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Original Contribution

Do Number of Pain Conditions Influence Emotional Status?

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This study was designed to evaluate psychological status of 150 individuals; 50 without chronic pain and without psychotherapeutic drug therapy, Group I or control group; 50 patients with chronic pain, Group II, chronic pain group with involvement of one region; and 50 chronic pain patients with involvement of two or more regions, Group III. All the participants were tested utilizing Millon Clinical Multiaxial Inventory –III (MCMI-III). Results were analyzed and compared for various clinical personality patterns including personality traits and personality disorders; severe personality pathology for schizotypal, borderline and paranoid personality pathology; and multiple clinical syndromes including generalized anxiety disorder, somatization disorder, major depression, bipolar manic disorder and dysthymic disorder, etc.

There were no significant differences noted in clinical personality patterns or severe personality pathology. In the analysis of clinical syndromes, generalized anxiety disorder, somatization disorder, and depressive disorders were seen in a progressively greater proportion of patients in Groups I to III.

In conclusion, this evaluation showed that abnormal clinical personality patterns are present in both groups of patients. Psychological abnormalities with generalized anxiety disorder, somatization disorder, and depression are commonly seen in chronic pain patients.

Keywords: Chronic pain, psychological evaluation, depression, generalized anxiety disorder, somatization disorder, personality disorders, Millon Clinical Multiaxial Inventory-III

The importance of psychological and social factors in understanding chronic low back pain is widely recognized (1, 2). While psychiatric disorders are common in patients with chronic pain, they are poorly understood. The modern view is that chronic pain is a biopsychosocial phenomenon, with interaction of biological, psychological and social factors (1, 2).

The present literature for association between chronic pain and psychiatric disorders is not only inconclusive, but also is not straightforward due to multiple and confounding variables. Many psychiatric diagnosis have been described in association with chronic pain, but two diagnostic groups have predominated. Mood (depressive disorders) have been conspicuous in some studies of clinical samples (3-5), and depressive symptoms have been associated, in population studies, with pains in bodily regions (6, 7). Benjamin et al (8) showed a higher prevalence of mental disorders in subjects with chronic widespread pain compared to the overall population with ratio of 3.18. MacFarlane et al (9) also showed that in a general population sample, people with chronic widespread pain had greater psychological distress and more mental disorders than those without. Makella and Heliovaara (10) found a 56% prevalence of mental disorder in people with fibromyalgia syndrome compared with 17% in those without fibromyalgia syndrome. Thus, compared with general population prevalence studies, patients with chronic pain in multiple settings have shown to have an excess of psychiatric disorders (11-18), even though this may not be a consistent finding.

Dworkin et al (11) reported that patients with two or more pain complaints were much more likely to be depressed than those with a single pain complaint. They also reported that number of pain conditions was a better predictor of major depression than was pain severity or pain persistence. Von Korff et al (12) developed a four level scale for grading chronic pain severity based on pain disability and pain intensity. Von Korff et al (13) also showed that when dysfunctional primary care patients with back pain are followed for a year, those whose back pain improves also show improvement of depressive symptoms to normal levels.

Epidemiological studies provide evidence for a strong as-

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sociation between chronic pain and psychiatric disorders; however, do not address the relationship of a number of pain complaints in different regions and the influence of involvement of multiple regions.

Thus far, there are no evaluations conducted for the purpose of psychological evaluation in patients suffering with chronic pain in an interventional pain medicine setting, specifically comparing the psychological status of patients without pain compared to patients with involvement of one region and multiple regions. Hence, this evaluation was undertaken to evaluate psychiatric disorders in chronic pain patients involved in an interventional pain management setting with painful conditions in one body region or multiple body regions compared to healthy individuals without either psychiatric or pain problems.

METHODS

This study was designed to evaluate the psychological status of 50 individuals without chronic pain and psychotherapeutic drug therapy (Group I), control group; Group II or chronic pain group with 50 chronic pain patients with involvement of one body region; and Group III with 50 chronic pain patients with involvement of multiple regions presenting to one private interventional pain management practice in a non-university setting. The control group was recruited from the non-pain patient population. Exclusion criteria included patients younger than 18 years or older than 90 years, those who had pain for less than six months, and those who were unable to undergo psychological evaluation and testing. These patients were excluded in Groups II and III, whereas in the control group, those individuals with any type of pain, psychotherapeutic drug therapy, history of psychological disorders or psychological management were excluded. There was no remuneration for any of the participants.

MCMI-III was given to all participants along with an explanation of the nature of the test and utilization of the data for purposes of publication.

Following the completion of the study, data were analyzed for various aspects by a statistician without knowledge of who the participants were. Date were recorded on a database using Microsoft® Access®; the SPSS version 9.0 statistical package. This package was used to generate the frequency tables and chi-squared statistic was used to test the significance difference between groups. Fischer's exact test was used wherever expected value was less than five. Student's t test was used to test mean difference between groups. Results were considered statistically significant if the p value was less than 0.05.

RESULTS

Participant characteristics were similar in all groups with age and gender.

Personality Patterns

As shown in Table 1, personality patterns (personality traits, and disorders) were analyzed for schizoid, avoidant, dependent, histrionic, narcissistic, antisocial, sadistic, com-

Table 1. *Clinical personality patterns*

	Personality traits			Personality disorders		
	I	II	III	I	II	III
Compulsive	22%	10%	12%	16%	14%	10%
Histrionic	10%	10%	4%	24%	14%	16%
Narcissistic	10%	0%	8%	4%	8%	16%
Dependent	2%	8%	10%	12%	12%	24%
Avoidant	2%	10%	8%	2%	8%	6%
Schizoid	0%	4%	14%	2%	8%	10%
Sadistic	2%	2%	6%	0%	6%	8%
Negativistic	2%	5%	0%	0%	2%	1%
Antisocial	2%	0%	6%	0%	0%	6%

Table 2. *Severe personality pathology*

	Personality Pathology		
	I	II	III
Borderline	6%	12%	10%
Schizotypal	2%	10%	6%
Paranoid	4%	10%	10%

pulsive, negativistic, and masochistic. Table 2 shows severe personality pathology. No significant differences were observed among the groups.

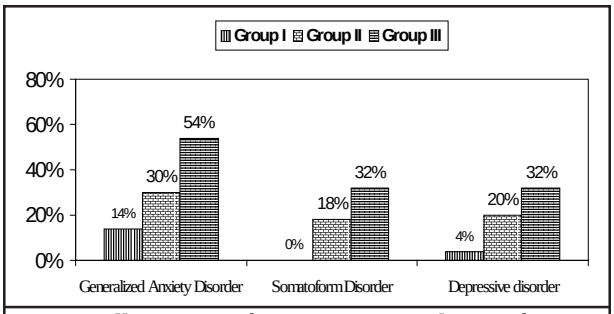

Fig. 1. Illustration of increasing prevalence of most common clinical syndromes in study population

Clinical Syndromes

As shown in Table 3, a significantly greater proportion of patients in Group III presented with generalized anxiety disorder (54%), somatization disorder (32%), and depressive disorders (32%). In Group II, somatization disorder and depressive disorders were seen in a higher proportion of patients. Fig. 1 shows increasing prevalence of generalized anxiety disorder, somatoform disorder and depressive disorder in control and chronic pain groups.

DISCUSSION

Polatin et al (14) in evaluating the relationship of psychopathology and chronic low back pain in 200 patients showed that depressive disorders accounted for 49% of current prevalence and 68% of lifetime prevalence in chronic low back pain patients, whereas anxiety disorders were present in 15% of the patients, and substance abuse disorders in 19% of the patients. In addition, 51% met criteria for at least one personality disorder. The most common diagnoses in this study were major depressive disorder, substance abuse and anxiety disorders. Manchikanti et al (15) in evaluating 100 patients with chronic pain in an interventional pain management setting, reported generalized anxiety disorder in 40% of the patients, major depression in 22% of the patients, and somatization disorder in 26% of the patients. Dworkin et al (11) showed prevalence of depression in a greater number of patients with two or more complaints than patients with a single pain complaint. Ormel et al (20) evaluated approximately 26,000 subjects from fourteen countries and concluded that psychological factors were more closely associated than medical factors with patient-reported physical disability. The most common psychosocial and psychological factors found to be related to persistent pain are job dissatisfaction (21), hysteria, antisocial personality, Worker's Compensation, childhood trauma, anger and somatization disorders (22).

Apart from clinical disorders such as depression, generalized anxiety disorder and somatization disorder, the influence of personality on pain experience has long interested

Table 3. *Clinical syndromes*

	Clinical Syndrome		
	I	II	III
Generalized Anxiety Disorder	14%	30%	54%*
Somatization Disorder	0%	18%*	32%*
Depressive Disorder (Major Depression and Dysthymia)	4%	20*%	32*%
Bipolar: Manic Disorder	4%	2%	0%
Alcohol Dependence	0%	2%	2%
Post-traumatic stress	2%	2%	2%

* Indicates significant difference with Group I

clinicians working with individuals having chronic pain (23). Many of early theories of chronic pain also maintain that personality played an important role in the development and maintenance of chronic pain conditions (24-26). The early psychological literature on chronic pain focused on the relationship of personality to pain and significant writings about personality and pain were based on a model of personality that emphasized the influence of personality traits or dispositions that are present only in chronic pain patients, but also in the population at large (23). According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV), 1994 (26), a personality disorder is defined as "an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive, and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment." In contrast, personality traits are enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts. Only when personality traits are inflexible and maladaptive and cause significant functional impairment are subject to distress with do they constitute of personality disorders (26). Kinney et al (16) described that 60% of their sample of chronic pain patients met the diagnostic criteria for personality disorder. Most prevalent of the characterological disorders were paranoid, passive-aggressive, avoidant, and borderline disorders. Literature describes that even though personality disorders are marked by long-standing behavioral characteristics that predate injury or development of a pain syndrome, such disorders are particularly influential in a patient's response to pain management and rehabilitation. It has been assumed that persons with dependent or obsessive-compulsive personality are particularly difficult to treat owing to their anxious-fearful coping style, whereas persons with antisocial personality will demonstrate impulsive, erratic, and aggressive behavior with potential for drug abuse and noncompliance, along with negative influence on other pain patients. Common personality types described in patients suffering with chronic pain are the dependent, avoidant, fearful patients; the dramatic, borderline, or histrionic patient; and the antisocial or sociopathic patient.

Lifetime and current rates of mental disorders in the general population were estimated to be 29% to 38%, and 15% respectively (27-29). The presence of anxiety disorders in the US population has been reported to be 13% (30), whereas, depressive disorders have been reported in 10% of the US population age 18 and older with a major depressive disorder in 5% of the patients (28, 29).

The present study sought to compare the psychological status of patients suffering with chronic pain with involvement of one or more regions with individuals without pain. Our results showed that various types of personality traits, personality disorders and severe personality pathology were not significantly different in three groups of participants (Tables 1 and 2).

A significantly greater proportion of patients with chronic pain presented with generalized anxiety disorder, somatization disorder, and depressive disorder. This study showed 14% of the participants in Group I, 30% in Group II and 54% in Group III suffered with generalized anxiety disorder; 0% of the participants in Group I, 18% in Group II and 32% of participants in Group III with somatization disorder; and 4% of the patients in Group I, 20% in Group II, and 32% in Group III with depressive disorder (Table 3 and Fig. 1). This study also showed bipolar disorder, alcohol dependence and posttraumatic stress were similar in the three groups of patients.

Our data does not provide any correlation between disorders, pathology and chronic pain. However, it supports the association between chronic pain and clinical syndromes. In addition, our evaluation also shows that as compared to patients with one pain condition, patients with multiple conditions also have increased prevalence of generalized anxiety disorder, somatization disorder, and depressive disorders with progressive increase (Fig. 1). This not only emphasizes the fact that in a significant number of patients, physical problems are associated with psychological problems in a significant number of patients, but also multiple physical problems lead to higher prevalence of psychological conditions.

This study may be criticized for utilizing participants in the control group without pain or psychotherapeutic drug therapy and comparing them with pain patients, most of them receiving psychotherapeutic drug therapy. Further, we may be criticized for using MCMI-III on participants in Group I without psychotherapeutic drug therapy and also without any expected psychiatric disorders. The authors of this study recognize that the MCMI was developed to describe and differentiate among various adult psychiatric patients. In addition, it is also recognized that MCMI was designed to assess personality characteristics and behavioral manifestations that fall outside the normal range of functioning (31). The normative data of MCMI-III reflect disorder prevalence rates that are unlikely to be found outside of mental health settings (31). Millon and Grossman

(31) state that the performance of normals on the MCMI-III has yet to be systematically studied. They also described that in one study designed to investigate the utility of the original MCMI as a screening instrument in a university setting, 241 college freshman were administered the MCMI. Using the BR-85 criterion, 70% of these subjects would have been classified as "depressed." Thus, it greatly exceeded other estimates of the prevalence of psychiatric disturbance in an unselected college sample. However, we were unable to observe such major abnormalities in the normal population, either with personality patterns, personality pathology, or clinical syndromes. In addition, the correlations were also established between Group I subjects and Group II, as well as Group II and III. Thus, probability of exaggeration are not demonstrated in this study. It is also essential to compare non-pain patients without any psychotherapeutic drug therapy to obtain proper data in comparison with control and disease category.

CONCLUSION

This evaluation showed no significant differences among the patients in three groups with personality traits, personality disorders and severe personality pathology. However, clinical syndromes of generalized anxiety disorder, somatization disorder and depressive disorders were seen with increasing frequency between Group I, II and III indicating increased psychological abnormalities with increasing involvement of body regions.

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