



Patient Characteristics, Practice Activities, and One-Month Outcomes for Chronic, Recurrent Low-Back Pain Treated by Chiropractors and Family Medicine Physicians: A Practice-Based Feasibility Study

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ABSTRACT

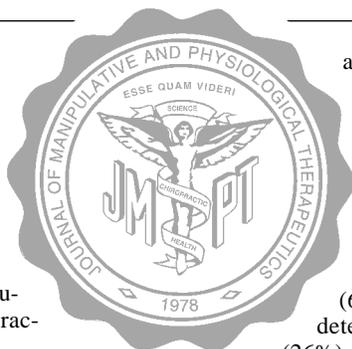
Background: Chronic low-back pain is a significant public health problem for which few therapies are supported by predictable outcomes. In this report, practice activities and 1-month outcomes data are presented for 93 chiropractic patients and 45 medical patients with chronic, recurrent low-back pain.

Design: A prospective, observational, community-based feasibility study involving chiropractors and family medicine physicians.

Setting: Forty private chiropractic clinics, the outpatient clinic of the Department of Family Medicine at Oregon Health Sciences University, and 5 other Portland area family medicine clinics.

Outcomes Measures: The main outcome measures were pain severity, functional disability, sensory and affective pain quality at 1 month, and patient satisfaction assessed at 7 to 10 days and at 1 month.

Results: Although differences were noted in age, sex, education, and employment, the patients were closely matched at baseline with respect to frequency, severity, and type of low-back pain and the psychosocial dimensions of general health. The treatment of choice for chiropractors was spinal manipulation and physical therapy modalities; for medical physicians



antiinflammatory agents were most frequently used. Chiropractic patients averaged 4 visits, and medical patients averaged 1 visit. On average, chiropractic patients showed improvement across all outcomes: 31% change in pain severity, 29% in functional disability, 36% in sensory pain quality, and 57% in affective pain quality. Medical patients showed minimal improvement in pain severity (6%) and functional disability (1%) and showed deterioration in the sensory (29%) and affective (26%) dimensions of pain quality. Satisfaction scores were higher for chiropractic patients. Outcomes for medical patients were heavily dependent on psychosocial status at baseline.

Conclusion: Patients with chronic low-back pain treated by chiropractors show greater improvement and satisfaction at 1 month than patients treated by family physicians. Nonclinical factors may play an important role in patient progress. Findings from the Health Resources and Services Administration-funded project will include a report on the influence of practice activities, including more frequent visits by chiropractic patients, on the clinical course of low-back pain and patient outcomes. (*J Manipulative Physiol Ther* 2000;23:239-45).

Key Indexing Terms: Low-Back Pain; Outcome Assessment (health care); Chiropractic; Family Practice; Feasibility Studies

INTRODUCTION

Back pain, especially low-back pain, continues to be a major problem affecting the health care system in this country. At any given point in time, up to 20% of adults report that they have symptoms of back pain.¹ It is the second lead-

ing cause of all physician visits in the United States.² Although seldom life-threatening, it is a major cause of functional disability, representing one fourth of all disabling work injuries.³ Frymoyer and Cats-Baril¹ suggest that total costs for low-back pain disorders may have been as high as \$75 to \$100 billion in 1990. The cost burden is disproportionate, with 75% to 90% of the costs attributable to only 5% to 10% of patients with low-back pain. These are individuals for whom back pain has become chronic and disabling.^{4,5} There is little evidence of any significant abatement of this public health problem, in spite of the fact that the proportion of health care resources devoted to low-back pain conditions continues to increase.^{6,7}

The causes of back pain are multifactorial. The natural history of low-back pain syndromes,⁴ the presence of confounding factors (physical, psychological, social, and economic),⁸ and the heterogeneity of these conditions⁹ present a difficult situation for the clinician. In most cases a definitive diagnosis is not possible.^{4,10} This uncertainty has resulted in a variety of treatment practices that are largely empirical. Clinicians are unable to predict with confidence which patients are most likely to benefit from care and under which circumstances.

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In spite of the tremendous burden patients with chronic low-back pain put on the health care system, there is a paucity of data on treatment effectiveness for this patient group.^{4,11} Federally-sponsored practice guidelines have been developed only for acute low-back problems in adults.¹² For chronic low-back conditions, there are many issues of clinical management for which questions remain unanswered; among them are the following: How do differences in the treatment processes relate to variations in outcomes among different types of practices and providers? What is the relative benefit of different care strategies?

In an attempt to begin to answer these questions, we conducted a prospective, observational, practice-based feasibility study involving chiropractors and family practice physicians. Our strategy was to collect data on patient outcomes and physician practice activities. The focus of this article is a single profile: patients with chronic recurrent ambulatory low-back pain.

METHODS

Clinic Settings and Physician Participants

Physician participants numbered 33 medical physicians and 45 chiropractors. The study sites included 40 private chiropractic clinics, 80% located in the Portland metropolitan area; the outpatient clinic of the Department of Family Medicine at Oregon Health Sciences University in Portland; and 5 other Portland-area family medicine clinics. Clinics were oriented to the protocol and logistics of data collection during a 3-month period in late 1992 by the staff of the Center for Outcomes Studies. Methods were established for integrating the study into the clinic routine with minimal disruption and without jeopardy to either patient care services or the integrity of the study. Data were collected on 797 patients with acute and chronic low-back pain over a 6-month period in 1993. This article describes the subgroup of patients with chronic low-back pain.

Subjects

Patients were eligible for the study if they were 18 years or older, had a primary complaint of low-back pain, and had not been previously treated by a participating physician or a physician of the same provider type for the current episode. Patients were excluded if any of the following applied: lumbar fracture, instability, malignancy, or infection; or other sources of low-back pain of nonmechanical origin, such as referred pain of organic origin.

For the purpose of this article, "chronic" was defined as an episode duration of 6 weeks or longer. Although the work group on the Classification of Chronic Pain¹³ suggested that the term "chronic" be used at 3 months after the index episode, the Report of the Quebec Task Force⁴ suggested a cut-off at 7 weeks, identifying a period between 1 week and 7 weeks as a "sub-acute period." Recent longitudinal studies on the evolution of chronic back pain lend support to this shift closer to the time of initial injury.¹⁴ Recurrent episodes were defined as discreet episodes of low-back pain separated by 6 weeks or more of no low-back pain.

Patients were informed of the protocol and that their responses would be kept confidential. The study was approved by the institutional review boards of Western States Chiropractic College and Oregon Health Sciences University. All patients were required to sign an informed consent form before enrollment.

Study Protocol

Both patients and physicians completed a questionnaire on the first visit. Patient follow-up included a telephone interview at 7 to 10 days and a mailed questionnaire at 1 month and 3 months. Physicians were required to complete a follow-up questionnaire at all subsequent visits.

Patient Questionnaires

The patient baseline was administered in the waiting room before the clinical encounter and consisted of 6 parts. Sociodemographic information was requested. A condition-specific questionnaire established the state of the patient's low-back condition before treatment.¹⁵ A 100-mm visual analogue scale (VAS) was used to measure pain severity¹⁶ and the short-form McGill Pain Questionnaire (MPQ) was included to document pain quality.¹⁷ The Revised Oswestry Low-Back Pain Questionnaire (RODQ) was used to assess limitations in functional activities.¹⁸ Eight elements of general health status were measured with the Medical Outcomes Study 36-item Questionnaire (SF-36).¹⁹ Three questions were appended to the SF-36 to screen for depression.²⁰ The time required to complete the patient baseline ranged from 15 to 30 minutes.

The 9-question telephone interview assessed patient satisfaction by use of a 5-point ordinal scale. The questionnaire was modeled after the Cherkin and MacCornack satisfaction questionnaire²¹ and was conducted at 7 to 10 days. The 1-month patient follow-up was mailed with a postage-paid, self-addressed return envelope. It included a condition-specific questionnaire, VAS, MPQ, and RODQ.

Physician Questionnaire

The physician's record sheet was a 14-item structured, double-sided, self-administered questionnaire that took less than 1 minute to finish. It was completed either during or immediately after the clinical encounter. Physicians were asked to provide data on clinical impression and patient management. Information requested on practice activities included treatment procedures used, type and region of adjustment (chiropractic patients only); type and dose of drugs used (medical patients only); and type and frequency of use of ancillary procedures, such as heat or cold application, electrotherapy, and ultrasonography. The physician follow-up form was identical to the baseline physician's record sheet.

RESULTS

The patients with chronic, recurrent low-back pain included in this report were a small subgroup (17.3%) of the total enrolled sample; 93 chiropractic patients and 45 medical patients comprised this patient profile. Recruitment rates

Table 1. Patient characteristics

| | Chiropractic (n = 93) (%) | Family practice (n = 45) (%) |
|--------------------------------|---------------------------------|------------------------------------|
| Mean age (SD) | 40.4 (13.4) | 48.1 (15.8) |
| Sex | | |
| Male | 45.2 | 28.9 |
| Female | 54.8 | 71.1 |
| Race/ethnicity | | |
| Black | 2.2 | 4.4 |
| White, non-hispanic | 85.9 | 77.8 |
| Native American | 9.8 | 13.3 |
| All other | 2.2 | 4.4 |
| Education | | |
| <High school graduate | 7.6 | 11.1 |
| High school graduate | 17.2 | 28.9 |
| Some college | 37.6 | 40 |
| College graduate/graduate work | 37.7 | 20 |
| Employment (outside home) | | |
| Full time | 64.5 | 36.4 |
| Part time | 14 | 11.4 |
| None | 21.5 | 52.3 |
| Job-related injury | 16.9 | 15.9 |

were assessed by chart audit 4 months into the study at 2 medical and 4 chiropractic clinics; 75% to 88% of eligible chiropractic and 42% to 74% of eligible medical patients were asked to participate. Of those recruited, 88% to 93% of the chiropractic patients and 56% to 78% of the medical patients were enrolled. The satisfaction interview at 7 to 10 days was completed by 76% of the chiropractic patients and 78% of the medical patients. Response rates at the 1-month follow-up for chiropractic and medical patients were as follows: MPQ, 53% and 51%; and RODQ and VAS, 47% and 38%.

Patient Baseline Characteristics

Table 1 displays the patient characteristics within the 2 provider groups. Differences were seen with regard to age, sex, and employment status. Compared to chiropractic patients, family practice patients tended to be older, female, less educated, and less likely to be employed outside the home. General health status profiles for family practice patients at baseline showed slightly greater physical impairment, bodily pain, and poorer general health (Figure 1). On the other hand, scores assessing psychosocial health were essentially identical in the 2 patient groups. Although acute depression was reported with nearly equal frequency (chiropractic, 43%; medical, 45%), chronic depression of 2 years duration (dysthymia) was more prevalent in patients seen by medical physicians, 31% versus 14%.

The frequency of previous low-back pain episodes in the past year was similar. Low-back pain severity in the week immediately preceding the index visit was more often reported to be severe or extremely severe (35.7% vs 23.6%) by medical patients. Seventy-nine percent of family practice patients and 60% of chiropractic patients reported symptoms of sciatica (data not shown).

Condition-specific outcomes

The means and standard deviations for pain severity (VAS), pain quality (MPQ), and functional disability

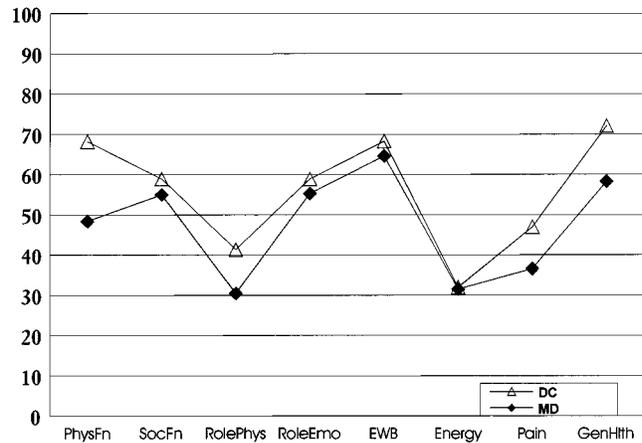


Fig 1. Health status profiles for medical and chiropractic patients at enrollment. For all dimensions, optimal health is represented by a score of 100. PhysFn, Physical functioning (limitations on physical activities such as lifting, climbing, walking); SocFn, limitations on social activities (visiting with friends, relatives) as a result of physical or emotional health problems; RolePhys, limitations on work or other activities of daily living as a result of limitations in physical functioning; RoleEmo, limitations on work or other activities of daily living as a result of mental/emotional health; EWB, emotional well-being (mental health); Energy, energy/fatigue level; Pain, degree of interference with normal work as a result of pain; GenHlth, perception of health, in general.

(RODQ) are presented in Table 2. The MPQ characterized 2 separate dimensions of pain quality: sensory (eg, temporal, spatial, thermal, and pressure); and affective (eg, tension, fear, and autonomic properties).¹⁷ Considerable variation in the primary outcome measures is indicated by the large standard deviations. On average, family practice patients were characterized by greater impairment (higher scores). However, baseline scores were nearly identical for the subset of medical and chiropractic patients who submitted their 1-month follow-up questionnaire. Chiropractic patients showed greater improvement at 1 month on the 2 MPQ dimensions and on the VAS. Family practice patients actually regressed 26% to 29% on the MPQ dimensions. Although 6% improvement was noted for medical patients on the VAS, the improvement for chiropractic patients was 5 times greater, at 31%. Chiropractic patients also showed less functional disability at 1 month. The baseline difference in RODQ scores (7.5) is not likely to have had a clinically important effect on the 1-month follow-up scores.

Patient satisfaction

Table 3 presents data on patient satisfaction obtained by telephone interview at 7 to 10 days. With one exception, satisfaction was higher for patients attending chiropractors. Notable differences ($\geq 20\%$) were found for statements related to the patient's assessment of his/her physician's concern and for statements related to the patient's own level of comfort.

Table 4 depicts the 3 aspects of patient satisfaction that were measured at 1 month. Chiropractic patients expressed greater satisfaction regarding information and treatment pro-

Table 2. Baseline, follow-up scores, and mean change (Δ) in primary outcome measures at 1 month

| | Chiropractic | | Family practice | |
|---|--------------|------|-----------------|-----|
| | Mean/SD | % | Mean/SD | % |
| VAS | | | | |
| Baseline: all patients (n = 87, 33) | 42.0 (21.4) | | 43.9 (24.8) | |
| Baseline: patients with follow-up (n = 44, 17) | 42.5 (21.4) | | 41.9 (26.4) | |
| 1 Month | 29.4 (23.8) | | 39.4 (26.4) | |
| Absolute Δ | -13.1 (23.8) | | -2.5 (24.0) | |
| Relative Δ | | -31% | | -6% |
| RODQ | | | | |
| Baseline: all patients (n = 88, 42) | 38.5 (14.9) | | 48.1 (15.0) | |
| Baseline: patients with follow-up (n = 44, 17) | 38.9 (13.8) | | 46.5 (14.9) | |
| 1 Month | 27.6 (18.6) | | 45.8 (19.1) | |
| Absolute Δ | -11.3 (15.4) | | -6 (9.8) | |
| Relative Δ | | -29% | | -1% |
| MPQ | | | | |
| Sensory | | | | |
| Baseline: all patients (n = 90, 43) | 7.1 (5.6) | | 8.7 (7.9) | |
| Baseline: patients with follow-up (n = 49, 23) | 7.3 (5.0) | | 7.3 (7.3) | |
| 1 Month | 5.0 (5.6) | | 9.4 (7.8) | |
| Absolute Δ | -2.6 (5.5) | | 2.1 (6.7) | |
| Relative Δ | | -36% | | 29% |
| Affective | | | | |
| Baseline: all patients (n = 90, 43) | 1.9 (2.6) | | 2.7 (3.2) | |
| Baseline: patients with follow-up (n = 49, 23) | 2.3 (2.7) | | 2.3 (3.0) | |
| 1 Month | 1.0 (1.8) | | 2.8 (3.2) | |
| Absolute Δ | -1.3 (2.2) | | .6 (2.4) | |
| Relative Δ | | -57% | | 26% |

Higher scores at baseline and 1 month represent impairment. Hence, a negative score for absolute Δ or relative Δ represents improvement.
Absolute Δ , One-month score – baseline score; *Relative Δ* , mean absolute Δ /mean baseline score.

vided. The difference between provider groups was most marked for the question involving satisfaction with overall medical care (chiropractic, 90%; medical, 52%). Chiropractic patients also reported greater improvement at 1 month (Table 4) as measured by a subjective assessment question. A higher proportion of chiropractic patients (56% vs 13%) reported that their low-back pain was better or much better, whereas nearly one third of medical patients reported their low-back pain was worse or much worse.

Physician practice activities

Radiographs were obtained on the first visit with nearly equal frequency by medical physicians and chiropractors (24.4% and 24.7%). Antiinflammatory drugs were the most frequently prescribed medication by family practice physicians (42%). Muscle relaxants were used infrequently (6%). Six patients (13%) were referred to physical therapy; only 2 patients actually complied with this recommendation. In 3 of 4 chiropractic cases, the principal adjustive method was manual, high-velocity, low-amplitude manipulation. Chiropractic patients were more likely to receive full spine adjustment (61%) and less likely to receive adjustment only in the

Table 3. Patient satisfaction at 7 to 10 days*

| Patients who strongly agree or agree with statement | Chiropractic | Family practice |
|---|-----------------|-----------------|
| | (n = 71) (%) | (n = 35) (%) |
| Patient's assessment of physician's concern | | |
| My doctor spend adequate time listening to my description of the pain | 97.2 | 77.1 |
| My doctor understood my concerns about the cause of my pain | 98.6 | 74.3 |
| My doctor seemed to agree that my pain was real | 100 | 85.7 |
| Patient's impression of physician's confidence | | |
| My doctor seemed confident that the diagnosis she/he gave me was correct | 92.9 | 93.3 |
| My doctor seemed confident that the treatment she/he recommended would work | 94.3 | 79.3 |
| My doctor seemed comfortable dealing with my back pain | 98.6 | 87.9 |
| Patient's own level of comfort | | |
| My doctor gave me sufficient information about the cause of my pain | 78.6 | 65.7 |
| I knew what to do to take care of my back after the visit with my doctor | 95.7 | 71.9 |
| I feel confident that the treatment my doctor recommended will work | 81.4 | 53.4 |

*Statements were scored on a scale of 1 to 5, with 1 = strongly disagree and 5 = strongly agree.

lumbopelvic region (39%). Physical therapy modalities were frequently used, with massage and trigger-point therapy used most often. Electrotherapy, heat, and ultrasonography were used in one third of cases. For both medical and chiropractic patients, ancillary procedures most often included an exercise plan and postural advice. Lumbar supports were recommended for 5% of chiropractic patients and for none of the medical patients. Bed rest was rarely advised in either group. The mean number of office visits for chiropractic patients was 4.3 (SD = 3.0); for medical patients, 1.1 (SD = 3.0).

Correlations

Correlations were calculated to explore the association of 1-month outcomes with baseline health status (Table 5). The highlights are discussed below. Spearman's rank correlation coefficient (ρ) is reported rather than Pearson's correlation because of the slight skewness of the data and sensitivity of Pearson's r to outliers in small samples.

For both patient groups, poorer baseline status was associated with poorer follow-up status for pain severity and functional disability. The correlation between baseline affective pain quality and follow-up RODQ was fairly strong for the medical cohort ($r = .64$) but trivial for the chiropractic cohort ($r = .05$). Additionally, cohort differences were noted on the 4 dimensions of the health status questionnaire that measure psychosocial attributes. Poorer health at baseline on these dimensions was associated with greater impairment at 1 month. The outcomes for chiropractic patients seemed to be less affected by initial status for mental health, limitations on activities of daily living caused by mental health dysfunction, and social function. Chiropractic patients with impaired status in the psychosocial dimensions were just as likely to show

Table 4. Satisfaction and patient improvement (subjective) at 1 month*

| | Chiropractic (n = 50) (%) | Family practice (n = 23) (%) |
|--|---------------------------------|---------------------------------------|
| Patients' satisfaction at 1 month | | |
| How satisfied with information given about condition? | | |
| Very/somewhat satisfied | 82 | 61.9 |
| Neither satisfied nor dissatisfied | 12 | 19 |
| Somewhat/very dissatisfied | 6 | 19 |
| How satisfied with treatment for condition? | | |
| Very/somewhat satisfied | 89.8 | 65 |
| Neither satisfied nor dissatisfied | 2 | 10 |
| Somewhat/very dissatisfied | 8.1 | 25 |
| How satisfied with overall medical care? | | |
| Very/somewhat satisfied | 89.8 | 52.4 |
| Neither satisfied nor dissatisfied | 6.1 | 23.8 |
| Somewhat/very dissatisfied | 4 | 23.8 |
| Subjective assessment of improvement | | |
| Compared to the last questionnaire, is low-back pain better/worse? | | |
| Much better/better | 56 | 13 |
| A little better/about the same | 30 | 52.1 |
| A little worse/much worse | 14 | 34.8 |

*Satisfaction with information, treatment and overall medical care were scored on a scale of 1 to 5, with 1 = very satisfied and 5 = very dissatisfied. Subjective assessment was scored on a scale of 1 to 6, with 1 = much better and 6 = much worse.

improvement on the primary outcome measures as patients with better psychosocial health.

Correlations between 1-month follow-up scores and 1-month satisfaction with treatment were unremarkable. Within the chiropractic cohort, there was little evidence of any relationship between treatment outcomes and satisfaction with information, treatment provided, or overall care. On the other hand, an unexpected association was found between medical patients' satisfaction and change scores for VAS and Oswestry: the greater the improvement, the more dissatisfied family practice patients were with the treatment received.

DISCUSSION

A variety of procedures are available to treat low-back pain, but, with few exceptions, it is not known which patients are likely to benefit from which treatment and under which circumstances. For chronic low-back conditions, there is little consensus regarding the most appropriate method of treatment. Patients may be receiving less than optimal care. The current climate of health care reform, with its emphasis on patient outcomes and physician accountability, provides a unique opportunity for practice-based researchers. This study is important because it represents an effort by chiropractors and family medicine physicians to systematically measure patient outcomes. The preliminary data obtained on patient characteristics, practice patterns, and patient outcomes revealed some findings of interest that suggest directions for hypothesis development and future research.

Patient Characteristics

The 2 patient cohorts presented some sociodemographic differences (age, sex, education, employment). At baseline,

Table 5. Correlations of baseline health status with primary outcome measures at 1 month*

| | One-month follow-up | | | |
|-----------------------------|---------------------|----------------|----------------|----------------|
| | VAS | | RODQ | |
| | DC (n = 44) | MD (n = 21) | DC (n = 45) | MD (n = 22) |
| Baseline status | | | | |
| Pain severity: VAS | .44 | .52 | .49 | .2 |
| Functional disability: RODQ | .36 | .52 | .52 | .85 |
| Pain quality: sensory | .39 | .39 | .12 | .35 |
| Pain quality: affective | .3 | .36 | .05 | .64 |
| General health status | | | | |
| Physical function | -.46 | -.33 | -.54 | -.69 |
| Role-physical | -.26 | -.37 | -.48 | -.64 |
| Role-emotional | -.02 | -.12 | -.03 | -.57 |
| Energy/fatigue | -.28 | -.15 | -.3 | -.58 |
| Emotional well-being | -.12 | -.18 | -.11 | -.55 |
| Social function | -.14 | -.29 | -.12 | -.62 |
| Pain | -.29 | -.17 | -.57 | -.62 |
| General health | -.01 | -.2 | -.07 | -.09 |

*Better baseline status was found to be associated with better follow-up status for all measures. Correlations greater than .40 in magnitude are in bold-face. All correlations for general health status are negative because of the directionality of the scales.

patients of family practice physicians scored more poorly with respect to overall health status and ability to perform the usual tasks of daily living (eg, walking, climbing stairs, lifting). They also reported slightly more bodily pain. These findings may be a consequence of the 8-year mean age difference between the cohorts. The effect of these potential confounders on outcomes is being explored in the long-term study.

Practice Activities

Although research published in both the chiropractic and medical literature has repeatedly shown radiographic findings to be poorly correlated with low-back pain,²²⁻²⁶ in this study of chronic low-back pain, 1 in 4 patients underwent radiography. The duration of the problem beyond 1 month,^{27,28} coupled with physician uncertainty,²⁹ may have influenced the decision to obtain radiographic films, a decision made with nearly equal frequency by the 2 physician types.

The therapy of choice for participating family physicians was antiinflammatory drugs (eg, ibuprofen). The findings from the first study were consistent with the literature that describes medical treatments as typically including drugs, physical therapy, bed rest, and exercise regimens.³⁰ Ninety-six percent of chiropractic patients received spinal manipulative therapy. The greater use of full-spine adjustment may be a consequence of chiropractors' view of the spine and locomotor system as an integrated unit. As low-back pain becomes chronic, local problems may cause adaptations and compensation, which potentially lead to secondary problems in other regions of the spine.³¹ The extensive use of ancillary procedures is consistent with the literature that reports that physical therapy modalities and exercise regi-

mens are an integral part of the therapeutic approach for many chiropractors.³²⁻³⁵

Unlike drugs prescribed by medical physicians, spinal manipulation could not be self-administered by patients. Thus the number of physician visits by chiropractic patients was necessarily greater than the number recorded for medical patients. The effect of those more frequent visits on patient outcomes will be evaluated in the long-term study.

Patient Outcomes

One possible explanation for the greater improvement seen in the chiropractic cohort may be the efficacy of spinal manipulation or some combination of manipulation and other modalities. Although there is ample evidence in the literature to support a specific benefit from manipulation for patients with acute low-back presentation,¹² there is a paucity of research on the benefit of manipulation for patients with chronic low-back pain.

Alternatively, outcome may be heavily influenced by the nature of the chiropractor-patient interaction, including more frequent visits and a process that engages the patient as a partner in the healing encounter.³⁶ Clinical outcomes have been shown to be influenced by patients' health beliefs, the doctor-patient relationship, communication and information-sharing, and issues of power and control in treatment decision-making.³⁷⁻⁴² The influence of nonclinical factors appears to receive support from this study in that good outcome for medical patients was largely dependent on good psychological health at baseline, whereas the outcome for chiropractic patients was not. It may be that chiropractors dealt more effectively (successfully) with the psychosocial components of chronic low-back pain or, alternatively, that the psychological/emotional needs of chiropractic patients were being met independently of their physical (pain and functioning) needs.

The greater satisfaction found for chiropractic patients was consistent with previous studies reporting that chiropractic patients are more satisfied with the amount of information given them, their perception of their provider's concern for them, and their provider's level of comfort and confidence in dealing with the problem.²¹ The paradoxical relationship between increased improvement and decreased satisfaction seen for medical patients is grounds for speculation. Perhaps pretreatment expectations were not met,⁴³ or the improvement experienced may have fallen far short of the amount anticipated. Alternatively, if the patients' needs for humanistic interactions and reassurance about their anxieties were not fulfilled by their providers, they might feel dissatisfied regardless of the condition-specific outcomes.^{44,45} Finally, we cannot rule out that greater satisfaction in the chiropractic cohort may be a function of differences in management style, practice setting, patients' ability to choose their provider type, or organizational characteristics of the health care facility (eg, size, complexity, professional autonomy).^{21,46-48}

Study Limitations

This was a feasibility study, and, as such, it is characterized by a number of limitations. The proportion of eligible

patients who were enrolled in the study was lower for medical clinics (35% to 62%) than chiropractic clinics (68% to 80%). However, the lower level of medical patient recruitment was due to the organizational complexities inherent in multiphysician clinics and was independent of patient characteristics. The follow-up rates for the 1-month questionnaire were acceptable for cold mailings. The degree of similarity between responders and nonresponders is not known, except that medical patients with greater severity at baseline were less likely than their chiropractic counterparts to respond to the 1-month follow-up questionnaire.

Self-selection to treatment group is a known bias in observational studies. One can never be sure that all of the vital factors affecting patient outcomes are known and are reflected in the data. However, our purpose was not to study efficacy as in a randomized clinical trial but to characterize patients and practices and to explore relationships as they exist in the community. We will be looking at both short- and long-term outcomes in the Health Resources and Services Administration-funded study for which Part I is completed and Part II is currently in progress. We anticipate that, with 3000 patients, we will be able to use sophisticated multivariate techniques to explore the association of relevant variables in greater detail.

CONCLUSION

The treatment and prevention of chronic recurrent low-back pain is a multifaceted problem. Chiropractors and family physicians need to be cognizant of the influence of nonclinical factors on patient progress. Physicians should develop strategies to harness this knowledge to improve the therapeutic encounter and potentially to improve outcomes.

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