Validating and Treating the Complaint of Chronic Back Pain: The Mensana Clinic Approach

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CHAPTER

20

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Chronic pain (constant pain lasting 6 months or longer) is a subjective experience, which is influenced by many premorbid psychological problems. However, chronic pain often causes depression, anxiety, and marital difficulties (11). While physical examination and other studies, including x-ray studies, electromyograms, nerve conduction velocity studies, and thermography (16), may document an organic basis in many cases of chronic back pain, some organic syndromes defy definition by objective tests (4). This may be a greater problem for women, where physician prejudice can result in a significantly less extensive evaluation of their complaints of back pain (3). Litigation may also influence symptoms (6). Therefore, there is a need to differentiate between "organic" and "functional (negative physical and laboratory examination)" back pain (30).

Multiple articles have associated psychiatric disease with chronic and unexplained pain (8, 20). The most common clinical correlation is between depression and chronic pain (8, 12, 20, 26). Unfortunately, many of the earlier psychiatric articles did not examine this problem from an epidemiological perspective, but rather reported interesting cases. One such approach was that of George Engle, a well-respected psychiatrist who advanced the notion of "depressive equivalents," which explained undiagnosed pain states as organic manifestations of unresolved psychiatric conflicts (8). While this phenomenon certainly exists, no one has ever quantified the incidence of this type of disorder. Perhaps this is due to the very nature of the chronic pain problem itself, as well as various patient populations. Describing a chronic pain patient is analogous to the blind describing an elephant; each has his or her own perspective, based on his or her own patient population; and the populations are, indeed, as varied as the parts of an elephant. Reich described a chronic pain patient population with 29% of the patients having depression (26), while France described a chronic pain

patient population that had an incidence of depression of 52% (9). Reich's pain patients were derived from the chronic pain treatment center of University of California, Davis, while France's patients were inpatients at Duke University Hospital with definite organic back pain of greater than 6 months' duration. At Mensana Clinic, which has treated patients from 23 states and 8 foreign countries and has 75% of its patients referred from outside of the Baltimore area, the incidence of depression in the patients admitted for chronic pain was 77%. However, it is important to note that of the patients who are depressed at the time of admission to Mensana Clinic 89% of them never had depression before the onset of their chronic pain and only became depressed as the result of their chronic pain problem. This longitudinal history flies in the face of the "common wisdom" of psychiatry. Prior to this, there have been no studies in the field of psychiatry which explored the "cause-effect" relationship between pain and depression. The absence of these longitudinal observations has compromised the psychiatric study of the chronic pain patient population. Psychiatrists had always characterized psychosomatic disease as an "either-or" phenomenon, *i.e.*, if a patient complained of a physical illness, for which there was no clear-cut organic finding, and had a diagnosable personality disorder or other psychiatric problem, then the physical problem was caused by the psychiatric disorder. This could not be further from the truth. In fact, psychiatric disease and physical disorders lie on two separate, distinct, and intersecting axes. While one may influence the other, they occur independently, and are not mutually exclusive.

Many psychological tests have been used to evaluate the validity of the complaint of pain (30). The Petrovitch Pain Apperception Test is designed to measure the pain threshold and sensitivity of an individual. It attempts to do this by showing the patient 17 cards with various forms of injury pictured and asking the patients how long and how much a pain will hurt. This totally subjective, projective test has never been correlated with the presence or absence of physical findings. Likewise, the Zung Stress and Pain Test is designed only for acute pain and stress measurements, and has not been correlated with the presence or absence of physical findings. Another frequently employed test is the Minnesota Multiphasic Personality Inventory (MMPI), a 566-question self-administered test consisting of true-false answers. Using this test, researchers have identified several clusters of personality traits which occur commonly in chronic pain patients (2, 19, 23, 25). However, the only criterion for the inclusion of patients in these reports was the complaint of chronic pain. No attempt was made to

correlate MMPI findings with the presence or absence of objective physical findings. Other researchers have used the MMPI to differentiate between organic and functional groups of chronic back pain patients, with varying degrees of success (21, 27, 32). This lack of reliability of the MMPI led to the development of other subtests of the MMPI, which were also unreliable (17, 18, 33).

In counterdistinction to the MMPI, the Mensana Clinic Back Pain Test (MPT) (previously called the Hendler 10-Minute Screening Test for Chronic Back Pain Patients) was developed by recording a patient's normal physical and psychological response to documented chronic back pain, regardless of any preexisting personality disorders (17). This 15-question test, which is essentially a structured medical interview, establishes a psychological and medical profile that was reported to correlate with objective physical findings 83% of the time and to predict a positive outcome to surgery or pain-relieving procedures 77% of the time in a group of 315 men and women (17). Prospective studies found that the test could predict the presence of organic pathology 77% of the time for women and 91% of the time for men, while it could predict the absence of organic pathology 100% of the time for women and 100% of the time for men (13, 14). Overall results allow a physician to accurately predict the presence of organic findings 85% of the time and the absence of organic findings 100% of the time (15).

While the MMPI is designed to measure personality traits, the MPT is designed to measure the validity of the complaint of pain. Based on MPT scores, and regardless of their personality traits, patients are categorized as "objective pain patients" who have three features: (*a*) an objective basis for their complaint of pain, *i.e.*, a positive test that documents a physical abnormality; (*b*) good premorbid (prepain) adjustment; and (*c*) a normal response to chronic pain, going through four stages; (c1) acute stage (0–2 months, where the patient expects to get well, and has no abnormal psychological response); (c2) subacute stage (2–6 months, when the patient begins to worry why he or she is not getting well, with resultant MMPI changes showing elevated scales 1 and 3 (hypochondriasis and hysteria)); (c3) chronic stage (6 months to 8 years, where depression becomes manifest, and scales 1, 2, and 3 of the MMPI are elevated (hypochondriasis, depression, and hysteria)); and (c4) subchronic stage (3–12 years, when the depression resolves, with resultant MMPI changes (elevated scales 1 and 3 with resolution of depression)). These objective pain patients score 17 points or less on the Mensana Clinic Back Pain Test (15, 17).

In counterdistinction, the exaggerating pain patient has a poor prepain adjustment, an absence of depression in response to the pain,

and minimal organic findings. These patients score 21 points or greater on the Mensana Clinic Pain Test (15, 17). There is a mixed objective/exaggerating chronic pain patient that scores between 18 and 20 points on the Mensana Clinic Back Pain Test that probably represents a patient with a poor premorbid personality, who has an objective organic disorder and has the normal response to chronic pain superimposed on the previously marginally adjusted individual. The final category is the "affective pain patient," who corresponds to what is commonly called a functional pain patient, *i.e.*, conversion reactions, depressive equivalents, and the like. They score 30 points or greater on the Mensana Clinic Back Pain Test.

The Mensana Clinic Back Pain Test was derived by the review of the medical charts of 315 patients, which did not contain the psychological testing results, since these were kept in separate charts. The physician had limited prior contact with the patients, had conducted group therapy three times a week, and had seen the patients on neurosurgical rounds five times a week. He graded the severity of physical findings based on a simplified ranking system.

Objective tests reviewed were electromyography (EMG), nerve conduction velocity, thermography, computed tomography (CT), myelogram, and x-ray. Physical tests in which there were no abnormal findings were assigned a score of 0, while those with equivocal or minimal findings were scored as 1. Tests interpreted as moderate or severe were given scores of 2 or 3, respectively. Their ratings were based on the reports of various physicians who had performed or

TABLE 20.1
All Psychological Tests versus Objective Physical Test Results for Males

Test	R-Score	P-Score
Mensana Clinic Test (MPT)	−0.6345	0.00005[a]
MMPI Scale 1	0.2446	0.092
Scale 2	−0.0639	0.371
Scale 3	0.2114	0.131
Scale 4	0.1245	0.260
Scale 5	0.0534	0.396
Scale 6	−0.1401	0.239
Scale 7	0.1336	0.253
Scale 8	0.1043	0.302
Scale 9	0.1645	0.201
Scale 10	0.0237	0.454
F Scale	0.1781	0.178
K Scale	−0.3095	0.062
L Scale	0.1239	0.261

[a] Significant correlation.

TABLE 20.2
All Psychological Tests versus Objective Physical Test Results for Females

Test	R-Score	P-Score
Mensana Clinic Back Pain Test (MPT)	−0.5384	0.00002[a]
MMPI Scale 1	−0.0203	0.445
Scale 2	−0.2990	0.019[a]
Scale 3	−0.1214	0.200
Scale 4	−0.0480	0.374
Scale 5	0.0641	0.338
Scale 6	−0.2127	0.078
Scale 7	−0.2103	0.078
Scale 8	−0.0720	0.317
Scale 9	−0.0693	0.325
Scale 10	−0.1282	0.201
F Scale	0.1625	0.138
K Scale	0.1597	0.147
L Scale	−0.1249	0.201

[a] Significant correlation.

interpreted the test results and additional comments in the chart by the attending neurosurgeon.

Tables 20.1, 20.2, and 20.3 show the correlation coefficients and significance of the correlation between physical findings and psychological test scores for men, women, and both combined. Clearly, the MPT is the best predictor of physical abnormalities, distantly followed

TABLE 20.3
All Psychological Tests versus Objective Physical Test Results for All Patients

Test	R-Score	P-Score
Mensana Clinic Back Pain Test (MPT)	−0.59700	0.000005[a]
MMPI Scale 1	0.16616	0.07298
Scale 2	−0.06069	0.30249
Scale 3	0.08668	0.22525
Scale 4	0.07807	0.25279
Scale 5	0.17836	0.06835
Scale 6	−0.04839	0.34322
Scale 7	0.03473	0.38604
Scale 8	0.08756	0.23228
Scale 9	0.04168	0.45131
Scale 10	−0.06606	0.29345
F Scale	0.21340	0.03301[a]
K Scale	0.00735	0.47591
L Scale	0.13486	0.09343

[a] Significant correlation.

by scale 2 (depression) and the F scale (faking badly) on the MMPI. Scales 5 and 1 (masculinity-femininity and hypochondriasis) were nearly significant.

Figures 20.1, 20.2, and 20.3, respectively, show tabulation of the χ-square test for the MPT for men, women, and combined scores. On the MPT, the cut-off score to be considered an "objective pain patient" is 17 points or less. For the combined groups, if a patient had 17 points or less, 85% of the time he or she had a physical abnormality that could be documented using objective testing. A score between 18 and 20 points, inclusively, was considered a mixed objective-exaggerating patient, and 44% of the time, these patients had objective physical findings. This group may represent patients with a poor premorbid psychological adjustment, who have documented physical pathology. If a patient scored 21 points to 29 points, inclusively, on the MPT, he or she was considered an "exaggerating pain patient," and 100% of the time (13/13) no objective test was positive. However, this group consisted of patients with definable organic syndromes, without positive objective tests, such as myofascial syndrome or facet syndrome. None of the patients had scores of 30 or more points on the MPT. This is consistent with the earlier-reported low incidence of functional pain patients, which would have placed them in the affective pain patient category (12).

Much of the confusion that has arisen in the diagnosis of chronic pain patients is based on a failure to recognize that organic pathology

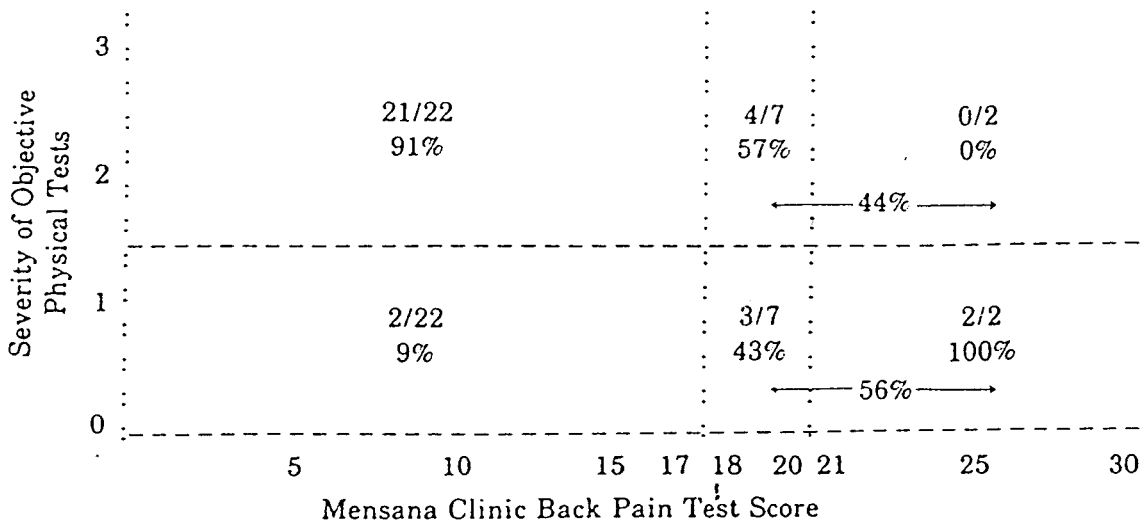

FIG. 20.1. χ-Square test of MPT versus objective physical test results for males ($N = 31$). χ^2 test 4 cell (1 degree of freedom) = 8.31; $p < 0.004$. χ^2 test 6 cell (2 degrees of freedom) = 11.28; $p < 0.05$.

and psychiatric disorders may exist independently and do not necessarily have a cause-effect relationship. While much has been written about psychiatric disorders presenting as pain problems (8, 20), the incidence of this occurrence has never been clearly defined. Moreover, a clinician must understand that chronic pain may create anxiety and depression (12).

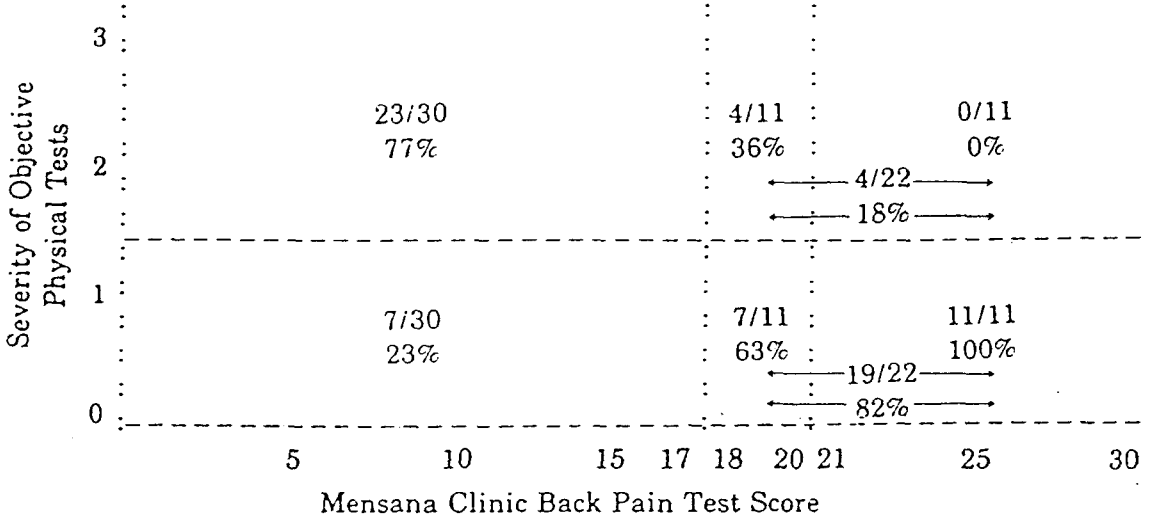

FIG. 20.2. χ-Square test of MPT versus objective physical test results for females ($N = 52$). χ^2 test 4 cell (1 degree of freedom) = 18.30; $p < 0.001$. χ^2 test 6 cell (2 degrees of freedom) = 21.34; $p < 0.001$.

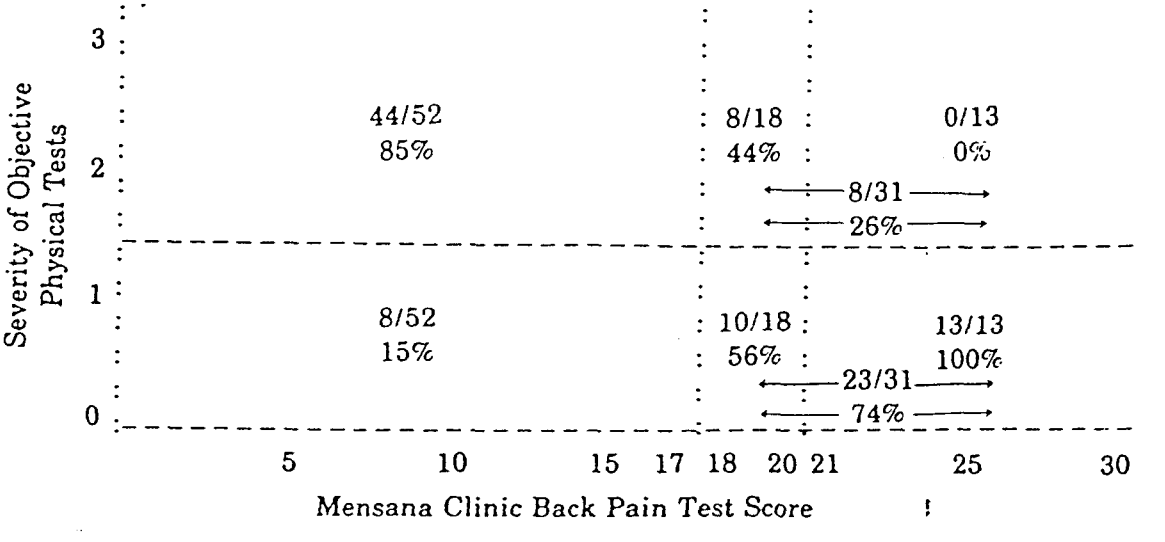

FIG. 20.3. χ-Square test of MPT versus objective physical test results for all patients ($N = 83$). χ^2 test 4 cell (1 degree of freedom) = 28.71; $p < 0.00000001$. χ^2 test 6 cell (2 degrees of freedom) = 35.04; $p < 0.00001$.

In a recent study, conducted in the Psychiatry Department at Johns Hopkins Hospital, Edwin *et al.* (7) were surprised to find that 80% of the 67 patients admitted to a psychiatry ward (because of their complaint of pain) had physical abnormalities to explain their complaints, as measured by the same criteria used in this paper. Also, the incidence of psychiatric diagnoses, using the American Psychiatric Association Diagnostic and Statistical Manual (DSM-III) criteria, or the Symptom Checklist-90 (SCL-90) test, was nearly the same in these pain patients, whether or not they had documented physical disorders. Interestingly, Rosenthal *et al.* (28) found essentially the same statistics with patients with pelvic pain, *i.e.*, 75% of the patients with an organic cause for their pain, found by laparoscopic examination, has evidence of psychopathology on MMPI testing (28). The studies by Edwin *et al.* and Rosenthal *et al.* lend credence to the concept that pain complaints and psychiatric disturbance exist on two separate axes, and a clinican may not automatically assume that the coexistence of psychiatric disease and the complaint of pain means functional pain. Indeed, chronic pain may create psychiatric problems in a previously well-adjusted individual (12).

In the combined study, the F scale (faking badly) of the MMPI correlated with the severity of objective organic pathology. However, in the male or female populations, it was found that either the depression scale (scale 2) of the MMPI, negatively correlated with physical pathology (14), or that no scales of the MMPI correlated with severity of objective organic pathology (13). The variability in MMPI results suggests that this test is unreliable for determining the validity of physical complaints or for predicting organic pathology.

Cox *et al.* studied 33 patients with the complaint of pain (5). Twenty had pain of unknown origin, while 13 had a definite organic basis for their complaints. Acute postoperative pain was studied in 24 patients and compared to the chronic pain patients of both types. MMPI scores for the patients with acute pain were not abnormal, while the chronic pain patients had elevation of scales 1, 2, and 3 of the MMPI, regardless of the presence or absence of proven organic pathology (5). The most conclusive and definitive study on the use of the MMPI for low back pain patients was conducted at Mayo Clinic (10). From a preoperative sample of 50,000 MMPIs, Swanson and his colleagues found 59 patients, who subsequently had back surgery, over a 20-year follow-up (10). The researchers compared the surgery group against a general medical population and found no difference in MMPI scores. They then compared the surgical successes against the surgical failures. In the women, there were no significant MMPI differences,

while in the men the preoperative M-F scale was slightly elevated in surgical failures ($p < 0.02$) (10). The Mayo Clinic group concluded that MMPI abnormalities noted after the onset of back pain were the result of the pain "rather than a reflection of pre-existent personality traits" (10).

In the absence of longitudinal studies, one cannot determine whether or not MMPI scales are elevated prior to, or as a result of, the chronic pain syndrome (24). In fact, Naliboff *et al.* (24) compared self-perceived functional limitation against MMPI scales, for patients with low back pain, hypertension, headache, and diabetes. In this study, the investigators could not define a low-back pain or chronic pain personality profile, apart from the emotional disturbance associated with chronic limitation and disruption of activity (24).

In summary, it seems that the MMPI is not able to differentiate organic from functional low back pain, with any degree of validity and reliability. Additionally, it would be imprudent for a clinician to label as functional a patient who happened to have elevations of MMPI scales, since the MMPI cannot predict the presence or absence of organic pathology, with any degree of certainty, in patients with chronic back pain. Additionally, elevated MMPI scores in pain patients seem to be the result of pain, rather than a cause of the complaint (10, 12, 31). However, the MPT may offer a viable alternative for differentiating organic from functional disorders, by the use of "objective," "exaggerating," and "affective" categories. By employing a medical, rather than psychological, model for diagnosing chronic pain patients, a clinician may improve the accuracy of his or her evaluation.

Does this approach work? In a review of 60 patients from Mensana Clinic, admitted with chronic pain associated with active litigation (the so-called "worst cases"), interesting figures were obtained. The referral diagnosis was "low back pain" for 40% of the patients, and 25% of the patients were referred with the diagnosis of "sprain or strain of the lower back or neck." Of this group, 59/60 (98%) had scores of 20 or less on the Mensana Clinic Back Pain Test, placing them in the objective pain patient or mixed objective/exaggerating pain patient category. Fifty-one of the 59 patients had scores of 17 points or less (86%). Fifty-six of the patients were out of work at the time of admission. The patients had been out of work an average of 4.9 years.

Dr. McGill, of Weyerhauser, reported that if an injured employee was out of work more than 2 years, the chances of his or her returning to work "was nil" (22). This same figure is quoted by Snook and Jensen (29). Andersson and his colleagues report that only 3.5–4% of the injured workers remain out of work 3 months or more (1). The

TABLE 20.4
Outcome Study: Mensana Clinic[a]

Prior to Clinic Admission	At Time of Survey
1) Number of Worker Compensation patients out of work at admission: 41 (100%)	1) Number of Worker Compensation patients returned to work: 8 (19.5%)
2) Number of patients with Worker Compensation: 41	2) Number of Worker Compensation patients out of work at admission: 41
3) Number of auto accident patients out of work: 16/19 (84%)	3) Number of auto accident patients returned to work: 10 (62.5%)
4) Number of patients with auto accidents: 19	4) Number of auto accident patients out of work at admission: 16
5) Average number of doctor visits/month: 2.78 (1–20)	5) Average number of doctor visits/month: 1.51 (0–9)
6) Average number of surgeries prior to entering clinic: 1.48 (0–12)	6) Surgeries recommended by clinic: 43 (0–4) in 30 of 60 patients (50%)
7) Average number of pills/month—narcotics: 105 (0–600)	7) Average number of pills/month—narcotics: 10.8 (0–120)
8) Average number of pills/month—tranquilizers: 76.7 (0–180)	8) Average number of pills/month—tranquilizers: 7.0 (0–90)
9) Average number of pills/month—sleeping pills: 28.3 (0–30)	9) Average number of pills/month—sleeping pills: 4.3 (0–30)
10) Average number of hours out of bed: 11.92 (1–19)	10) Average number of hours out of bed: 15.01 (1–19)
11) Average number of hours out of the house: 3.78 (0–12)	11) Average number of hours out of the house: 5.27 (0–14)
12) Average number of nights awakened by pain/month: 22.3 (0–30)	12) Average number of nights awakened by pain/month: 16.3 (0–30)
13) Average number of nights trouble falling asleep/month: 22.8 (0–30)	13) Average number of nights trouble falling asleep/month: 16.1 (0–30)
14) Average level of pain at time of admission: 100%	14) Average level of pain at time of survey: 80% (0–125%)
	15) Number of patients with some relief: 31/60 (52%) (Pain level = 0–95% of original) Number of patients with no relief: 29/60 (48%) (Pain level = 100–125% of original)

[a] Number of patients, 60; average time from discharge to report of outcome, 1.8 years (0.33–3.33); average length of time from injury to entering clinic, 4.90 years (0.25–19.0); average clinic stay, 28.45 days (4–66).

return-to-work rate for patients diagnosed and treated at Mensana Clinic was 19.5% for Worker's Compensation cases and 62.5% for auto accident cases, even though they had been out of work an average of 4.9 years. Interestingly, 50% of the patients at Mensana Clinic were referred for further surgery, after a thorough diagnostic evaluation. Significant improvement was noted in other areas of the patient's life, which could be objectively quantified. These results are shown in Table 20.4.

The major factor in achieving such results was reliance on the Mensana Clinic Back Pain Test, which was under 20 points for 59/60 patients studied. The scores placed these patients in either the objective or objective/exaggerating pain patient category. These test results suggested that the patients had an objective organic basis for their complaint of pain, which prompted a thorough diagnostic evaluation. By utilizing an appropriate psychological test to validate the complaint of pain, appropriate diagnosis and care were achieved.

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