned to work within one month. In these subjects, further improvement occurred until approximately three months later. Thereafter levels of pain, disability and return to work remained almost constant. Pengel *et al.* (2003) concluded that patients with acute LBP have at least one recurrence in 73% of all cases within a twelve month period. The severity of these recurrences is usually less and does not always lead to a new visit to the GP. Even though this study only looked at recurrences in acute LBP, it is often difficult to distinguish acute and chronic LBP when it comes to recurrences. Periods of improvement/relapses often slide into each other, sometimes with episodes of acute aggravation (von Korff and Saunders 1996).

### **Chiropractic treatment of LBP**

The first line of treatment for non-specific LBP normally consists of a short course of NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) and, if needed, muscle relaxants; limited bed rest; education and activity alterations. However, this is sometimes inadequate and additional therapy modalities are required (Ehrlich 2003; Eisenberg *et al.* 2007). Spinal manipulation, exercise therapy and massage are often used in conjunction with conventional care to improve joint function and reduce the patient's pain level. Acupuncture is also sometimes used as an adjunct to conventional care for LBP (Molsberger *et al.* 2002). Although in most patients acute LBP resolves with conservative treatment or without any treatment, the back pain tends to recur and becomes chronic more often than expected (Pengel *et al.* 2003). A multidisciplinary approach is now more commonly used in the treatment of LBP, particularly chronic LBP, where a holistic approach to the patient is adopted (van der Hulst *et al.* 2005). In a multidisciplinary treatment program, psychological therapy is often a key part of the treatment and it is used because of the effect the mind can have on the experience of pain and subsequent functional ability (van der Hulst *et al.* 2005).

Spinal manipulation is the most common treatment used by chiropractors. The World Federation of Chiropractic (WFC) has defined chiropractic as 'A health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. There is an emphasis on manual treatments including spinal manipulation and other joint and soft-tissue manipulation' (WFC Dictionary Definition, World Federation of Chiropractic 2001). The exact mechanisms by which spinal manipulation can reduce LBP are still uncertain but numerous clinical trials have attempted to evaluate the efficacy of spinal manipulation for acute and chronic LBP patients (Descarreaux *et al.* 2004).

The UK Back Pain Exercise and Manipulation (UK BEAM) Trial Team (2004) conducted a large RCT looking at the effectiveness of adding spinal manipulation, exercise classes, or manipulation followed by exercise to best care in general practice for patients consulting with LBP. Patients who consulted their GP for LBP between March 1998 and April 2001 were selected for the study. The results from one thousand three hundred and thirty four patients showed that all three interventions improved most of the outcome measures at three and twelve months in comparison with best care alone. Relative to best care in general practice, manipulation followed by exercise was the most effective. This was a statistically significant moderate benefit at three months and a small benefit at twelve months. Spinal manipulation alone achieved a small to moderate statistically significant benefit at three months and a small benefit at twelve months; and exercise achieved a small benefit at three months but not at twelve months.

A recent systematic review done by Bronfort et al. (2004) looked at the efficacy of spinal manipulation and mobilization for LBP. According to this study, more than fifty mostly qualitative, nonsystematic reviews have been published since 1979 discussing the role of spinal manipulation and mobilization in the treatment of LBP. Most of these reviews have concluded that spinal manipulation is an efficacious treatment for LBP. However, most reviews restricted their positive conclusions to patients with acute LBP. Bronfort et al. (2004) concluded that there is moderate evidence that spinal manipulation provides more short term pain relief than mobilization in acute LBP patients. Furthermore, there is limited evidence that spinal manipulation leads to a faster recovery than commonly used physical therapy strategies. In chronic LBP, spinal manipulation and mobilization are effective in the short term when compared with placebo and general practitioner care, and it is effective in the long term compared to physical therapy. For a mix of acute and chronic LBP, spinal manipulation and mobilization provide either similar or better pain outcomes in the short and long term compared to placebo and with other treatments, such as McKenzie therapy, medical care, management by physical therapists, soft tissue treatment and back school.

Haas et al. (2004) carried out a study on pain and disability outcomes up to four years later for chiropractic and medical patients with LBP and assessed the influence of doctor type and pain duration on clinical outcomes. Most improvement was seen by three months and sustained for one year; however, exacerbation was seen thereafter. Acute patients demonstrated greater relief at all time points. A clinically important advantage for chiropractic patients was seen in chronic patients in the short-term, and both acute and chronic chiropractic patients experienced somewhat greater relief up to one year.

As stated above, LBP often recurs even though patients do not return to their general practitioner, possibly due to lack of satisfaction (Croft *et al.* 1998). Patient satisfaction with chiropractic care has been reported a number of times in the recent literature, usually concluding that satisfaction levels are higher for doctors of chiropractic than for medical doctors (Gaumer 2006). Nyiendo et al. (2001) looked into the satisfaction levels of chronic LBP patients after receiving primary care and chiropractic care. There was a sharp contrast favoring chiropractic in the proportion of patients that reported satisfaction with care after one year. The confidence that the treatment worked was 36% in patients who received primary care compared to 74% in patients who received chiropractic care.

### **Aims and Objectives**

As shown in this literature review, LBP is a prevalent disorder affecting a large percentage of the adult population. It can be divided into acute and chronic LBP, each with their own characteristics. It is often thought that most cases of LBP resolve within one month. However, most patients have remaining pain and disability and will still be suffering from LBP one year after the initial consultation (Croft *et al.* 1998). Recurrences are frequently seen in the course of LBP, with Pengel et al.(2003) concluding that the chance of at least one recurrence was 73% within a twelve month period.

The aim of this study was therefore to investigate the clinical course of acute and chronic non-specific LBP when treated with chiropractic care. Specifically, the objectives were:

- Patient's reasons for discontinuing treatment.
- Incidence of recurring pain in the period after cessation of chiropractic treatment.
- Predictors of recurrence of LBP.

# Methodology

## **Subjects**

A sample of three hundred cases from a private chiropractic clinic in Oosterhout, the Netherlands, was used. The sample was selected by reviewing patient files with the inclusion criteria of patients having non-specific acute/chronic LBP and who had not attended the clinic for at least six months. If the LBP was the result of some underlying pathology in the form of fracture, tumor, infection, spondyloarthropathy or some other non-mechanical cause, the subject was excluded. All patients over the age of 18 years old were included.

## **The questionnaire**

A questionnaire was designed for completion by subjects recruited to the study. It aimed at investigating the status of the LBP at the time of the last chiropractic treatment, levels of satisfaction with treatment and with the clinic, and recurrences in the period since the last treatment. This questionnaire is shown in figure 1.

The questionnaire consisted of seventeen items and was divided into five sections. The first section was designed to determine the demographics of the subjects (age and gender). The second section established information about pain duration and treatments before the initial visit to the chiropractic clinic for the last course of treatment. The next section included questions regarding satisfaction with treatment and the clinic, pain levels at the end of chiropractic treatment and the reasons for discontinuation with treatment. The fourth section consisted of questions about the follow-up period after the last chiropractic treatment including recurrences of LBP and any treatments in the follow-up period. The final section explored the current status of the subject's LBP.

## **Procedure**

The questionnaire was sent to the subjects in the period of August-September 2008. Most of the questions were closed-ended and consisted of a number of single and multiple choice questions which were quick and easy to complete. An advantage of sending a questionnaire is that it gives the person answering time to reflect on the questions in an unbiased environment. However there is the disadvantage that the questions may be misinterpreted and wrongly answered. Using a large sample tends to nullify these errors. Questionnaires were sent out to patients together with a covering letter explaining the nature of the study. The covering letter, both in Dutch and English are given in appendix 1, together with the Dutch questionnaire.

Patients were asked to complete the questionnaire and return it in the stamped address envelope provided. At two weeks, those patients who had not returned the questionnaires were sent a reminder either by post or by email. Copies of both of these reminders in Dutch and in English are given in appendix 2. A further reminder was sent out two weeks later to those subjects who had still not responded. This was the same letter which was used for the first reminder. As the study was done in Holland, the appendix also includes the Dutch copies of the questionnaire and communications with patients.

## **Data analysis**

The data obtained were transferred into Microsoft Excel(2003) for analysis. Each answer to the questions on the questionnaire was coded with a number and entered into rows on a Excel spreadsheet, which can be seen in appendix 3. Descriptive statistics were used to summarize and display the data. Relationships between variables were investigated using risk ratios with 95% confidence intervals, analyzed using SPSS v.15.

Figure 1 Questionnaire (translated to English) used to survey study subjects

<p><u>Questionnaire</u></p> <p><u>The questionnaire concerns the low back pain you last presented at the clinic in Oosterhout with. Please answer all the questions.</u></p>
--

1. Are you? (please tick):     Male     Female
  
2. Which age group are you in?  

<input type="radio"/> 18 - 30 years old	<input type="radio"/> 41 - 50 years old	<input type="radio"/> 61 - 70 years old
<input type="radio"/> 31 - 40 years old	<input type="radio"/> 51 - 60 years old	<input type="radio"/> 71+
  
3. For how long have you been suffering from low back pain **before** going to the chiropractor?  
(please tick ONE box )  

<input type="radio"/> 0 - 2 months	<input type="radio"/> 6 months - 1 year	<input type="radio"/> 4 - 10 years
<input type="radio"/> 2 - 6 months	<input type="radio"/> 1 - 3 years	<input type="radio"/> More than 10 years
  
4. Before your first treatment in Oosterhout, did you receive any other form of treatment for your low back pain ? (please tick)     Yes     No  
  
(If no, please continue with question 7)
  
5. If yes, please specify: (more than ONE box allowed)  

<input type="radio"/> manual therapist	<input type="radio"/> other chiropractor	<input type="radio"/> acupuncturist
<input type="radio"/> GP	<input type="radio"/> osteopath	<input type="radio"/> physiotherapist
<input type="radio"/> orthopedic surgeon	<input type="radio"/> neurologist	<input type="radio"/> orthomanual healthcare

other (please state): \_\_\_\_\_
  
6. To which extent has the treatment from the chiropractor in Oosterhout influenced your low back pain **at the time**? Following the treatment(s), my low back pain is: (please tick ONE box)  

<input type="radio"/> fully recovered	<input type="radio"/> better	<input type="radio"/> worse
<input type="radio"/> much better	<input type="radio"/> about the same	<input type="radio"/> much worse
  
7. How satisfied were you with the chiropractic treatment? (please tick ONE box)  

<input type="radio"/> Very satisfied	<input type="radio"/> Neither satisfied nor dissatisfied
<input type="radio"/> Satisfied	<input type="radio"/> Dissatisfied <input type="radio"/> Very dissatisfied

8. How is your low back pain **now**? (Please tick ONE box)

- Fully recovered       Better       Worse  
 Much better       About the same       Much worse

9. Why did you discontinue your treatment at this clinic? (more than ONE box allowed)

- Low back pain was clearly better       Treatment did not work  
 Too expensive       Too painful after-effects  
 It was discouraged and I was sent somewhere else by a GP/specialist  
 No clear explanation from the chiropractor of what was causing my back pain  
 Not satisfied with the clinic facilities (eg. car parking, waiting room, receptionist)

Other (please state): \_\_\_\_\_

10. Have you sought any other form of treatment for your back pain after discontinuing your treatment at this clinic?     Yes       No

(If no, please continue with question 13.)

11. If yes, please specify: (more than ONE box allowed)

- manual therapist       other chiropractor       acupuncturist  
 GP       osteopath       physiotherapist  
 orthopedic surgeon       neurologist       orthomanual healthcare

other (please state): \_\_\_\_\_

12. Have you had a recurrence of your low back pain since you last attended the clinic?

- Yes       No

(If no, please continue with question 16.)

13. If yes, how long after attending the clinic did your back pain start again? (please tick ONE box)

- Less than 6 weeks       3-6 months  
 6 weeks to 3 months       More than 6 months

14. If yes, how does the recurrence **compare** with the low back pain for which you last attended the clinic in Oosterhout. The **recurrence** is::

(please tick ONE box)    worse    about the same    less severe

15. How would you rate the **clinic** in Oosterhout? (0-10, 0 = very bad, 10 = perfect, please circle ONE number)

0   1   2   3   4   5   6   7   8   9   10

16. How would you rate the treatment you have been receiving? (0-10, 0 = very bad, 10 = perfect, please circle ONE number)

0   1   2   3   4   5   6   7   8   9   10

17. Would you recommend chiropractic to others with comparable complaints?

Yes             No

If you are interested in the results of this research project, you can write down your e-mail address below or sent it to [info@chiropractieoosterhout.nl](mailto:info@chiropractieoosterhout.nl).

Thank you very much for your co-operation!

## Results

Three hundred LBP patients were included in the survey. There was a response rate of one hundred and sixty four patients (54.7 %) over a period of four to six weeks.

### **1. Socio-demographics and clinical characteristics**

Of the one hundred and sixty four returned questionnaires, seventy eight subjects (47.6%) were male and eighty six (53.4%) were female. As shown in figure 2, most of the subjects (26.2%, n=43) were in the 41-50 years old age group. The age distribution of the subjects was approximately normal.

A representation of the duration of the LBP before consulting the chiropractor for the last episode of LBP is seen in figure 3. Of the sample, 25.6 % (n=42) of the subjects suffered from LBP less than two months before the consultation. Most subjects had LBP for more than ten years.

Of the one hundred and sixty four subjects, 68.3% (n=112) of them had been treated by other healthcare professionals for their LBP before consulting the chiropractor. As seen in figure 4, most subjects of this group were treated by a physiotherapist (75.9%, n=85). Other frequently seen practitioners included general practitioners and manual therapists.

Subjects were asked in which way chiropractic therapy had influenced their LBP after they received their last treatment. As shown in figure 5, the majority of subjects reported feeling much better (30.5% n=50) or better (33%, n=54). Only 9.1% (n=15) reported that they were fully recovered.

The levels of satisfaction with chiropractic treatment are shown in figure 6. Most of the subjects were very satisfied with the treatment (50%, n=82) or satisfied (40.2%, n=66). The subjects were also asked whether they would recommend chiropractic treatment to others with comparable complaints. The majority of the subjects (92.1%, n=151) reported that they would.

Figure 2: Frequency distribution of ages of the study sample

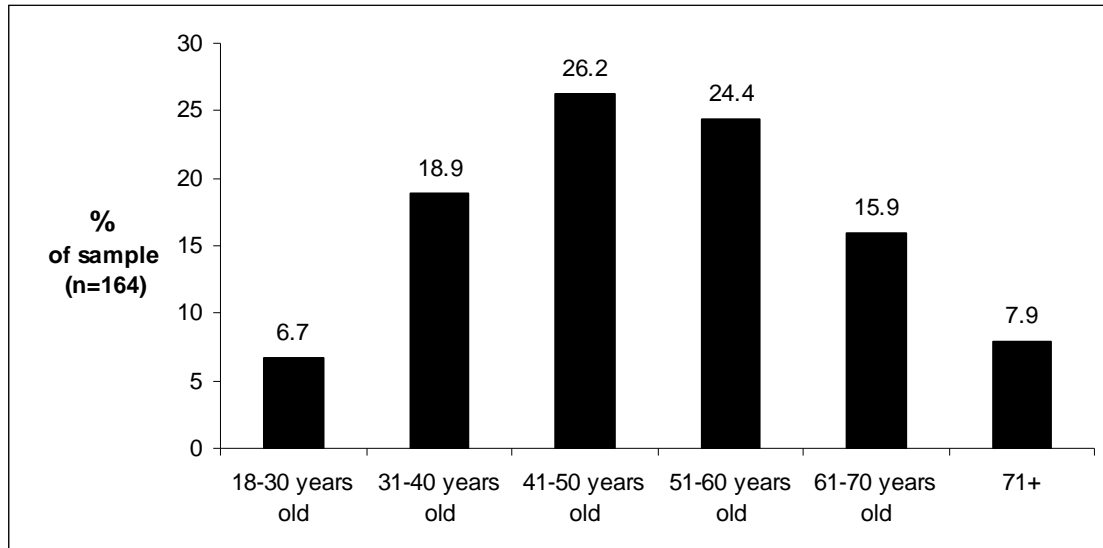


Figure 3: Distribution of duration of low back pain before chiropractic treatment

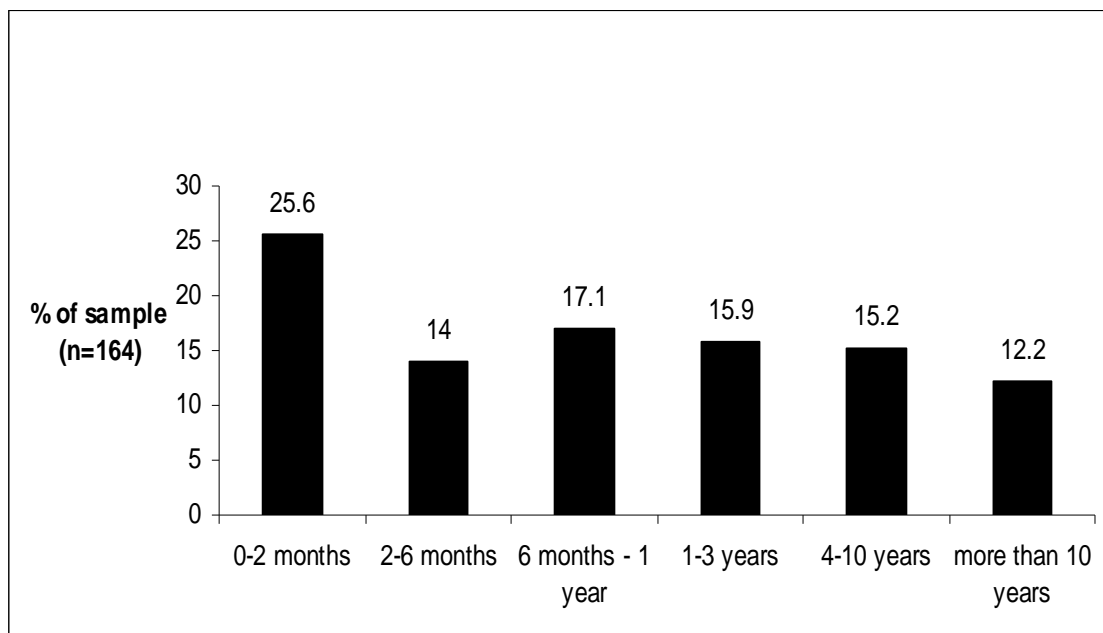


Figure 4: Types of other treatment before chiropractic treatment

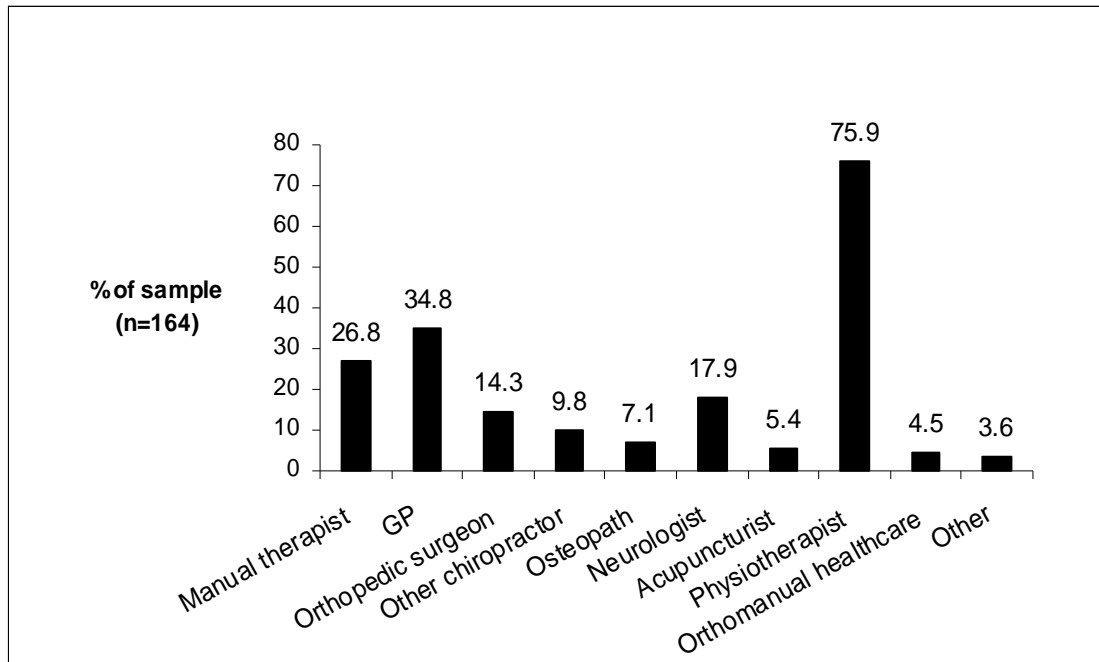


Figure 5: Patients reported recovery at the end of the last episode of chiropractic treatment

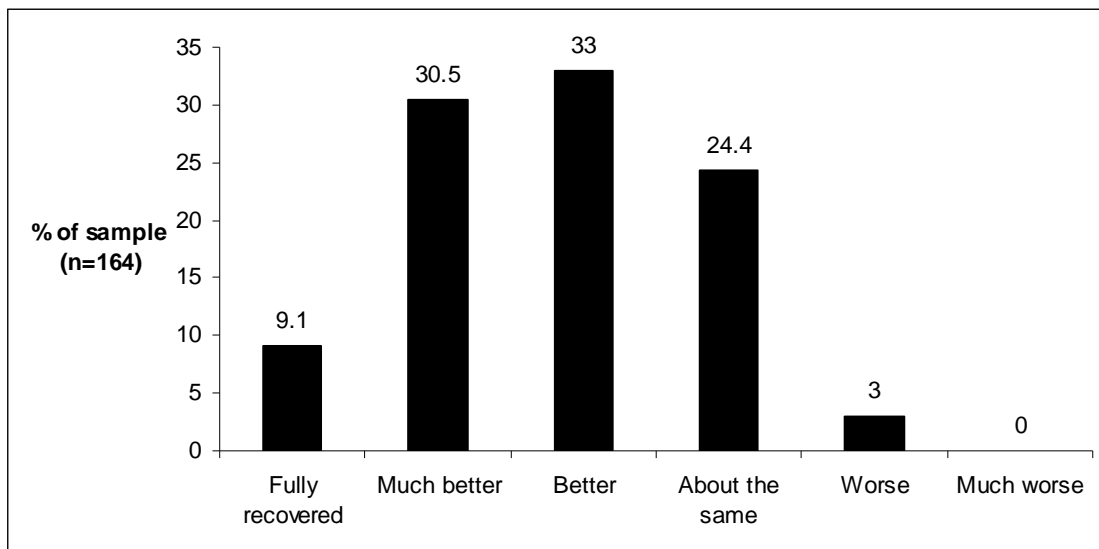
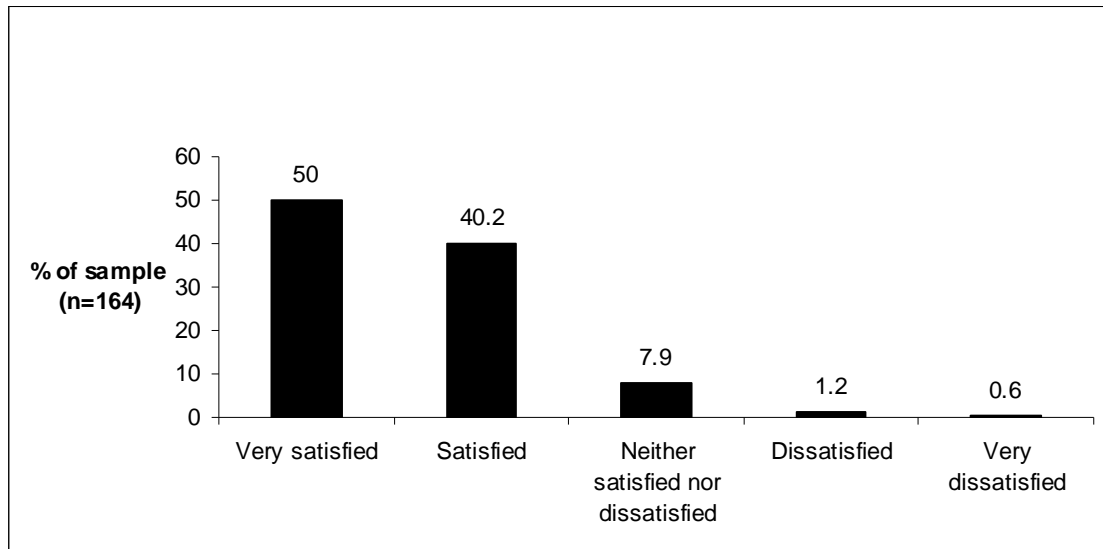


Figure 6: Patients reported levels of satisfaction with chiropractic care



## 2. Reasons for discontinuing chiropractic treatment and patient status during the Follow-up period

Reasons for discontinuing chiropractic treatment are shown in figure 7. The majority of the subjects reported that their LBP was clearly better (56.1%, n=92). For 20.7% (n=34), the patients stopped treatment because they felt it had not worked.

Subjects were asked how their LBP was at the time of completing the questionnaire. These results are shown in figure 8. The majority of the subjects (60.9%, n=100) reported feeling better or much better than before they had received chiropractic treatment. Only 8.5% (n=14) reported that they were fully recovered.

Of the respondents, 32.9% (n=54) reported that they had received other type of treatment after discontinuing chiropractic. This is shown in figure 9. Of those that had received treatment, most subjects had received treatment from a physiotherapist (29.6%, n=16). Other frequently seen practitioners included neurologists and manual therapists.

It is interesting to note that after discontinuing chiropractic treatment, 71% (n=116) had a recurrence of their LBP. As shown in figure 10, a large proportion of the one hundred and sixteen subjects reported that they had a recurrence in less than six weeks after discontinuing chiropractic treatment (42.2%, n=49) and 27.6% (n=32) of the subjects had a recurrence after six months of stopping chiropractic treatment. The recurring back pain

was compared to the initial back pain for which they originally attended the chiropractic clinic. The results of this comparison can be seen in figure 11. Of the one hundred and sixteen subjects who had a recurrence, 45.7% (n=53) reported feeling the same and 44.8% (n=52) reported that the recurring LBP was less severe. Only 9.5% (n=11) reported that the back pain was worse.

Figure 7: Reasons for discontinuing chiropractic treatment

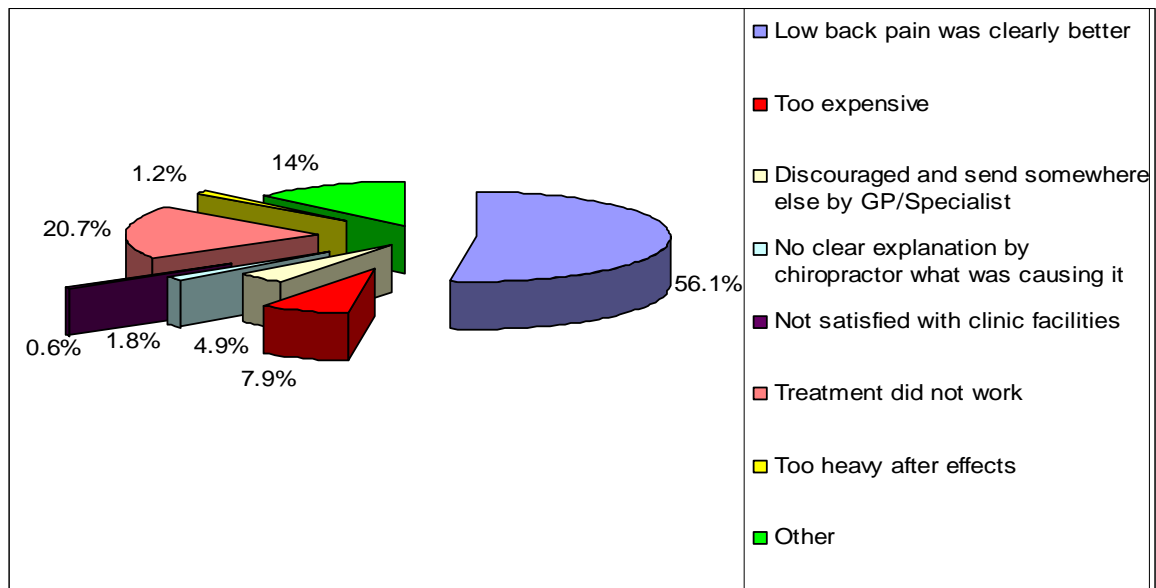


Figure 8: Patients reported status of low back pain after the follow-up period

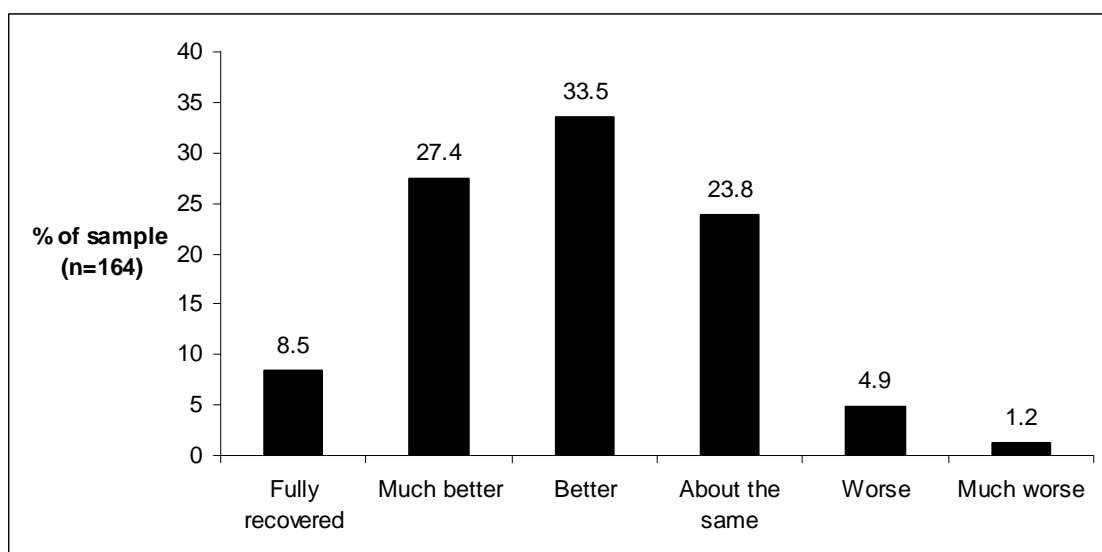


Figure 9: Type of treatment after discontinuing chiropractic care as reported by patients

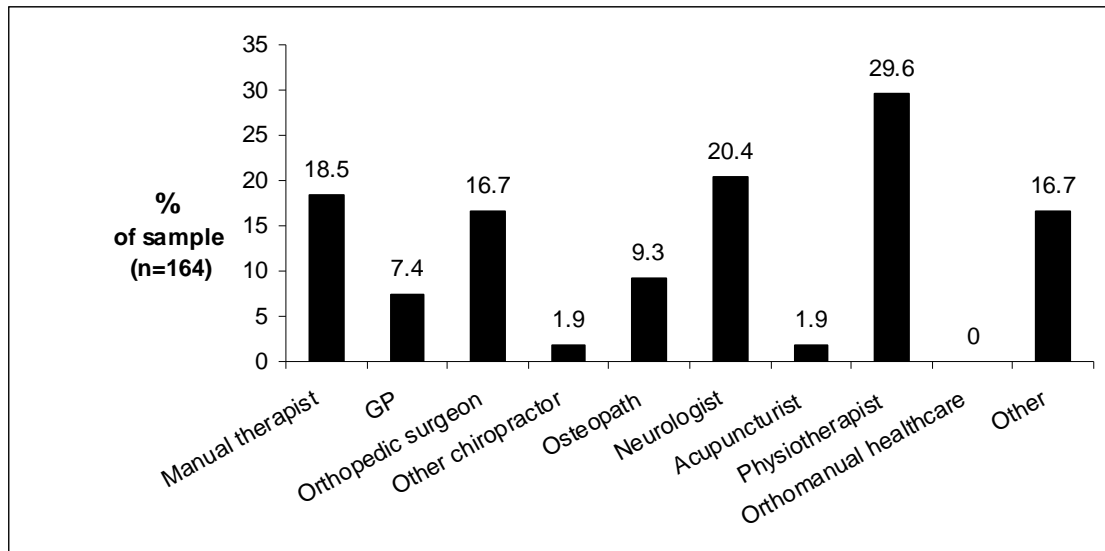


Figure 10: Patients reported time span after discontinuing chiropractic care before the incidence of a recurrence

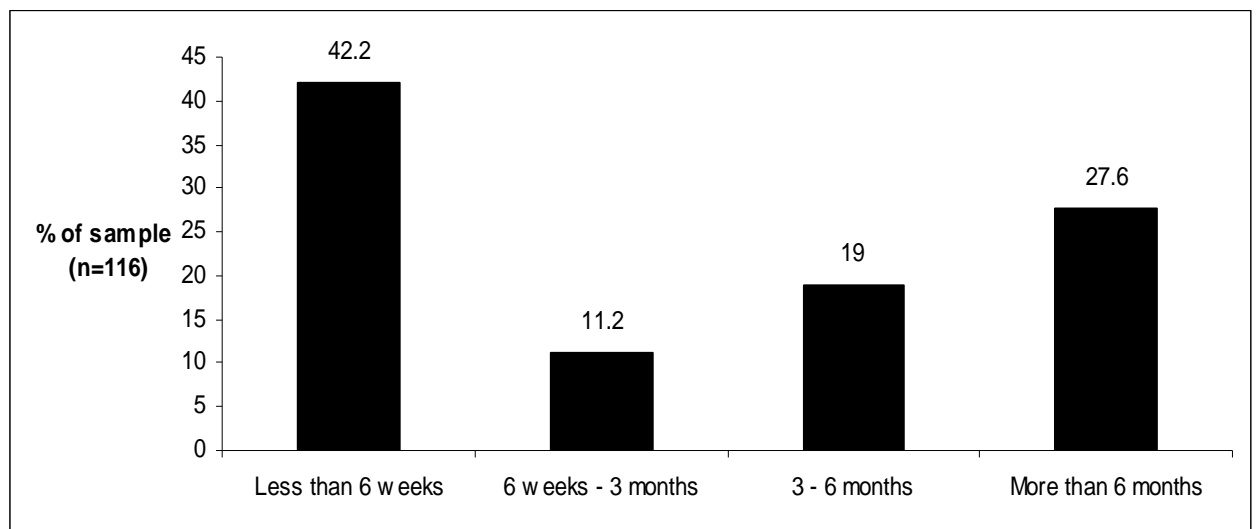
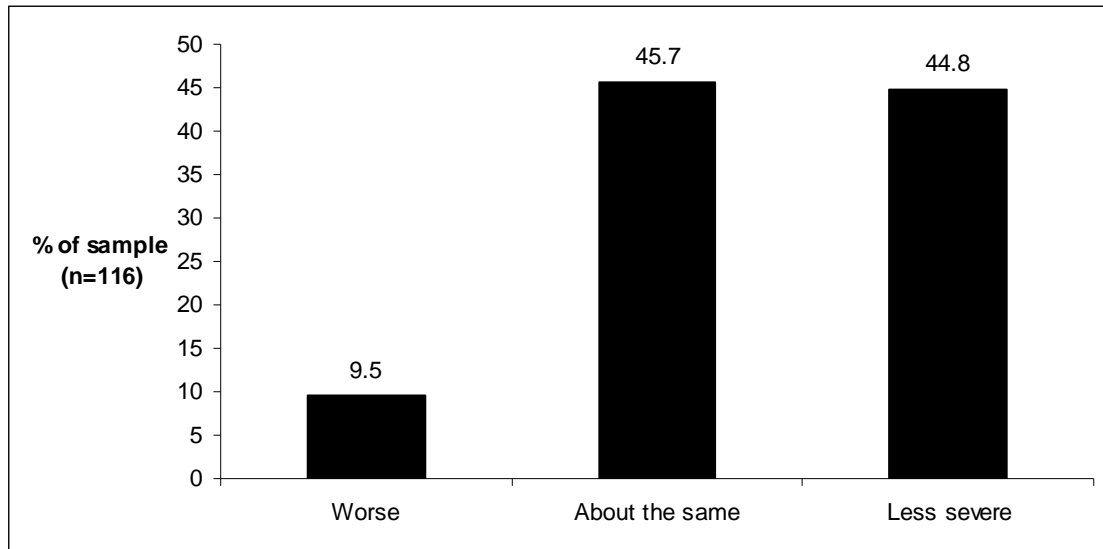


Figure 11: Comparing the severity of the recurrence of low back pain with that of the initial low back pain



### 3. Predictors of recurrence in LBP

A number of variables were considered in the present study in terms of predicting recurrences of LBP.

As shown in table 1, a statistically significant greater number of subjects who reported no recovery at the end of chiropractic treatment had a subsequent recurrence of their LBP after chiropractic treatment. Patients who reported recovery at the end of treatment were 34% (RR = 0.66) less likely to have a recurrence compared with patients who had not recovered at the end of treatment.

As shown in table 2, a statistically significant greater number of subjects who were suffering from chronic LBP when presenting to the chiropractic clinic compared to acute LBP patients had a subsequent recurrence of their LBP after chiropractic treatment. Acute patients were 36% (RR = 0.64) less likely to have a recurrence compared to chronic patients.

As shown in table 3, a statistically significant greater number of subjects who had previous treatment before they visited the chiropractic clinic had a subsequent recurrence of their LBP after discontinuing chiropractic treatment. Patients who had previous treatment were 53% (RR = 1.53) more likely to have a recurrence compared to patients who had no previous treatment.

As shown in table 4, a statistically significant greater number of females compared to males had a subsequent recurrence of their LBP after discontinuing chiropractic treatment. Women were 24% (RR = 1.24) more likely to have a recurrence of back pain compared with men.

As shown in table 5, there was no difference in recurrences of LBP after discontinuing chiropractic treatment between the age group of under 50 years and the 50+ group.

As shown in table 6, of those subjects who had a recurrence of their LBP after discontinuing chiropractic treatment, a statistically significant greater number who were suffering from chronic LBP had a higher level of severity of their subsequent recurrence compared to acute LBP patients. Acute patients were 53% (RR = 0.47) less likely to have a worse or same severity recurrence compared to chronic patients.

As shown in table 7, of those subjects who had a recurrence of their LBP after discontinuing chiropractic treatment, a statistically significant greater number of subjects who did not recover after chiropractic treatment had a more severe or similar subsequent recurrence of their LBP compared to subjects who did recover after chiropractic treatment. Patients who had recovered after chiropractic treatment were 73% (RR = 0.27) less likely to have a worse or same severity recurrence compared to patients who had not recovered.

**Table 1:** Relationship between recovery at the end of chiropractic treatment and subsequent recurrence of LBP

		Recurrence	
		Yes	No
Recovered at end of chiropractic treatment	Yes	53	39
	No	63	9

Pearson Chi-Square: 17.4, P<0.001

Risk Ratio: 0.66 (95% CI 0.54 to 0.80)

**Table 2:** Relationship between the duration of LBP at presentation and subsequent recurrence of LBP

		Recurrence	
		Yes	No
Duration of LBP at presentation	Acute	21	21
	Chronic	95	27

Pearson Chi-Square: 11.7, P<0.001

Risk Ratio: 0.64 (95% CI 0.47 to 0.88)

**Table 3:** Relationship between previous treatment and subsequent recurrence of LBP

		Recurrence	
		Yes	No
Previous treatment	Yes	89	23
	No	27	25

Pearson Chi Square: 13.0, P<0.001

Risk ratio: 1.53 (95% CI 1.16 to 2.02)

**Table 4:** Relationship between gender and subsequent recurrence of LBP

		Recurrence	
		Yes	No
Gender	Female	67	19
	Male	49	29

Pearson Chi Square: 4.5, P<0.05

Risk Ratio: 1.24 (95% CI 1.01 to 1.52)

**Table 5:** Relationship between age and subsequent recurrence of LBP

		Recurrence	
		Yes	No
Age group	<50 years	61	24
	>50 years	55	24

Pearson Chi Square: 0.09, P>0.05

Risk Ratio: 1.03 (95% CI 0.85 to 1.25)

**Table 6:** Relationship between duration of LBP and severity of subsequent recurrence of LBP

		Severity of recurrence	
		Worse/ same	less Severe
Duration of LBP at presentation	Acute	6	15
	Chronic	58	37

Pearson Chi Square: 7.3, P<0.01

Risk Ratio: 0.47 (95% CI 0.23 to 0.94)

**Table 7:** Relationship between recovery at the end of chiropractic treatment and the severity of a subsequent recurrence

		Severity of recurrence	
		Worse/ same	less severe
Patients recovered at end of chiropractic treatment	Yes	12	41
	No	52	11

Pearson Chi Square: 41.8, P<0.001

Risk Ratio: 0.27 (95% CI 0.16 to 0.45)

## Discussion

### **Summary of the results**

The first objective of this study was to investigate the reasons for discontinuing chiropractic treatment. The results showed that the main reason for discontinuing treatment was that the LBP was clearly better. The majority of subjects reported feeling much better or better after receiving chiropractic treatment for their LBP. These findings are consistent with the literature; a review carried out by Koes et al. (2006) investigated the effects of chiropractic treatment on acute and chronic LBP patients. They concluded that there is moderate evidence for the efficacy of spinal manipulation in acute LBP patients and some evidence for the effectiveness of spinal manipulation in chronic LBP patients. Bronfort et al. (2004) further reinforced this with their systematic review on the efficacy of spinal manipulation for LBP where they found that chiropractic treatment is a viable option for LBP. However, they also stated that the most positive outcomes are restricted to acute LBP patients. When looking at the effects of chiropractic treatment, the present study found that at the end of chiropractic treatment, just over 70% of subjects felt better, much better or fully recovered. After a follow up of at least six months, approximately 70% of subjects felt better, much better or fully recovered. Although these may not have been the same subjects, it seems likely that the recovery at the end of the treatment was maintained. However, almost a third (33%) of subjects received other type(s) of treatment in the follow-up period indicating that the long term recovery in these patients may not solely be due to chiropractic treatment.

Levels of satisfaction with chiropractic care are generally high, and are therefore not likely to be a reason for the discontinuation of treatment. Gaumer (2006) showed that the levels of satisfaction are higher for doctors of chiropractic compared to medical doctors. This was mainly attributed to chiropractors providing more self-care advice and giving a better explanation of the condition and the treatment. The results in this study regarding satisfaction with chiropractic treatment confirm the findings of other studies. Of the one hundred and sixty four patients treated, overall satisfaction rates were found to be high (50% reported being very satisfied and 40% being satisfied) and the number of

dissatisfied patients was very low (less than 2% of patients reported being either dissatisfied or very dissatisfied). Only 0.6% of subjects discontinued treatment due to dissatisfaction with the clinic facilities and 1.8% because the explanation by the chiropractor was not clear. Nyiendo et al. (2001) also looked into the satisfaction levels of patients with chiropractic care compared to medical doctors. The results again favored chiropractic care after one year of treatment. Patients were generally more confident that the treatment would work and they reported that they would go to a chiropractor again in the future.

The second objective of this present study was to determine the incidence of a recurrence of LBP and the risk factors for having a recurrence. Recent research shows that recurrences are very common in the course of LBP. Pengel et al. (2003) performed a systematic review on the course of acute LBP. They concluded that even though most people with acute LBP will experience improvements within one month, over 70% of LBP patients will have at least one recurrence within twelve months. The present study confirms this finding, as it shows that 71% of subjects had a recurrence in the follow-up period. Of the subjects that had a recurrence after discontinuing chiropractic treatment, 42% of these recurrences occurred within six weeks. Leboeuf-Yde et al. (2005) reported that within twelve months 80% of patients had experienced recurrent problems. In the present study when comparing the severity of the recurrence with that of the initial LBP episode, 46% reported it as being the same and 45% reported it as being less severe than the severity of the initial episode. A similar finding was reported in the review done by Pengel et al. (2003). Most research however does not include subjects that are all at the same time period in the course of their LBP. The mistake in this approach is that some of the subjects will never have recovered from the initial episode of LBP and can therefore not have a recurrence. Other subjects may have recovered relatively late and have only been at risk for a recurrence for a short period. A study which paid particular attention to this detail is the recent inception cohort study by Stanton et al. (2008). This study included only subjects who suffered from an acute episode of LBP lasting for more than twenty four hours but less than six weeks and preceded by an episode of a least one month without LBP. These subjects had to be recovered by the six week follow-up

period, resulting in a group of three hundred and fifty three subjects with a mean age of approximately 43 years of age. With a 100% follow-up rate this sample was large enough to allow for a generalizable estimate of the recurrence rate in acute LBP patients. After a one year follow-up of the subjects, the study found that the risk of a recurrence of an episode of acute LBP was 24%, which is much lower than other research suggests. Furthermore, they found that the only factor predictive of recurrences was previous episode(s) of LBP.

In the present study various predicting factors for recurrences of LBP were investigated. One significant factor was the duration of the LBP at the initial presentation to the chiropractor. Acute patients were less likely to have a recurrence compared to chronic patients. Research in the area of recurrences of LBP often focuses either on acute or chronic patients, and does not report on the differences between these two groups. Van den Hoogen et al. (1997) looked into the association between the duration of LBP and the time to recovery in a prospective cohort study. They found that chronic LBP and a history of LBP are associated with a less favourable clinical course. However, these investigators did not look at the frequency of recurrences. The present study also found that the severity of any recurrence is significantly lower when the patient originally presented with acute problems. Acute patients were as much as 53% less likely to have a worse or same severity recurrence compared with chronic patients.

When investigating the socio-demographic factors, this study concluded that age is not a risk factor in the incidence of recurrences. In contrast, gender was a predictor with women being 24% more likely to have a recurrence of back pain compared with men. No research was found in the literature to support these results. However, when looking at the prevalence of LBP, Dunn and Croft (2004) concluded in their systematic review that a number of studies have reported a slightly higher prevalence of LBP in women, but other studies found no differences. Dunn and Croft (2004) also looked at the prevalence of LBP in different age categories, suggesting that a number of studies show an increase in LBP with increasing age up to 60 years, after which it declines slightly.

Waddell (1998) however suggests that the apparent decline in older people in some studies may be due to under-reporting rather than a real fall in prevalence in this age group.

### **Limitations of study**

The information acquired from questionnaires, as was collected in this study, is considered to be subjective data. It is especially an issue because the subjects in question are asked to estimate their own health status. Subjects were also asked to recall their back pain in the past and over a period of at least six months. The study's findings therefore relied on the ability of the subjects to recall this accurately. Another limitation is that there is no randomization in subject selection in this study. The possibility of selection bias from the examiner can influence the results and make them less reliable.

A questionnaire was sent to all subjects followed by two reminders for the non-responders. This resulted into a response rate of approximately 55%, which is a reasonable return rate in a survey based study. However, more reminders could have been used to increase this response rate and obtain a higher number of subjects in the study. This could have been done by using a telephone survey, which usually gives a higher response rate than a written survey. The follow-up period of the subjects in this study was not the same throughout. Even though the minimum of the follow-up period was six months, a maximum was not set. This resulted in a difference between the subjects, making the results less reliable and less adaptable to the general population. Furthermore, subjects were selected from a single chiropractic clinic in Holland. This could have biased the results because it is not a representative of chiropractic treatment as practitioners in this practice could have used a different set of techniques compared to other clinics. The clinic used in the study comprised of three chiropractors. Although this is better than a single practitioner, it is still not enough to get an optimal view of chiropractic in general. The questionnaire did not enquire about the pain levels on a pain scale at the time of presentation to the chiropractor, after treatment and after the follow-up period. This would have been helpful to determine the decrease in pain levels after chiropractic treatment and if these changes remained during the follow-up period.

### **Future studies**

When future studies are done in this area a larger sample size from a number of chiropractic clinics is required to get a larger number of subjects and also a better representation of the general population. Also, studies looking into the differences between acute and chronic LBP should be done, specifically looking into the long term effect of chiropractic treatment is in these patients. Finally, studies should be conducted prospectively where ever possible, thereby reducing recall bias by the subjects.

## **Conclusion**

LBP is a very common problem and it is frequently seen in chiropractic clinics. This study therefore set out to investigate the reasons why chiropractic patients discontinue their treatment and to investigate subsequent recurrences of their back pain.

A questionnaire was sent to three hundred LBP patients from a chiropractic clinic in Holland who were treated for non-specific acute/chronic LBP and had not attended the clinic for at least six months. Over a two month period and after two reminders, one hundred and sixty four subjects had returned their questionnaire leading to a response rate of approximately 55%.

When looking at the reasons for discontinuing chiropractic treatment, the main reason was that most patients had recovered from their LBP. The majority of subjects reported being better over the follow-up period. However, many of the patients who were recovered after the follow-up period had received other types of treatment. Levels of satisfaction with chiropractic care and chiropractic facilities were high and were not generally seen as a reason to discontinue the treatment. Recurrences play a major role in the course of LBP and the present study found that nearly three quarter of the subjects reported a recurrence in the follow-up period, mostly in the first weeks after discontinuing treatment.

The majority of these recurrences were less severe or similar in severity to the initial LBP episode. Factors that increase the risk of these recurrences were investigated and concluded that one of the predicting factors was the duration of the LBP at the initial presentation, with acute patients being less likely than chronic patients to suffer from recurrences.

Furthermore, the duration of the LBP episode also influenced the severity of the recurrences; a lower severity of recurrence was observed in patients originally presenting with acute problems. Another predicting factor for recurrence in this study was gender, with females being more likely to suffer from a recurrence than males. Age however did not appear to predict recurrence of pain.

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## Appendix 1

### Covering letter in Dutch and English and Questionnaire in Dutch



CHIROPRACTIE  
OOSTERHOUT



Oosterhout, August 2008

Dear Sir/Madam,

With your help we can try to improve all aspects of chiropractic care in Holland. In order to do this we need to understand your opinions of the chiropractic care you received at this clinic.

This research is part of my study at the Anglo-European College of Chiropractic (AECC). It will be carried out in cooperation with C.E. Pfeifle D.C. and Chiropractie Oosterhout in relation to the 20<sup>th</sup> anniversary of the clinic. This is a follow-up study of patients with low back pain who have not attended the clinic for at least 6 months. We want to know how you felt since and if you received any treatment elsewhere.

Since you are part of this group and to get a optimal idea of the care given, we kindly request for your co-operation. Attached you will find a questionnaire and we would like to ask you to complete this which will only take 5-10 minutes of your time and to return it within two weeks in the stamped address envelope provided.

**Please note that your answers are absolutely confidential and anonymous, and they will be used for research purposes only. The information you provide will not be made available to your chiropractor.**

Many thanks in advance for your time.

Yours sincerely,

Alexander Leijten  
4<sup>th</sup> year student

C.E. Pfeifle  
chiropractor

If you have any queries regarding this research project, please do not hesitate and send an e-mail to [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com) or just ask them in the clinic (0162-470 480).



CHIROPRACTIE  
OOSTERHOUT



Oosterhout, 13 augustus 2008

Geachte heer/mevrouw,

Voor mijn afstudeerproject aan het Anglo-European College of Chiropractic in Engeland wil ik in Nederland onderzoek doen naar de kwaliteit van de chiropractische zorg, resultaten van de behandeling en tevredenheid van de patiënten.

Dit wordt uitgevoerd in samenwerking met de heer C.E. Pfeifle en Chiropractie Oosterhout, in verband met het twintigjarig bestaan van de praktijk. Het onderzoek gaat over patiënten die voor lage rugklachten in deze praktijk behandeld waren, maar nu tenminste zes maanden niet meer geweest zijn.

Gezien u bij deze doelgroep behoort en om een zo optimaal mogelijk beeld te krijgen van de verleende zorg, willen wij u vriendelijk verzoeken hieraan uw medewerking te verlenen. We willen graag weten hoe u zich momenteel voelt met betrekking tot uw rugpijn en of u hiervoor nog ergens anders behandeld wordt/werd.

Wij vragen u de bijgevoegde vragenlijst in te vullen, hetgeen ongeveer 5 tot 10 minuten in beslag zal nemen en vervolgens deze terug te sturen binnen twee weken in de geadresseerde en gefrankeerde envelop.

**Al uw antwoorden zijn anoniem en vertrouwelijk en ze worden alleen voor dit onderzoek gebruikt. Deze antwoorden zullen ook niet bekend worden gemaakt aan Chiropractie Oosterhout of anderen.**

Bij voorbaat dank voor uw medewerking.

Met vriendelijke groet,

Alexander Leijten  
vierdejaars student AECC

C.E. Pfeifle  
chiropractor

Mocht u nog vragen hebben over dit onderzoek, dan kunt u mij bereiken per mail op [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com) of deze in de praktijk stellen (0162-470 480).

## Enquête

Alle vragen in deze vragenlijst hebben betrekking op de lage rugpijn waarvoor u in de praktijk in Oosterhout bent geweest.

Gelieve alle vragen goed te lezen en te beantwoorden.

1. Wat is uw geslacht? (aankruisen a.u.b.):     man     vrouw
  
2. Wat is uw leeftijd?  
 18 - 30 jaar     41 - 50 jaar     61 - 70 jaar  
 31 - 40 jaar     51 - 60 jaar     71+
  
3. Hoe lang had u last van de lage rug voordat u naar de chiropractor bent gegaan? (maximaal 1 aankruisen)  
 0 - 2 maanden     6 maanden - 1 jaar     4 - 10 jaren  
 2 - 6 maanden     1 - 3 jaren     Meer dan 10 jaren
  
4. Heeft u, vóór uw eerste behandeling in deze praktijk, nog enige andere vorm van behandeling voor uw lage rugpijn gehad? (maximaal 1 aankruisen a.u.b.)     Ja     Nee  
  
(Bij geen andere behandeling, ga direct door naar vraag 7.)
  
5. Indien ja, graag specificeren: (**meer dan 1** keuze mogelijk)  
 manuele therapeut     andere chiropractor     acupuncturist  
 huisarts     osteopaat     fysiotherapeut  
 orthopedisch chirurg     neuroloog     orthomaneuele geneeskundige  
anders, nl: \_\_\_\_\_
  
6. In welke mate heeft de behandeling door de chiropractor in Oosterhout uw lage rugpijn **toen** beïnvloed?  
Door de behandeling is mijn lage rugpijn: (maximaal 1 aankruisen a.u.b.)  
 volledig genezen     beter     erger  
 veel beter     geen verandering     veel erger
  
7. Hoe tevreden was u met de chiropractor die u behandeld heeft? (maximaal 1 aankruisen a.u.b.)  
 Erg tevreden     Niet tevreden maar ook niet ontevreden  
 Tevreden     Ontevreden     Erg ontevreden
  
8. Hoe gaat het met uw lage rugpijn **sindsdien**? (maximaal 1 aankruisen a.u.b.)  
 Volledig genezen     Beter     Erger  
 Veel beter     Hetzelfde     Veel erger

9. Wat was de reden voor het stoppen met de behandeling bij deze praktijk? (**meer dan 1** keuze mogelijk)
- De rugpijn was over/duidelijk beter
  - de behandeling heeft niet geholpen
  - Te duur/geen vergoeding meer
  - Vanwege de napijn
  - Het is mij afgeraden/ik ben ergens anders naartoe gestuurd door een arts/specialist
  - Geen duidelijke uitleg door de chiropractor wat de reden was van de rugpijn
  - Niet tevreden met de faciliteiten (bv. auto parkeren, receptioniste, bereikbaarheid, hygiëne)
- Anders, nl: \_\_\_\_\_

10. Sinds u gestopt bent met de behandeling in deze praktijk, heeft u daarna nog enige andere vorm van behandeling voor uw lage rugpijn gehad? (maximaal **1** aankruisen a.u.b.)  Ja  Nee

(Bij geen andere behandeling ga direct door naar vraag 15.)

11. Indien ja, graag specificeren: (**meer dan 1** keuze mogelijk)

- manuele therapeut
  - andere chiropractor
  - acupuncturist
  - huisarts
  - osteopaat
  - fysiotherapeut
  - orthopedisch chirurg
  - neuroloog
  - orthomanuele geneeskundige
- anders, nl: \_\_\_\_\_

12. Is de lage rugpijn nog teruggekomen sinds u voor het laatst in de praktijk bent geweest?

- Ja
- Nee

(Bij geen terugkomende pijn ga direct door naar vraag 18.)

13. Indien ja, hoelang na de laatste behandeling in Oosterhout is deze pijn weer teruggekomen? (maximaal **1** aankruisen a.u.b.)

- Minder dan 6 weken
- 3 tot 6 maanden
- 6 weken tot 3 maanden
- Meer dan 6 maanden

14. Indien ja, is er een verschil in deze teruggekomen rugpijn vergeleken met de lage rugpijn waarmee u voor het eerst in de praktijk in Oosterhout kwam? De teruggekomen rugpijn was:

(maximaal **1** aankruisen a.u.b.)  erger  hetzelfde  minder erg

15. Wat voor cijfer zou u de praktijk geven? (0-10, 0 = zeer slecht, 10 = zeer goed, maximaal **1** omcirkelen)

0 1 2 3 4 5 6 7 8 9 10

16. Wat voor cijfer zou u de behandelende chiropractor geven? (0-10, 0 = zeer slecht, 10 = zeer goed, maximaal **1** omcirkelen a.u.b.)

0 1 2 3 4 5 6 7 8 9 10

17. Zou u chiropractie aan anderen aanraden bij vergelijkbare klachten?

- Ja
- Nee

Mocht u interesse hebben in de resultaten van dit onderzoek, dan kunt u uw e-mailadres hieronder noteren of sturen naar [info@chiropractieoosterhout.nl](mailto:info@chiropractieoosterhout.nl).

**BEDANKT VOOR UW MEDEWERKING!**

## Appendix 2

### First and second reminder in Dutch and English



Oosterhout, 5 september 2008

Geachte heer/mevrouw,

In het kader van mijn afstudeerproject aan het Anglo-European College of Chiropractic heeft u een paar weken geleden een vragenlijst toegestuurd gekregen betreffende de behandelingen voor uw rugpijn bij Chiropractie Oosterhout.

Tot op heden hebben wij helaas nog geen vragenlijst van u terug ontvangen. Aangezien er iets mis kan zijn gegaan in het traject is er natuurlijk altijd de mogelijkheid dat u deze vragenlijst nooit ontvangen hebt. Het kan uiteraard ook zo zijn dat u vergeten bent deze vragenlijst terug te sturen.

Wij zouden het zeker waarderen wanneer u uw medewerking zou willen verlenen aan dit onderzoek door alsnog deze vragenlijst te retourneren.

**Let op, de vragen beginnen aan de achterkant van deze brief.** Van enkele mensen hebben wij alleen het tweede gedeelte van de vragenlijst ontvangen. Mocht u één van de mensen zijn die vergeten is de eerste pagina mee terug te sturen, dan kunt u dat alsnog doen.

**Al uw antwoorden zijn anoniem en vertrouwelijk en ze worden alleen voor dit onderzoek gebruikt. Deze antwoorden zullen ook niet bekend worden gemaakt aan Chiropractie Oosterhout of anderen.**

Bij voorbaat dank voor uw medewerking.

Met vriendelijke groet,

Alexander Leijten  
vierdejaars student AECC

C.E. Pfeifle  
Chiropractie Oosterhout  
Mathildastraat 44  
4901 HC Oosterhout

Mocht u nog vragen hebben over dit onderzoek, dan kunt u mij bereiken per mail op [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com) of deze in de praktijk stellen (0162-470 480).



CHIROPRACTIE  
OOSTERHOUT



Oosterhout, September 2008

Dear Sir/Madam,

With your help we can try to improve all aspects of chiropractic care in Holland. In order to do this we need to understand your opinions of the chiropractic care you received at this clinic.

With regards to my final year dissertation, I have therefore sent you a questionnaire two weeks ago, regarding the treatment you received at Chiropractie Oosterhout. Up till now we have not heard anything from you. Maybe there has been a problem in the delivery and therefore you have not received anything.

Hereby we sent you the questionnaire again and would appreciate your cooperation by returning it in the stamped address envelope provided.

**Caution, the questions start on the backside of this letter.** Some people only returned the second part of the questionnaire. If you are one of them, you can still send the first page.

**Please note that your answers are absolutely confidential and anonymous, and they will be used for research purposes only. The information you provide will not be made available to your chiropractor.**

Many thanks in advance for your time.

Yours sincerely,

Alexander Leijten  
4<sup>th</sup> year student

C.E. Pfeifle  
chiropractor

If you have any queries regarding this research project, please do not hesitate and send an e-mail to [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com) or just ask them in the clinic (0162-470 480).

## SECOND REMINDER BY EMAIL IN DUTCH

Geachte heer/mevrouw,

In het kader van mijn afstudeerproject aan het Anglo-European College of Chiropractic in Engeland, doe ik een onderzoek in Nederland naar de kwaliteit van de chiropractische zorg, resultaten van de behandeling en tevredenheid van de patiënten.

Dit wordt uitgevoerd in samenwerking met de heer C.E. Pfeifle en Chiropractie Oosterhout. Het onderzoek gaat over patiënten die voor lage rugklachten in deze praktijk behandeld zijn, maar nu ten minste zes maanden niet meer zijn geweest.

Gezien u bij deze doelgroep behoort en om een zo optimaal mogelijk beeld te krijgen van de verleende zorg, willen wij u verzoeken hieraan uw medewerking te verlenen. We willen graag weten hoe u zich momenteel voelt met betrekking tot uw rugpijn en of u hiervoor nog ergens anders behandeld wordt/werd.

Om deze reden heeft u ongeveer twee weken geleden een vragenlijst toegestuurd gekregen betreffende de behandelingen voor uw rugpijn in de chiropractie praktijk te Oosterhout.

Tot op heden hebben wij helaas nog geen vragenlijst van u terug mogen ontvangen. Aangezien er iets mis kan zijn gegaan in het traject is er natuurlijk altijd de mogelijkheid dat u deze vragenlijst nooit ontvangen hebt.

Wij zouden het waarderen wanneer u uw medewerking wil verlenen aan dit onderzoek door alsnog de verstuurde vragenlijst te retourneren. Mocht u deze lijst niet ontvangen hebben, kunt u een e-mail zenden naar [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com), waarin u vermeld uw medewerking te willen verlenen. Wij zullen u dan alsnog een vragenlijst toesturen die vervolgens geretourneerd kan worden in de geadresseerde en gefrankeerde envelop.

De vragenlijst begint op de achterzijde van de begeleidende brief. Van enkele mensen hebben wij alleen het tweede gedeelte van de vragenlijst mogen ontvangen. Mocht u één van de mensen zijn die vergeten is dit eerste gedeelte mee terug te sturen, dan kunt u een e-mail zenden naar bovenstaand e-mail adres, waarna u het geheel nogmaals toegezonden krijgt.

Bij voorbaat dank voor uw medewerking.

Met vriendelijke groet,

Alexander Leijten  
Vierdejaars student

C.E. Pfeifle  
Chiropractor.

SECOND REMINDER BY EMAIL (Translated to English)

Dear Sir/Madam,

With your help we can try to improve all aspects of chiropractic care in Holland. In order to do this we need to understand your opinions of the chiropractic care you received at this clinic.

This research is part of my study at the Anglo-European College of Chiropractic (AECC). It will be carried out in cooperation with C.E. Pfeifle D.C. and Chiropractie Oosterhout in relation to the 20<sup>th</sup> anniversary of the clinic.

This is a follow-up study of patients with low back pain who have not attended the clinic for at least 6 months, with a maximum of 2 years. We want to know how you felt since and if you received any treatment elsewhere.

Since you are part of this group and to get a optimal idea of the care you received, we kindly request for your co-operation.

For this reason we sent you a questionnaire two weeks ago regarding your treatment at Chiropractie Oosterhout.

We would appreciate your cooperation by returning this questionnaire in the stamped address envelope provided. If you have not received it for any reason, please sent an email to [a.leijten@hotmail.com](mailto:a.leijten@hotmail.com) and we will sent you a new one.

**Please note that your answers are absolutely confidential and anonymous, and they will be used for research purposes only. The information you provide will not be made available to your chiropractor.**

Many thanks in advance for your time.

Yours sincerely,

Alexander Leijten  
4<sup>th</sup> year student

C.E. Pfeifle  
chiropractor