

Effects of Active and Completed Litigation on Treatment Results: Workers' Compensation Patients Compared with Other Litigation Patients

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Outcomes of multidisciplinary pain treatment in workers' compensation claimants and in the claimants of other insurance companies were studied. Patients were also segregated as to state of completion of the litigation process. No differences were found between the groups in organic and psychologic pathology. Significant improvement in outcome measures was found for the total group, but the workers' compensation claimants with completed litigation failed to show any significant improvement in these measures. The system itself and legal factors can be obstacles to rehabilitation of the patient with chronic pain. Early intervention is recommended to improve treatment outcome.

To increase the general well-being of patients with chronic pain and to decrease the expenses caused by injuries and disabilities, return to work or function has been adopted as the main goal of treatment by many pain centers, insurance companies, and rehabilitation agencies.^{1,2} Patients treated by multimodal programs have been found to return to a more normal life, ie, to improved occupational and/or other roles, in comparison with untreated patients.^{3,3} However, in every program a certain number of failures exists.^{4,6}

It has been generally believed that one of the major obstacles to successful rehabilitation is the influence of disability compensation and pending litigation.^{8,14} Op-

posing this general belief, pain centers accepting compensation claimants as their clients report as much improvement in their patients as centers not accepting them.^{1,4,16} The results of research studies testing the differences between compensation patients and noncompensation patients have been contradictory: differences in emotional patterns of psychopathology between compensation and noncompensation patients have been found by some authors,^{6,10} whereas others do not report such differences.^{4,7,16,17} Differences in experience of pain between these groups have also been reported,^{7,10,11} whereas others did not find differences in experience or in decrement of pain after treatment.¹⁰⁻¹⁷ Contradictory results have also been obtained concerning the return to work and other activities of daily living.^{4,10,15}

Assessment of the results of different studies is difficult because some of them have compared compensation v noncompensation patients without considering the status of litigation. In other studies only the effect of litigation is examined. In the present study, the patient group consisted of compensation patients who had undergone litigation at some time during their evaluation and treatment. Therefore, we could not compare "compensation" v "noncompensation" patients or "litigation" v "nonlitigation" patients. However, it was possible to segregate the patient population with regard to the source of compensation, viz. worker's compensation v other funding, and whether litigation was active or completed.

Differences in diagnostic measures of organic and psychologic pathology were studied in the following groups: (1) workers' compensation patients with active litigation, (2) workers' compensation patients with completed litigation, (3) other accident patients with active litigation, and (4) other patients with completed liti-

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gation. In addition, differences of improvement in pain-related behavior, work status, and other activities of daily living were assessed.

Methods

Subjects

The total of 140 inpatient files from a residential multidisciplinary treatment center (period of April 1982 to February 1985) were reviewed in chronologic order. The inclusion criteria were (1) duration of pain more than 6 months and (2) the availability of results from all psychologic tests normally given to the patients at the Mensana Clinic. Many charts could not be included because insurance companies had not authorized psychologic testing or the patient was discharged before psychologic testing had been completed. Of 71 patients meeting the inclusion criteria, the researchers were able to contact 60 patients. Of the remaining 11 patients some were not available for interview or their whereabouts were unknown. Of the 60 patients contacted 41 were workers' compensation claimants and 19 had been involved in other accidents. Information for the diagnostic measures of this study was gathered during the patient's stay at the clinic and derived from patient files. Outcome data at the follow-up were obtained by telephone interview. The time from discharge to interview varied from 3 months to 3 years, 4 months (mean = 2 years, 1 month). Of the 60 patients, 59 were assessed to have at least one physical diagnosis: 33% had disorders caused by scar tissue, joint disease, connective tissue disorders, or disc disease; 25% had neuralgia; 17% had myofascial disorders; 16% had disease of bone; 2% had causalgia; and 7% had a variety of other unusual disorders.

Measures of Organic Pathology

To establish physical diagnoses, information derived from medical tests and clinical examinations during the patient's stay at the clinic were used. The severity of each test result was rated on the basis of the reports given by expert consultants. (0 = normal findings, 1 = mild impairment, 2 = moderate impairment, and 3 = severe impairment.) The methods of deriving the composite score of organic impairment from the patient's medical test result ratings are illustrated in Table 1. Patients with a composite score of 2-3 were classified as "definite organic" pain group and patients with scale-score sums of 0-1 as "minimal organic" pain group. To avoid overdiagnosing of "organicity," at least two tests showing moderate level of impairment with additional tests showing mild level of impairment were required to include the patients in the group of definite organic findings.

TABLE 1
Illustrative Examples of Scoring Method for Organic Pathology

Test*	Patient Examples				
	A	B	C	D	E
Bone scan	0	0	0	0	0
Computerized axial tomography scan	0	0	2	0	0
Radiographs	1	1	0	2	0
Thermography	0	1	0	0	0
Gallium scan	0	0	0	0	0
Magnetic resonance imaging	0	1	0	2	0
Myelogram	0	0	0	0	3
EEG	1	0	0	1	0
Flexion/extension radiographs	0	0	0	1	0
Electromyogram	0	0	0	1	0
Nerve conduction velocity	0	0	0	0	0
Additional test	0	0	0	0	0
Composite score† of impairment	0	1	1	2	3

* These and/or additional tests were given to the patient if indicated; if not given, 0 rating was assumed.

† Rating scale: 0 = no impairment (mostly 0s as single test ratings with occasional 1s allowed, patient A), 1 = mild impairment (>two 1s, or one 2 presenting, patients B, C), 2 = moderate impairment (at least two 2s with one or more 1s presenting, patient D), 3 = severe impairment (at least one 3 presenting, patient E).

Measures of Psychologic Pathology

The Global Severity Index of the SCL-90-R symptom checklist was used to describe the mental state of the patient. This index gives a general measure of self-reported psychopathology such as depression, anxiety, hostility, and paranoid or psychotic symptoms.

Five stress indexes of the Stress Vector Analysis (SVA) Test were used to analyze the patient's experience of stress in life. The SVA test has been described.¹⁸ This recently developed test has been shown to have satisfactory test-retest and internal consistency reliability coefficients, and its content validity has been judged to be strong.¹⁸⁻²¹ The SVA test uses seven psychological tests and combines them. In the present study the following five indexes based on these seven self-scored scales were used to measure stress.

1. Environmental Stressor Index

- Schedule of Recent Experiences by Holmes measures the number of the life change reflecting stressors such as financial and marital difficulties, legal problems, trouble at work, health or death of family members, religious concerns, and boredom.
- Life Stressor Scale examines the cognitive threat produced by external stressors similar to those measured by the Holmes test.

2. Physical Stressor Index

- Somatogenic Stress Scale examines physiologic variables including weight, diet, alcohol consumption, and sleep patterns.
- Health Scale looks at illness patterns, present and past health problems, mental health difficulties, and health locus of control.

3. Psychological Stressor Index

(a) Type A Behavior Scale samples coronary proneness traits such as hard driving, competitive, overanxious, and perfectionistic.

(b) SCL-90-R represents the level of state psychopathology, ie, depression, anxiety, hostility.

The validity of a patient's answers on these scales is checked by the Hubbard-Staats Dissimulation Scale. Two other computerized indexes were used.

4. *Total Stress Index*, which represents the averaged sum of T-scores from all of the scales of the SVA test.

5. *Risk Vector Index*, which represents the composite measure of stress vulnerability or of risk for developing or intensifying physical or mental illness or related problems.

The test assigns T scores and percentile ranks for the particular patient for each of 110 stressors. The test has been standardized for two normative groups (managerial and blue collar) and additionally the "ideal norms" established by five experts in management of stress-related problems can be used. The interpretation of percentile scores is shown in Table 2.

Axis I disorders (clinical syndromes) and Axis II disorders (personality disorders) were determined using the criteria of The Diagnostic and Statistical Manual of Mental Disorders.²² Diagnoses were cross-checked using the information base gathered during the patient's stay at the clinic.

Results

Two-way analysis of variance (Table 2) for "workers' compensation" v "other accident" cases and for "active litigation" v "completed litigation" cases showed no differences between the groups in the measures of organic and psychologic pathology. Average level of organic impairment for all groups stayed between the mild

and moderate values. The number of physical diagnoses did not differ significantly from each other or from the average for the total group (mean = 3.5). The Global Severity Index showed similar levels of psychologic impairment for every group. In addition, for each group, the scores of the SVA-R test scales showed stress levels between mild and moderate degrees of severity in Environmental, Somatic, Psychological, and Total Stress scales. The scores for the Risk Vector Index were elevated in every group, reaching the levels of moderate/high risk to develop health-related problems in various aspects of life (physical, psychologic, social). The differences in total numbers of Axis I and Axis II disorders between the groups were not significant; 85% of the patients in the workers' compensation group with active litigation and 89% with completed litigation had Axis I disorders. The percentages of Axis II disorders were 56% and 69%, respectively. In other accident claimants, the percentage of Axis I disorders was 83% for patients in both the active and completed litigation groups. The respective percentages of Axis II disorders were 84% and 41%.

Table 3 shows the return-to-work status of the several groups after treatment. In the entire sample, 20 patients out of 60 (33.3%) returned to work. This percentage

TABLE 3
Return to Work among Workers' Compensation and Other Insurance Claimants with Active or Completed Litigation*

	Workers' Compensation		Other Insurance Claimants	
	Active Litigation (n = 27)	Completed Litigation (n = 13)	Active Litigation (n = 6)	Completed Litigation (n = 12)
Returned to work, n (%)	4 (14.8)	4 (30.8)	4 (66.7)	6 (50.0)
Did not return to work, n (%)	23 (85.2)	9 (69.2)	2 (33.3)	6 (50.0)

* n = 58, since two patients were not involved in litigation.

TABLE 2
Mean Scores in Measures of Organic and Psychologic Pathology in "Workers' Compensation" v "Other Accident" Groups, and in "Active Litigation" v "Completed Litigation" Groups (n = 58)

Measures of Psychologic and Organic Pathology	Workers' Compensation Group		Other Accident Group		P
	Active Litigation (n = 25)	Completed Litigation (n = 13)	Active Litigation (n = 6)	Completed Litigation (n = 12)	
Organic impairment	1.64	1.92	1.83	1.08	NS†
Physical diagnoses, no.	3.56	3.46	4.00	2.58	NS
SVA-R‡, Environmental scale	3.16	1.46	4.17	3.00	NS
SVA-R, Somatogenic scale	3.32	3.46	3.50	3.42	NS
SVA-R, Psychological scale	4.48	3.31	4.33	5.25	NS
SVA-R, Total Stress scale	4.36	3.23	4.50	4.50	NS
SVA-R, Risk Vector Index	6.44	5.69	7.17	6.50	NS
SCL-90, Global Severity Index	64.28	62.30	66.20	62.80	NS

* n = 58, because two patients were not involved in litigation.

† NS, nonsignificant; based on two-way analysis of variance and F test.

‡ Mean scores were calculated by index numbers derived from percentile values describing the severity of stress levels. Scale: 0-1 = low/optimal (16th to 60th percentile), 2 = average (31st to 69th percentile), 3-4 = mild (70th to 84th percentile), 5-6 = moderate (16th to 60th percentile), 7-10 = pathologic (98th percentile). For the Risk Vector, the mean scores were calculated by epidemiologically determined index numbers describing the percentage of the risk for developing health-related problems. Scale: 0-1 = low/optimal (4% to 10% risk), 2 = average (11% to 20% risk), 3-4 mild (21% to 50% risk), 5-6 = moderate (51% to 95% risk), 7-10 = pathologic (above 96% risk).

coincides with the number of patients found to return to work after much delayed treatment and long-term disability.⁹³ In general, the workers' compensation cases did not return to work as often as the other accident cases ($\chi^2 = 7.3, P < .01$). In the total group the impact of the status of the litigation (active v completed) on the return to work was not significant ($\chi^2 = 1.6, P < .25$). However, active litigation presented a more powerful obstacle to returning to work for the workers' compensation claimants: 85.2% of the patients in this group were not returning to work, as compared with 33.3% for the other accident claimants.

In Tables 4 to 6 the differences between the values of other admission and follow-up measures, except the return to work, are shown for the workers' compensation group with active litigation, the workers' compensation group with completed litigation, and the group of other accident cases with completed litigation. Data for the group of other accident cases with active litigation are not shown because the sample was too small. In the group of workers' compensation with active litigation, the levels of improvement in most of the measures were not as significant as those for the total group. There was no improvement for this group in the use of tranquilizers and hypnotics and in the time spent out of the house.

For the group of workers' compensation cases with completed litigation, with the exception of narcotic use, no significant improvement in any of the outcome measures is shown in Table 5.

For the group of other accident cases with completed litigation, there was significant improvement in most outcome measures except in medication use and the number of doctor visits (Table 6).

Discussion

The present study did not show any differences in organic or psychologic pathology or in responses to stress between workers' compensation and other accident claimants, or between the patients with active and those with completed litigation. On the basis of these

TABLE 5
Significance of the Differences in the Mean Values of Outcome Measures between Admission and Follow-up Values for Workers' Compensation Group with Completed Litigation (n = 13)

Outcome Measures	Pretreatment, Mean \pm SD	Follow-up, Mean \pm SD	P*
Pain (compared with 100%)	100.0 \pm 0	85.0 \pm 32.0	NS†
Medication, No. pills/mo			
Narcotics	166.3 \pm 100.8	9.7 \pm 5.4	<.05
Tranquilizers	8.5 \pm 3.1	8.3 \pm 2.3	NS
Hypnotics	8.5 \pm 2.3	0	NS
Doctor visits, No./mo	1.8 \pm 1.6	1.0 \pm 1.3	NS
Out of bed, h/d	13.3 \pm 5.9	14.1 \pm 5.3	NS
Out of house, h/d	4.7 \pm 3.8	5.6 \pm 4.0	NS
Awakened by pain, nights/mo	22.2 \pm 10.1	16.8 \pm 11.2	NS
Trouble falling asleep, nights/mo	22.8 \pm 9.5	17.5 \pm 11.0	NS

* Significance of differences between admission and follow-up values; based on two-tailed t-tests for correlated groups.

† NS, nonsignificant.

TABLE 6
Significance of the Differences in the Mean Values of Outcome Measures between Admission and Follow-up Values for the Insurance Group with Completed Litigation (n = 12)

Outcome Measures	Pretreatment, Mean \pm SD	Follow-up, Mean \pm SD	P*
Pain (compared with 100%)	100.0 \pm 0	67.5 \pm 36.4	<.01
Medication, No. pills/mo			
Narcotics	67.5 \pm 48.3	34.5 \pm 15.0	NS†
Tranquilizers	56.4 \pm 27.5	35.0 \pm 15.0	NS
Hypnotics	8.7 \pm 2.5	11.7 \pm 5.0	NS
Doctor visits, No./mo	2.1 \pm 2.9	1.1 \pm 1.4	NS
Out of bed, h/d	10.8 \pm 5.3	13.9 \pm 4.6	<.05
Out of house, h/d	4.1 \pm 2.9	6.8 \pm 3.2	<.01
Awakened by pain, nights/mo	24.0 \pm 9.4	11.8 \pm 11.9	<.01
Trouble falling asleep, nights/mo	25.7 \pm 6.9	13.6 \pm 11.2	<.01

* Significance of differences between pretreatment and discharge values, based on two-tailed t tests for correlated groups.

† NS, nonsignificant.

TABLE 4
Significance of the Differences in the Mean Values of Outcome Measures between Admission and Follow-up Values for Workers' Compensation Group with Active Litigation

Outcome Measure	n*	Pretreatment, Mean \pm SD	Follow-up, Mean \pm SD	P†
Pain, compared with 100%	27	100.0 \pm 0	83.1 \pm 32.0	<.05
Medication, No. pills/mo				
Narcotics	27	47.9 \pm 33.8	28.6 \pm 10.1	<.05
Tranquilizers	27	35.4 \pm 13.7	1.9 \pm 0.4	NS‡
Hypnotics	27	10.1 \pm 4.1	6.0 \pm 1.5	NS
Doctor visits, No./mo	27	2.5 \pm 2.7	1.1 \pm 1.7	<.001
Out of bed, h/d	26	11.0 \pm 5.3	12.7 \pm 5.1	<.05
Out of house, h/d	26	2.9 \pm 2.2	4.0 \pm 2.6	NS
Awakened by pain, nights/mo	24	22.4 \pm 8.8	17.5 \pm 11.2	<.05
Trouble falling asleep, nights/mo	24	20.7 \pm 9.2	16.2 \pm 11.7	<.05

* n varies because of lacking data points for some patients.

† Significance of differences between admission and follow-up values; based on two-tailed t test for correlated groups.

‡ NS, nonsignificant.

results it is not possible to assume that personal variables, either organic or psychologic, can explain success or failure of treatment of groups in this study.

Differences in outcome measures were found between the groups, despite the similar severity of organic or psychologic pathology. For the total group it was shown that the multimodal treatment can have a positive effect on the patient's pain experience and other behavior. Workers' compensation cases with completed litigation improved least. "Miracle" improvements could not be found among the members of this group even though the litigation had been completed. It is true that the patients in this group returned to work more often than those with active litigation pending (30% and 14%, respectively), but the reasons for the outcomes may be quite different from compensation neurosis or the "green poultice." If the latter were factors, the improvement could be assumed to happen in all the outcome measures, but just the opposite was found by the results of the present study. According to some authors, the "etiology" of these differences may not be found in personal variables at all but, rather, in attributes of the legal system.^{2,14} The laws of the system and the battle for benefits may make it obligatory for the pain patients to remain in their sick roles.^{1,6,9,14,15}

In the present study, it was an interesting observation that the patients with active litigation did not improve in "return to work" or "going out of the house" even if all the other outcome measures showed significant improvement. It might be assumed that these patients have the motivation to improve and to use whatever functional abilities they have, but fear that their real disabilities will not be taken seriously hinders them in too "visible" activities. If so, it may be that the system is creating its own vicious circle. The situation must be very confusing to patients, educated by the current multimodal treatment programs that the way to get relief from chronic pain is to train both physical and mental activities to restore the functions that are left.

It is known that early intervention programs can have positive effects on the outcome of the treatment.^{4,23} All patients in the present study were admitted to the pain center for treatment long after they incurred their injuries. The results of the SVA test at the time of admission evaluation showed that all the patients had developed strong vulnerability in various functions. Modern rehabilitation ideology with its components of health promotion might demand a change of policy from delayed treatment to early evaluation and intervention by the multimodal programs. In further research it might be worth comparing delayed and early interventions to clarify the relationship between the litigation effect and return to work.

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