Pain Physician, Volume 4, Number 2, pp131-142
2001, American Society of Interventional Pain Physicians®
ISSN 1533-3159

Original Article

Characteristics of Chronic Low Back Pain in Patients in an Interventional Pain Management Setting: A Prospective Evaluation

Laxmaiah Manchikanti, MD*, Vidyasagar Pampati, M Sc, Bert Fellows, MA#, Carla D. Beyer, RN##, Kim S.Damron, RN##, Renee C. Barnhill, RN##, and Trish A. Burks, LPTΩ**

Chronic low back pain patients are seen in multiple practice settings and managed with a multitude of therapeutic interventions. Studies conducted by various groups have made some generalizations in the literature describing low back pain patients. However, there are no studies evaluating the demographic features of patients presenting to therapeutic interventional pain medicine programs.

This prospective study was undertaken to evaluate and explore various demographic features of patients with chronic low back pain presenting to a therapeutic inter-ventional pain medicine program. Two hundred patients were studied, with evaluation of demographic features of age, mode of onset of pain, work status, history of surgery, and pain characteristics.

The results showed that, among patients presenting to an interventional pain medicine program, 17% are over 65 years of age: they are predominantly women; two thirds are either overweight or obese; the mean duration of pain is 7 years, predominantly involving multiple regions, with an average pain intensity of 7.6, significant associated psychological conditions; they have undergone multiple interventions, and were seen by, on average, six physicians; and the majority of patients were not employed, with 31% unemployed and 52% disabled or retired.

Keywords: Chronic low back pain, demographic features, disability, clinical features, interventional pain management

Chronic low back pain is an important clinical, social, economic, and public health problem affecting the population indiscriminately (1, 2). It is a symptom that cannot be validated by an external standard and is a disorder with many possible etiologies, occurring in almost all groups of the population, with variable demographic features. Thus, chronic low back pain patients are seen in multiple practice settings and managed utilizing multiple and highly variable therapeutic interventions, which not only include drugs and surgery, but also include manipulation, physical therapy, behavior therapy, and neural blockade. Even though it once was thought that most episodes of low back pain are short-lived and that 80% to 90% of attacks of low back pain resolve in about 6 weeks, present evidence indicates that chronic or recurrent low back pain ranges from 35% to 79% (3-8).

From Pain Management Center of Paducah, Paducah, Kentucky. *Medical Director, **statistician, #psychologist, ##clinical coordinators, and Ωclinical director at the Pain Management Center of Paducah. Address correspondence: Laxmaiah Manchikanti, MD, 2831 Lone Oak Road, Paducah, KY 42003. E-mail: drm@asipp.org.

In assessing the severity and disability of chronic low back pain, Cassidy and colleagues (9) reported that 84% of their respondents reported a lifetime prevalence, whereas 47% of the patients reported grade 1 pain (low pain intensity - low disability), 12% grade 2 pain (high pain intensity – low disability), 13% grade 3 pain (high pain intensity – moderate disability) and grade 4 pain (high pain intensity – severe disability). Their findings indicated that grade I low back pain was more common in the younger population, while older age groups reported a higher incidence of grades 3 and 4 pain (9). Estimated average of age-related prevalence of persistent low back pain was shown to be 12% in children and adolescents, 15% in adults, and 27% in the elderly (2). Probable risk factors of low back pain include genetic factors, age, and smoking; whereas possible risk factors include back pain history, job dissatisfaction, heavy physical work, static work postures, lifting, vibration, obesity, and psychosocial factors; even though there are no demonstrated causal risk factors (2).

The patients presenting with chronic low back pain are considered a special category with specific demographic factors. In a large US study of persistent back pain and sciatica describing patient characteristics, Long et al (10)

published the results of patients referred to either a neurosurgeon or an orthopedic surgeon for the evaluation and treatment of a persistent complaint of low back pain. They found that persistent low back pain is most common among people in their mid-to-late 30s and early-to-mid 40s: patients are mostly white, well educated, and generally affluent and the majority are gainfully employed; and, typically, psychological factors do not appear to play a substantive role in the complaints.

Similarly, patients undergoing diagnostic interventions, behavior management, on functional rehabilitation, or patients presenting to a physiatry or neurological clinic are also different from patients presenting to interventional pain medicine practices (11-18). Manchikanti et al (15), in evaluating the effectiveness of three routes of epidural steroid injections in managing chronic low back pain in an interventional pain medicine practice, described these patients to be predominantly women with an age range of 23 to 98, with a duration of pain ranging from 6 to 120 months. Manchikanti et al (16) also assessed the prevalence of lumbar facet joint pain in chronic low back pain and showed that patients were predominantly women with a mean age of 47.1 $\pm$ 16.12 and a mean duration of pain of 74.8 $\pm$ 77.7 months. Most of the patients in both studies were not working. Many were disabled, and a significant number were above 65 and retired.

Hence, this prospective study was undertaken to evaluate and explore various demographic features of patients with chronic low back pain presenting to an outpatient interventional pain medicine program. The issues explored included various features related to chronic low back pain; individual factors including age, gender, and family history; habits, including smoking and alcohol consumption; premorbid psychosocial factors; physical, functional, and psychological status at the time of the evaluation; and, finally, comorbid medical conditions.

METHODS

The study was designed to evaluate demographic, physical and psychosocial features of patients presenting for pain management. The study population consisted of 200 patients randomly selected, with the chief complaint of low back pain. All patients presented for pain management. During this study, a total of 1394 patients were seen at this center, with 786 presenting with a chief complaint of low back pain. There were no specific inclusion or exclusion criteria. The patients were provided an explanation about their participation in the study and the potential hazards of the procedures they were undergoing. All patients participated with informed choice and consent.

Evaluation of the patients included completion of a standard comprehensive pain management questionnaire, history and physical examination by a physician, psychological evaluation by Millon Clinical Multiaxial Inventory (MCMI-III) whenever it was feasible, and evaluation of the results of all procedures and investigations. Evaluation of these patients was geared to include all demographic features.

Demographic features of age, mode of onset of pain, work status, history of surgery, various historical features, and pain characteristics were obtained from the patient history and recorded. The patient's age was calculated from his or her birth date; whereas duration of pain was calculated based on the patient's memory of the onset of pain to the closest month, when available. Pain characteristics were obtained from the history, comprehensive pain questionnaire, and pain diagram. Pain rating was obtained from a 10-point verbal pain-rating scale. The results of physical findings were based on examination of the patient. Inappropriate symptoms and signs were obtained as per the descriptions of Waddell et al (19, 20) and Main and Waddell (21). The radiological findings were derived from radiographic testing on each patient, with radiologist's interpretation. Osteoporosis was determined by peripheral bone mass densitometry. Body mass index (BMI) was calculated using the formula of weight and kilograms divided by weight and meters squared (BMI = kg/m^2). The psychological diagnosis was derived from MCMI III results.

Data were recorded on a database using Microsoft® Access®. The SPSS version 9.0 statistical package was used to generate the frequency tables and chi-squared statistic was used to test the significant difference between gender. Fisher's exact test was used wherever expected value was less than 5. Student's t-test was used to test mean significant difference between gender. A BMI of 25 to 29.9 was considered as overweight, while a BMI of 30 or over was considered as obese. Results were considered statistically significant if the *P* value was less than 0.05.

RESULTS

Demographic Features

Of the 200 patients included in this study, 38% of all of the patients were drawn from the county of the practice location, whereas 56% of the patients were from other coun-

ties within the state and 7% were from other states; 88% had children; 52% were married, 24% were divorced, and 13% were single. As shown in Table 1, 60% were female; 17% were 65 or older; and only 17% were working; whereas 17% were retired, 35% were disabled, 25% were off work and 6% were homemakers. In addition, 59% of the patients were smokers, 36% were obese, and 31% were overweight. A significantly greater number of men overweight.

Low Back Pain Characteristics

Salient characteristics of low back pain are described in Table 2. This evaluation showed that the mean duration of pain in years was 7.0 ± 0.49, with a range of 0.75 to 25 years, with 54% of the patients reporting pain of longer than 4 years; with the mode of onset predominantly without an incident in 47% of the patients, with work-related incidents in 24%, motor-vehicle accidents in 13% and other incidents in 16%. Sequence of onset of pain problems included simultaneous onset of low back pain with other pain problems in 19%, low back pain as the first onset in 70% and low back pain followed by other problems in 11%. Only low back pain was seen in 49% of the patients, whereas in 20% of the patients two regions were involved; and in an additional 31% three regions were involved. Only back pain was present in 10% of the patients, and back pain with leg pain was present in 90% of the patients; whereas back pain was worse than leg pain in 46% of the patients, back and leg pain were equal in 29% of the patients, and leg pain was worse than back pain in 15% of the patients. Average pain intensity was 7.6 ± 0.09; sleep disturbance was noted in 92% of the patients with severe disturbance noted in 24%; and moderate disturbance was present in 40%. Nonphysiological symptoms of 3 or more were noted in 29% of the patients.

Table 1. *Demographic features of low back pain patients*

		Men		Women		Total	
		N=79	40%	N=121	60%	N=200	100%
Age	< 65 years	72	91%	94	78%	166	83%
	≥ 65 years	7	9%	27	22%	34	17%
	Mean ± SEM	45 ± 1.50		48 ± 1.49		47 ± 1.08	
Body mass Evaluation	Height in inches Mean ± SEM	70 ± 0.35		65 ± 0.27		67 ± 0.28	
	Weight in lbs Mean ± SEM	205 ± 5.60		168 ± 4.20		182 ± 3.60	
	BMI	29.4 ± 0.73		28.3 ± 0.73		28.7 ± 0.53	
	Normal	16	20%	50	41*%	66	33%
	Overweight	33	42*%	29	24%	62	31%
	Obese	30	38%	42	35%	72	36%
Work status	Working	15	19%	20	17%	35	17%
	Off work/ unemployed	20	25%	29	24%	49	25%
	Retired	7	9%	27	22%	34	17%
	Disabled	37	47%	32	26%	69	35%
	Homemaker	0	0%	13	11%	13	6%
Smoking	Mild	4	5%	2	2%	6	3%
	Moderate	11	14%	16	13%	27	13%
	Heavy	39	49%	47	39%	86	43%
	Total	54	68%	65	54%	119	59%

* Indicates significant difference BMI - Body mass index

Table 2. *Salient characteristics of low back pain patients*

		Men		Women		Total	
		Number	%	Number	%	Number	%
Duration in years	Mean ± SEM	6.5 ± 0.73		7.2 ± 0.66		7.0 ± 0.49	
	Range	0.75 - 25		0.75 - 25		0.75 - 25	
Mode of onset	Following incident(s)	51	64%	55	45%	106	53%
	Without incident	28	36%	66	55%	94	47%
Number of regions involved	One	39	49%	59	49%	98	49%
	Two	23	29%	18	15%	41	20%
	Three or more	17	22%	44	36%	61	31%
Pain ratio	Only back pain	7	9%	14	12%	21	10%
	Back = Leg	25	31%	32	26%	57	29%
	Back > Leg	33	42%	59	49%	92	46%
	Leg > Back	14	18%	16	13%	30	15%
Average pain intensity	Mean ± SEM	7.5 ± 0.15		7.7 ± 0.13		7.6 ± 0.09	
Sleep disturbance		74	93%	111	91%	185	92%
Nonphysiological symptoms (three or more)		21	27%	36	30%	57	29%

Treatment History

Table 3 illustrates various modalities of treatments and number of providers seen, and the types of drugs used by these patients. The number of providers seen was 6 ± 0.26, with 2.5 ± 0.32 emergency room visits. A total of 31% underwent surgical intervention, with 20% undergoing laminectomy, 4% undergoing lumbar fusion, and an additional 4% having laminectomy followed by fusion on separate occasions. Seventy percent of the patients underwent physical therapy, with a mean number of visits of 42 ± 4.82, with 34% undergoing 21 or more visits; 23% fewer than 10 visits, whereas 13% had 11 to 20 visits. Forty-three percent of the patients underwent chiropractic manipulation, with a mean number of visits of 145 ± 30.5, with 62% of the study population visiting on one or more occasions. Twenty-three percent of the patients underwent psychological intervention, with a mean number of visits of 24 ± 3.48; with 7% undergoing intervention on 20 or more occasions, and 9% on less than 10 occasions. Eighty-five percent of the patients used narcotics, 11% illicit drugs, 40% anxiolytics, 45% anti-depressants, and 21% steroids. Nineteen percent underwent epidurals and 9% underwent nerve blocks.

Radiologic Findings

As shown in Table 4, only 15% of the patients had normal radiological evaluation, with the remaining 85% showing one or more abnormalities. Disc degeneration was the most common abnormality, followed by disc bulging and facet arthritis. Disc herniation with or without compression was seen in only 20% of the patients, with 10% of the patients also demonstrating epidural fibrosis.

Physical Findings

Soft findings with low back pain during straight leg raising and paravertebral spasm were seen in approximately 50% of the patients (Table 5). Alteration of reflexes was seen in only 8% of the patients, with sensory alteration in 7% and motor weakness in 9% and straight leg raising with leg pain in 12%. Nonphysiological signs were present in 23% of the patients (Table 5).

Psychological Characteristics

Psychological characteristics are described in Table 6. Sixty-five percent of the patients presented with a clinical

Table 3. *Treatment history prior to interventional pain management*

	Men	Women	Total
No. of providers seen Mean ± SEM	6 ± 0.42(76)	6 ± 0.34(121)	6 ± 0.26(197)
No. of ER visits Mean ± SEM	2.1 ± 0.32(34)	2.8 ± 0.49(45)	2.5 ± 0.32(79)
Post-surgery	39% (31)	26% (31)	31% (62)
Physical therapy	76% (60)	66% (80)	70% (140)
Chiropractic	45% (35)	42% (51)	43% (86)
Psychology	23% (18)	24% (29)	24% (47)
Drugs			
Over-the-counter	62% (49)	61% (74)	62% (123)
NSAIDs	53% (42)	48% (58)	50% (100)
Narcotics class III	70% (55)	68% (82)	69% (137)
Narcotics class II	35% (28)	26% (31)	30% (59)
Illicit drugs	14% (11)	9% (11)	11% (22)
Anxiolytics	41% (32)	39% (47)	40% (79)
Antidepressants	38% (30)	49% (59)	45% (89)
Steroids	22% (17)	21% (25)	21% (42)
Interventional procedures (Epidurals/nerve blocks)	30% (24)	21% (26)	25% (50)

( ): Indicates number of patients ER = emergency room NSAIDs = Nonsteroid anti-inflammatory drugs

Table 4. *Radiologic findings in order of frequency*

	Men	Women	Total
Disc degeneration	37% (29)	46% (55)	42% (84)
Disc bulging	39% (31)	34% (41)	36% (72)
Facet arthritis	29% (23)	31% (37)	30% (60)
Disc herniation	25% (20)	17% (20)	20% (40)
No abnormalities	13%(10)	17% (20)	15%(30)
Epidural fibrosis	15% (12)	6% (7)	10% (19)
Spondylolisthesis	8% (6)	7% (9)	7% (15)
Spondylolysis	5% (4)	9% (11)	7% (15)
Schmorl's nodes	1% (1)	1% (1)	1% (1)
SI joint arthritis	1% (1)	0%	0.5% (1)

( ): Indicates number of patients

Table 5. *Positive physical findings in order of frequency*

	Men	Women	Total
Paravertebral muscle spasm	53% (42)	47% (57)	50% (99)
Straight leg raising - back pain	57% (45)	44% (53)	49% (98)
Positive nonphysiologic signs	18% (14)	26% (32)	23% (46)
Straight leg raising - leg pain	19% (15)	7% (9)	12% (24)
Motor weakness	10% (8)	8% (10)	9% (18)
Reflex alteration or loss	10% (8)	7% (8)	8% (16)
Sensory alteration or loss	13% (10)	3% (4)	7% (14)

( ): Indicates number of patients

condition (dysthymia, major depression, somatization disorder, generalized anxiety disorder, or schizophrenia). Similarly the majority of patients (77%) presented with a personality disorder. Generalized anxiety disorder was most common, affecting in 49% of the patients, followed by somatization disorder, dysthymia, and major depression. Dependent personality disorder was the most common personality disorder, followed by obsessive-compulsive personality disorder, histrionic personality disorder and passive/aggressive personality disorder.

Table 6. *Associated psychological conditions in order of frequency*

Clinical Conditions	Men	Women	Total
Generalized anxiety disorder	49% (39)	49% (59)	49% (98)
None	35% (28)	34% (41)	35% (69)
Somatization disorder	35% (28)	33% (40)	34% (68)
Dysthymia	32% (25)	29% (35)	30% (60)
Major depression	20% (16)	26% (31)	23% (44)
Schizophrenia	6% (5)	6% (7)	6% (12)
Personality Disorders			
Dependent	42% (33)	32% (39)	36% (72)
Obsessive compulsive	41% (32)	23% (28)	30% (60)
None	18% (14)	26% (32)	23% (46)
Histrionic	9% (7)	21% (25)	16% (32)
Avoidant	10% (8)	17% (20)	14% (28)
Passive/aggressive	14% (11)	10% (12)	12% (23)
Narcissistic	10% (8)	11% (13)	10% (21)
Sadistic	9% (7)	9% (11)	9% (18)
Antisocial	5% (4)	7% (8)	6% (12)
Paranoid	3% (2)	7% (9)	5% (11)
Schizoid	3% (2)	7% (9)	5% (11)

( ): Indicates number of patients

Table 7. *Comorbid medical conditions in order of frequency*

	Men	Women	Total
Cardiovascular disease	40% (32)	36% (43)	38% (75)
Osteopenia	22% (17)	23% (27)	22% (44)
Physical abuse	13% (10)	25% (30)	20% (40)
Pulmonary disease	11% (9)	18% (22)	15% (31)
Diabetes mellitus	9% (7)	13% (16)	12% (23)
Sexual abuse	3% (2)	19% (23)	12% (25)
Hypothyroidism	1% (1)	10% (12)	7% (13)
Osteoporosis	5% (4)	7% (9)	6% (13)
Other medical conditions	10% (8)	2% (2)	5% (10)
Posttraumatic stress	1% (1)	2% (2)	2% (3)

( ): Indicates number of patients

Other Medical Conditions

Comorbid or other medical conditions are illustrated in Table 7. Comorbid conditions with posttraumatic stress were seen in 2%, physical abuse in 20% and sexual abuse in 12%. Cardiovascular disease was seen in 38% of the patients and pulmonary disease in 15%. Hypothyroidism was seen in 7% of the patients, whereas diabetes mellitus was seen in 12%. All other medical conditions were seen in 5% of the patients. All of the patients underwent bone mass density evaluation. Osteoporosis was seen in 6% of patients, whereas osteopenia was seen in 22% of patients.

Treatment Course

Following the evaluation, modalities prescribed to these patients are shown in Table 8. Ninety-six percent of the patients underwent interventional procedures. However,

Table 8. *Treatment course of low back pain patients after evaluation*

		Men (79)	Women (121)	Total (200)
Interventional procedures		91% (72)	98%* (119)	96% (191)
Physical therapy		39% (31)	43% (52)	42% (83)
Psychological visits		32% (25)	40% (48)	37% (73)
Narcotic	Class II	20% (16)	15% (18)	17% (34)
	Class III	75% (59)	75% (91)	75% (150)
	Class IV	4% (3)	10% (12)	8% (15)
	Total	87% (70)	88% (107)	89% (177)
NSAIDs		19% (15)	12% (14)	15% (29)
Antianxiety		33% (26)	35% (42)	34% (68)
Antidepressants		33% (26)	32% (39)	33% (65)
Anticonvulsants		9% (7)	22%* (26)	17%(33)

( ): Indicates number of patients * Indicates significant difference NSAIDs = Nonsteroidal anti-inflammatory drugs

a significantly higher number of women underwent the procedures (98% versus 91% in males). Physical therapy was carried out on 42% of the patients, whereas 37% underwent psychological management.

All patients received drug therapy with 89% receiving narcotics, 34% receiving anti-anxiety drugs, 33% receiving antidepressants and 17% receiving anticonvulsants. More women received anticonvulsants.

DISCUSSION

Low back pain is an important chronic health problem in the United States, with the prevalence ranging from 8% to 56% (12). It is estimated that 28% of the American population experiences disabling low back pain at some time during their lives; whereas 14% experience episodes lasting at least 2 weeks, with 8% of the entire working population being disabled in any given year, and a lifetime prevalence of low back pain of 65% to 80%. It has been shown that patients presenting with low back pain vary in their demographic profile based on the specialist(s) they are presenting to, and it appears, based on the preadmission demographics of these patients, that the most difficult patients present to interventional pain medicine practices. Post-treatment outcomes are highly variable. However, there is a tendency in the medical community to treat all complaints as if they were the manifestation of a single incident and to ignore the heterogenicity of the complaints. In addition, outcomes that are inherently different are compared, mixing various groups of population and various modalities of treatments.

Long et al (10) in evaluating persistent back pain and sciatica in the United States, reported the following salient characteristics:

- Persistent low back pain is most common among those in their mid-to-late 30s and early-to-mid 40s.
- Patients are mostly white, relatively well educated, and somewhat affluent.
- A majority of persistent low back pain patients remain employed, but a significant number do quit working because of pain.
- Persistent low back pain patients typically have a long history of low back pain.
- The typical persistent low back pain patient does not demonstrate significant psychological distress, unlike chronic pain patients.
- Psychological factors do not appear to play a substantial role in the complaints.
- Persistent low back pain patients report significant functional impairment at work, at play, and at home.
- A typical patient with persistent back pain has consulted multiple health-care providers, has received a variety of treatments, and has used a variety of medications to alleviate pain.
- Physical examinations do not provide significant clues for patients with persistent back pain for making a definitive diagnosis or selecting a therapeutic regimen.
- The classic combination of reflex changes, motor weakness, and sensory deficit considered to be typically associated with specific protruded discs is present in less than 1% of the patients with persistent back pain, even though 36% of the patients had a diagnosis of disc herniation.
- Electrodiagnostic studies do not appear relevant in the evaluation of patients with persistent low back pain.
- Imaging studies play a significant role in both evaluation and treatment of patients with persistent pain.
- Persistent low back pain is different from chronic pain syndrome, and both categories can be differentiated.
- Chronic pain syndrome characterized by significant functional impairment, severe behavioral and psychological distress, and serious misuse of prescribed, addictive medication is uncommon.
- The common belief that all back pain goes away with time is not true for persistent low back pain patients.

In a different practice situation, a neurological outpatient clinic, Sciupokas (11) showed that most patients were between the ages of 30 and 49, with low back pain accounting for 26% of the admissions or 29% of all primary visits during a 3-year period. Dreyfuss et al (13) in a physiatry practice, reported the demographic and clinical features of patients: patients were predominantly men, with most patients having back pain for over 5 years, but 67% were working, whereas 33% were either retired or not working, but not because of the pain. In another physiatry practice, Saal and Saal (14) reported patients with discogenic pain distributed equally among men and women, with a mean age of 41 years, ranging from 21 to 58 years, and a mean duration of symptoms of 60 months, with a range of 10 months to 17 years. Surprisingly, even the patients presenting to interventional pain medicine centers for diagnostic purposes appear to be quite different from patients

Table 9. *Comparison of demographic features of low back pain patients in various settings*

		Present study N=200	Orthopedic/ neurosurgery N=2374
Gender	Men	40%	46%
	Women	60%	54%
Age	Mean ± SD	47 ± 15.27	45.3 ± 12.79
	35-45 years	40%*	31%
	Range	22-87	25-75
	≥ 65 years	17%	NA
Employment	Working	17%	67%*
	Not Working	31%*	20%
	Retired/disabled	52%*	13%

* Indicates significant difference

presenting for therapeutic interventional pain management. Schwarzer et al (17, 18), in evaluating 176 patients who identify a pain generator, reported these patients to be predominantly men (60% men versus 40% women), with a median age of 36.7 years, ranging from 31 to 46 years, with none of the patients above 65 years of age.

In contrast, this evaluation showed that patients presenting for therapeutic interventional pain management were different from patients presenting for diagnostic interventions and from patients presenting to orthopedic or neurological surgical settings, as well as patients presenting to either physiatry or neurological practices. We attempted to compare the data from various settings to our own data; however, these comparisons were only feasible with orthopedic/neurosurgical practice settings (10). Data from other studies were insufficient for comparison purposes, even though conclusions can be drawn with regards to the general characteristics of these patients.

Table 10. *Comparison mode of onset of pain in various settings*

		Present Study	Orthopedic/Neurosurgery
Mode of onset	Work related	24%	29%
	Other incidents	29%*	4%
Duration of pain in years	Range	0.75-25	0.08 - 20+
	Mean + SD	7.0 ± 6.9*	2.52 ± 4.88
	Median	6.5	0.75
Pain intensity	Mean ± SD	7.6 ± 1.27*	4.78 ± 1.80
Pain location	Back only	10%	7%
	Back and leg (unilateral)	21%	33%
	Back and leg (bilateral)	69%*	27%
Sleep disturbance		92%	85%

* Indicates significant difference

Table 11. *Comparison of physical findings in various settings*

	Present Study	Orthopedic/Neurosurgical
Lumbar muscle spasm	50%	24%
Tenderness	98%	42%
Reflex loss	8%	29%
Sensory loss	7%	31%
Positive straight leg raising	12%	43%
Positive nonphysiological signs	29%	4%

As shown in Table 9, comparative demographic features illustrated that a significant number of patients were men in orthopedic/neurosurgical practices, in contrast to women in the present study; age range as per the descriptions was 25 years to 75 years in orthopedic/neurosurgical practice compared to 22 years to 87 years in the present study. In addition, the age group between 35 to 45 years was 40% in the present study, compared to 31% in orthopedic/neurosurgical practice; and patients above 65 years were 17% in this study, but statistics were not available for orthopedic/neurosurgical practice.

Employment was also significantly different, as 67% were working, 20% not working, and 13% were either retired or disabled, in contrast to 17% working, 31% not working and 52% retired/disabled in our study.

Pain characteristics, as well as associated sleep disturbances, were also different in both studies. As shown in Table 10, while work-related onset of pain was similar in both groups, pain related to other incidents was significantly higher in the present study compared to the orthopedic/neurosurgical practices. Duration of pain in years, mean $\pm$ SD, was 7.0 $\pm$ 6.9 in the present study, compared to 2.52 $\pm$ 4.88 in the orthopedic/neurosurgical practices. Pain intensity was also higher with a mean $\pm$ SD of 7.6 $\pm$ 1.27 in the present study compared to 4.78 $\pm$ 1.80 in the orthopedic/neurosurgical practices. Incidence of bilateral pain was also higher in the present study. There were no differences noted in sleep disturbances between these groups of patients.

Comparison of physical findings also yielded some differences. As shown in Table 11, reflex loss, sensory loss, and positive straight leg raising were seen in a higher number of patients in the orthopedic/neurosurgical practices compared to the present study, which had only 8% reflex loss, 7% sensory loss, and 12% positive straight leg raising,

Table 12. *Comparison of prior treatments in patients presenting to various settings*

	Present study	Orthopedic/Neurosurgery
Average number of physicians visited	6	NA
Number of patients visiting a physician in past 12 months	93%*	87%
Three or more physicians	83%*	49%
Physical therapy	70%*	51%
Chiropractic	43%	47%
Surgery	31%*	20%
Nerve blocks/epidurals	25%	17%
Psychotherapy/biofeedback	23%*	12%

* Indicates significant difference

compared to 29%, 31%, and 43%. On the other hand, lumbar muscle spasm, lumbar tenderness, and positive nonphysiological signs were seen in 50%, 98%, and 29%, respectively, in the present study; compared to 24%, 42%, and 4%, respectively, in the orthopedic/neurosurgical practices.

Even the profile of prior treatments was different in both settings. As shown in Table 12, the number of patients visiting more than three physicians was 83% in the present study, compared to 49% in orthopedic/neurosurgical practices; 31% in the present study underwent surgical interventions, in contrast to 20% in orthopedic/neurosurgical practices; 28% in the present study received nerve blocks and epidurals, whereas 17% received similar treatments in orthopedic/neurosurgical practices; psychotherapy/biofeedback training was received by 23% of the patients in the present study, compared to 12% in orthopedic/neurosurgical practices; and physical therapy was a treatment modality in 70% of the patients in the present study, compared to 51% in the orthopedic/neurosurgical practices. There were no significant differences noted in the percent of patients undergoing chiropractic treatments (43% vs 47%).

In summary, patients presenting to a therapeutic interventional pain management practice are different from patients with persistent low back pain presenting to orthopedic/neurosurgical practices. Surprisingly, differences also exist between behavioral pain programs, physiatry practices, diagnostic interventional pain practices, and neurological practices. To summarize, based on this study, patients presenting to a therapeutic interventional pain practice can be described as follows:

- Patients are predominantly women (60% versus 40%)
- Forty percent of the patients fall into the age group between 35 and 45 years. Age range was 22 to 87, with a mean $\pm$ SD age of 47 $\pm$ 15.27.
- A significant number of patients were elderly (above 65 years of age, 17%)
- Only 17% of the patients were working, with 31% not working and 52% being either retired or disabled.
- Mode of onset of pain was predominantly of gradual onset, with 24% of the patients presenting with a history of work-related injury and 29% with other incidents.
- Duration of pain ranged from 0.75 to 25 years, with a mean duration of 7.0 $\pm$ 6.9 years and with a median duration of 6.5 years.
- Pain intensity (mean $\pm$ SD) was 7.6 $\pm$ 1.27.
- Predominant location of the persistent pain was in the low back and both lower extremities in 69% of the patients, followed by unilateral distribution in 21%, with back pain in only 10%.
- A total of 92% of the patients experienced sleep disturbances.
- Most commonly seen physical findings were tenderness followed by muscle spasm. Reflex loss was seen in only 8% of the patients, with sensory loss present in 7% and positive straight leg raising in 12%. However, non-physiological signs were present in 29% of the patients. Only one region was involved in 49% of the patients, two regions were involved in 20% of the patients, and three or more regions were involved in 31% of the patients.
- Back pain was worse than leg pain in 46% of the patients, and back pain and leg pain were equal in 29% of the patients; whereas leg pain was worse than back pain in only 15% of the patients.
- Psychological disturbances were commonly seen, with the presence of dysthymia in 30%, major depression in 23%, somatization disorder in 34%, and generalized anxiety disorder in 49%.
- A significant number of patients were seen by multiple physicians and underwent multiple types of treatments.

CONCLUSION

This study illustrates the differences between groups of patients presenting to various settings with chronic or persistent low back pain. These variables will also have significant effect on outcomes. Thus, outcome studies comparing interventional techniques with other studies, unless they are conducted in a single study in a controlled, randomized fashion, are generally not valid.

REFERENCES

1. Walker B. The prevalence of low back pain: A systematic review of the literature from 1966 to 1998. *J Spinal Disord* 2000; 13:205-217.
2. Manchikanti L. Epidemiology of low back pain. *Pain Physician* 2000; 3:167-192.
3. Anderson GBJ, Svensson HO. The intensity of work recovery in low back pain. *Spine* 1983; 8:880-887.
4. Van Den Hoogen HJM, Koes BW, Deville W et al. The prognosis of low back pain in general practice. *Spine* 1997; 22:1515-1521.

5. Croft PR, Papageorgiou AC, Thomas E et al. Short-term physical risk factors for new episodes of low back pain. Prospective evidence from the South Manchester Back Pain Study. *Spine* 1999; 24:1556-1561.
6. Carey TS, Evans A, Hadler N et al. Care-seeking among individuals with chronic low back pain. *Spine* 1995; 20:312-317.
7. Miedema HS, Chorus AMJ, Wevers CWJ et al. Chronicity of back problems during working life. *Spine* 1998; 23:2021-2029.
8. Tomas E, Silman AJ, Croft PR et al. Predicting who develops chronic low back pain in primary care. A prospective study. *Br Med J* 1999; 318:1662-1667.
9. Cassidy D, Carroll L, Cote P. The Saskatchewan Health and Back Pain Survey. *Spine* 1998; 23:1860-1867.
10. Long DM, BenDebba M, Torgerson WS et al. Persistent back pain and sciatica in the United States: Patient characteristics. *J Spinal Disord* 1996; 9:40-58.
11. Sciupokas A. Back pain in the neurological outpatient clinic. *Proceedings of 9th World Congress of Pain* 1999; pp 101.
12. Karasek M, Bogduk N. Twelve month follow up of a controlled trial of intradiscal thermal annuloplasty for back pain due to interval disc disruption. *Spine* 2000; 25:2601-2607.
13. Dreyfuss P, Halbrook B, Pauza K et al. Efficacy and validity of radiofrequency neurotomy for chronic lumbar zygapophysial joint pain. *Spine* 2000; 25:1270-1277.
14. Saal JA, Saal JS. Intradiscal electrothermal treatment for chronic discogenic low back pain. *Spine* 2000; 25:2622-2627.
15. Manchikanti L, Pakanati RP, Pampati V. Comparison of three routes of epidural steroid injections in low back pain. *Pain Digest* 1999; 9:277-285.
16. Manchikanti L, Pampati V, Bakhit CE et al. Prevalence of lumbar facet joint pain in chronic low back pain. *Pain Physician* 1999; 2:59-64.
17. Schwarzer AC, Aprill CN, Derby R et al. Clinical features of patients with pain stemming from the lumbar zygapophysial joints. Is the lumbar facet syndrome a clinical entity? *Spine* 1994; 19:1132-1137.
18. Schwarzer AC, Aprill CN, Derby R et al. The relative contributions of the disc and zygapophysial joint in chronic low back pain. *Spine* 1994; 19:801-806.
19. Waddell G, McCulloch JA, Kummel E et al. Nonorganic physical signs in low back pain. *Spine* 1980; 5:117-125.
20. Waddell G, Main CJ, Morris EW et al. Chronic low back pain, psychologic distress, and illness behavior. *Spine* 1984; 9:209-213.
21. Main CJ. Waddell G. Behavioral responses to examination. A reappraisal of the interpretation of "nonorganic signs." *Spine* 1998; 23:2367-2371.