The treatment of depression in chronic low back pain: review and recommendations

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Summary

The prevalence of major depression in patients with chronic low back pain (CLBP) is approximately three to four times greater than that reported in the general population. In spite of these high prevalence rates, there have been few systematic attempts to investigate the efficacy of treatment for major depression in patients with CLBP. While several studies have examined the efficacy of antidepressant medication and psychological treatment in patients with chronic pain, most of these studies have focused on treating chronic pain rather than depression. The few studies that have specifically addressed the treatment of depression in CLBP indicate that tricyclic antidepressants and cognitive-behavioral approaches may be effective means of treating depressed chronic pain patients. Clinical issues related to diagnostic confounds, rehabilitation outcome, and conceptualizations of the relation between pain and depression are discussed. It is argued that, in patients with clinical levels of depression, treatment modalities specifically targeting depressive symptomatology deserve serious consideration as an integral component of pain management programs.

Key words: Chronic low back pain; Depression; Rehabilitation

Introduction

Depression has been discussed as a common concomitant of chronic pain (Roy et al. 1984; Romano and Turner 1985; Gupta 1986). Previous reviews of this literature have focused on issues concerning the prevalence of depressive disorders in chronic pain samples and the causal or mediational relations between chronic pain and depression (Romano and Turner 1985; Gershon 1986; Ward 1986). Issues related to biological or psychological mechanisms linking chronic pain and depression will not be discussed in this paper. The current review focuses primarily on the clinical aspects of depression and chronic pain. Specifically, the review will examine the literature addressing the diagnosis and treatment of depression in chronic pain.

Research on chronic pain and depression has been marked by considerable inconsistency and controversy. Estimates of the prevalence of depression in chronic pain have varied widely, with some investigators claiming that few, if any, chronic pain patients are depressed, and others claiming that all chronic pain patients are depressed (Romano and Turner 1985). Similarly, some explanatory models have emphasized the emotional basis of chronic pain, while others have argued adamantly against such conceptualizations (Blumer and Hellbronn 1982; Turk and Salovey 1984). Indeed, examination of the current literature on chronic pain and depression reveals a conceptually fragmented area with little cross-study consistencies in theoretical framework, methodology, or findings.

There has been growing recognition that the lack of consistency in reported findings in this area may be the result of combining disparate samples of pain patients under the general rubric of chronic pain. Discussions of the relation between chronic pain and depression
have typically proceeded from aggregate analyses of a variety of pain conditions such as facial pain, arthritic pain, chronic low back, fibrositis, cancer pain, as well as unspecified pain conditions (Romano and Turner 1988; Gupta 1986). Implicit in this practice is the assumption that the links between chronic pain and depression are similar across pain conditions.

In order to maximize the homogeneity of study samples, the current review is limited to the literature examining depression in chronic low back pain (CLBP) patients. Studies included in the review consist either entirely of CLBP patients or consist of at least 70% CLBP patients. Studies providing data relevant to the prevalence of depression are included only if study samples consist of consecutive referrals to a clinical service. Research addressing the prevalence of depression in chronic pain is reviewed first, followed by a discussion of common interventions for chronic pain. Conceptualizations of the relation between pain and depression are examined to highlight their impact on treatment approaches to chronic pain.

Depression in chronic low back pain

In the studies described below, diagnoses of depression were made either according to DSM III (Am Psychiat. Assoc. 1980) criteria or according to the Research Diagnostic Criteria (RDC) (Spitzer et al. 1978). The diagnostic criteria and classification labels used in the DSM-III and the RDC are sufficiently different to warrant brief discussion. The DSM-III criteria for major depression (without melancholia) are comparable to the RDC for major depressive disorder. The symptoms considered within these diagnostic categories include depressed mood, loss of pleasure or interest, appetite disturbance, sleep disturbance, loss of energy, psychomotor agitation or retardation, excessive guilt, concentration difficulties, and suicidal ideation. Both the DSM-III and RDC include, as essential symptoms for diagnosis, the presence of depressed mood or loss of pleasure, for a period of at least 2 weeks. The DSM-III criteria require an additional 4 symptoms for a diagnosis of major depression. The RDC are slightly more stringent in requiring an additional 5 symptoms for a diagnosis of definite major depressive disorder; a diagnosis of probable major depressive disorder is made if symptoms have only been present for 1 week. Symptom patterns characterized by prominent vegetative signs, early morning awakening, and diurnal mood variation are classified as major depression with melancholia in the DSM-III and as endogenous major depressive disorder in the RDC.

The DSM-III criteria for dysthymic disorder are comparable to the RDC for intermittent depressive disorder. Symptoms for both classifications include depressed mood or loss of pleasure in activities, as well as other symptoms of depression, for at least 2-year duration. In dysthymic and intermittent depression, depressive symptoms are judged to be insufficient in number or severity to warrant a diagnosis of major depression. The RDC also contains the category of minor depressive disorder. The symptoms of minor depressive disorder include prominent expression of depressed mood and other depressive symptoms that are either insufficient in number or severity to be classified as major depressive disorder. Minor depressive disorder is distinguished from intermittent depressive disorder by its episodic pattern, showing clear evidence of onset and remission. The diagnostic criteria for minor depressive

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<td>Fishbain et al. (1986)</td>
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<td>23% dysthymic disorder</td>
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<td>Atkinson et al. (1988)</td>
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<td>Turner and Romano (1984)</td>
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<td>54% intermittent depressive disorder</td>
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<td>14% minor depressive disorder</td>
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<td>3% endogenous major depressive disorder</td>
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<td>Kramlinger et al. (1983)</td>
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<td>Krishnan et al. (1985)</td>
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<td>11% minor depressive disorder</td>
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<td>26% intermittent depressive disorder</td>
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<td>Atkinson et al. (1986)</td>
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disorder are comparable to the DSM-III classification of atypical depression.

Studies using DSM-III diagnostic criteria

The studies reviewed in this section are summarized in Table I. Two studies have examined the prevalence of a wide range of psychiatric diagnoses in patients with CLBP (Katon et al. 1985; Fishbain et al. 1986). In one of the largest studies in this area, Fishbain et al. (1986) examined the prevalence of psychiatric diagnoses in a sample of 283 consecutive chronic (primarily CLBP) pain referrals to a pain clinic. According to DSM-III criteria, only 5% of the sample had a current diagnosis of major depression. However, 23% were diagnosed with dysthymic disorder, and 28% were diagnosed with adjustment disorder with depressed mood. Thus, 56% of the entire sample showed evidence of clinically significant depressive symptomatology at the time of interview.

Katon et al. (1985) examined the prevalence of various psychiatric diagnoses in a sample of 37 (primarily CLBP) admissions to an inpatient pain management program. According to DSM-III criteria, 32% of patients had a diagnosis of major depression at the time of the interview and an additional 24% of patients had a past history of major depression. There were no cases of dysthymic disorder or adjustment disorder.

Other studies have focused almost exclusively on the prevalence of major depression, and have not reported the prevalence of other types of depressive disorders. Love (1987) reported 25% major depression in a sample of 68 CLBP patients drawn from a general practice clinic. Atkinson et al. (1988) reported 15% major depression in 34 consecutive CLBP referrals to an orthopedic clinic. An additional 25% of their sample had a history of depression. Finally, Turner and Romano (1984) reported 30% major depression in a sample of 40 consecutive referrals (primarily CLBP) to a pain clinic.

Studies using research diagnostic criteria

France et al. (1986) examined the prevalence of depressive disorders in a sample of 80 CLBP patients referred to a pain clinic. According to the RDC, 21% were diagnosed with major depressive disorder, 54% with intermittent depressive disorder, 4% met the criteria for minor depressive disorder, and 3% met the criteria for endogenous major depressive disorder. Only 20% were not depressed.

Kramlinger et al. (1983) reported the prevalence of depressive disorders in a sample of 100 (primarily CLBP) consecutive admissions to an inpatient pain management program. Based on RDC, 25% patients were classified as definitely depressed, 39% were classified as probably depressed, and 36% were not depressed. Five percent of the sample met the RDC criteria for endogenous major depressive disorder.

Krishnan et al. (1985) examined 71 consecutive patients with CLBP admitted to an inpatient pain management program. According to RDC, 45% patients had a diagnosis of major depressive disorder, 11% had minor depressive disorder, and 26% had intermittent depressive disorder. Approximately half of the patients with major depressive disorder were classified as probably endogenous.

Atkinson et al. (1986) examined 52 consecutive admissions (primarily CLBP) to an inpatient neurosurgery pain program. According to RDC, 44% had major depressive disorder, 19% had minor depressive disorder, 13% had other psychiatric diagnoses and 22% had no diagnosis.

Self-report studies

Self-report measures have also been used to make estimates of the prevalence of depression in chronic low back pain. Self-report measures of depression are generally considered to have high sensitivity but low specificity, yielding a high rate of false-positive diagnoses. Epidemiological research on general community samples indicates that prevalence estimates of major depression using self-report measures are approximately 2 to 3 times as high as those based on diagnostic criteria (Boyd and Weissman 1982).

The interpretation of prevalence estimates based on self-report studies is further complicated by the lack of consistency in the use of cutoff scores. There has been little agreement as to the most appropriate instruments or cutoff scores to use in assessing depressive symptoms in chronic pain samples. In the absence of detailed information on the distribution of depression scores, comparisons of studies using different cutoff scores are difficult to interpret. Cross-study comparisons would be facilitated to a great extent if it became standard practice to report prevalence estimates based on multiple cutoff scores.

Three studies have reported prevalence estimates of depression using the cutoff for mild depression (> 10) on the Beck Depression Inventory (BDI). Love (1987) reported 26% depression in a general practice sample of 68 CLBP patients. Atkinson et al. (1988) reported 44% depression in a sample of 34 consecutive CLBP referrals to a general orthopedic clinic. Sullivan and D'Eon (1990) reported 78% depression in a sample of 125 consecutive referrals (primarily CLBP) to a chronic pain clinic.

Other types of depression

Atypical depression has been discussed as a type of depression that may be common in chronic pain (Davidson et al. 1985; Krishnan et al. 1985; Dworkin and Gitlin 1991). Current usage of this classification
differs from the criteria outlined in the DSM-III where atypical depression is now characterized by reverse vegetative symptoms and emotional responsivity to environmental events (Quitkin et al. 1989). Unfortunately, there have been no attempts to examine systematically the prevalence of atypical depression in CLBP using standardized diagnostic criteria. Masked depression has also been discussed as an integral component of the chronic pain experience (Blumer and Heilbronn 1982). It has been suggested that symptoms of chronic pain may be reflective of an underlying depressive disorder, regardless of whether there is evidence of the subjective experience of depression. As with atypical depression, the absence of standardized diagnostic criteria has impeded systematic efforts to determine the prevalence of masked depression in CLBP patients.

**Course of depression in chronic pain**

Turner and Romano (1984) reported that chronic pain patients with major depression had significantly shorter illness duration than non-depressed chronic pain patients. Based on their findings, they proposed that the course of depression in chronic pain may have rapid onset with slow dissipation over 3–5 years.

Studies using diagnostic criteria for classification of depression have provided mixed support for this position. Love (1987) reported that CLBP patients with major depression had an average illness duration of 3 years while non-depressed CLBP patients had an illness duration of 9 years. However, other studies have reported no significant difference in illness duration for CLBP patients with and without major depression (Kramlinger et al. 1983; France et al. 1986; Atkinson et al. 1988). Studies showing high rates of dysthymic disorder or intermittent depressive disorder in CLBP indicate that, for a substantive proportion of pain patients, depressive symptoms may persist for more than 2 years.

The results of studies using self-report measures of depression have also yielded mixed findings. In support of Romano and Turner’s position, Keefe et al. (1989) reported that CLBP patients with less than 2 years of illness duration had significantly higher BDI scores than CLBP patients with more than 2 years of illness duration. However, Garron and Leavitt (1983) found that levels of depression showed evidence of increase only after 2 years of illness duration. Sullivan and D’Eon (1990) reported no significant relation between depression scores and illness duration.

**Summary of prevalence studies**

The studies reviewed above show considerable variation in prevalence estimates for different depressive disorders in CLBP. The findings appear somewhat more consistent if prevalence estimates are first examined in terms of clinically significant depression, where clinically significant depression refers to depressive symptoms of sufficient severity to warrant a diagnosis (e.g., major depression, dysthymic disorder, minor depression, etc). Prevalence estimates of clinically significant depression can only be addressed for studies that were not restricted to examining the prevalence of a single depressive disorder (Turner and Romano 1984; Love 1987; Atkinson et al. 1988). If prevalence estimates of depressive disorders are weighted by sample size, and averaged across the 6 eligible studies (Kramlinger et al. 1983; Krishnan et al. 1985; Katon et al. 1985; Atkinson et al. 1986; Fishbain et al. 1986; France et al. 1986), then 388 patients from a total sample of 623 patients (62%) had clinically significant depression (range = 32%–82%).

The prevalence estimates for major depression or major depressive disorder are substantively lower, ranging from 5% (Fishbain et al. 1986) to 45% (Krishnan et al. 1985). If these prevalence estimates are weighted by sample size and averaged across 9 studies (Romano 1984; Katon et al. 1985; Krishnan et al. 1985; Atkinson et al. 1985, 1988; Fishbain et al. 1986; France et al. 1986; Love 1987), then 162 patients from a total sample of 765 patients (21%) had a diagnosis of major depression or major depressive disorder.

Epidemiological studies indicate that point prevalence rates for major depression in the general population may range from 4 to 8% (Boyd and Weissmann 1982). Based on the studies reviewed here, it appears that the prevalence of major depression in CLBP samples is approximately 3–4 times higher than that reported in the general population. It is important to note that these prevalence rates are based on clinical samples of CLBP patients. There are indications that prevalences rates of depression are lower in non-clinical samples of chronic pain patients (Magni et al. 1990).

The course of depression in CLBP remains unclear. A few studies have provided data suggesting that the probability of being depressed is highest in the first 2–3 years following the onset of CLBP (Turner and Romano 1984; Love 1987). This is an intriguing finding and, if replicated, may point to mechanisms mediating the relation between pain and depression. Unfortunately the studies that have reported on the relation between depression and illness duration have been cross-sectional, and findings have been equivocal.

**Diagnostic issues**

There are a number of issues that bear on the interpretation of prevalence estimates for depression in chronic pain. Several investigators have commented that prevalence estimates of depression in CLBP are likely to be influenced by selection biases associated with referrals to specialty clinics (Davidson et al. 1985; Romano and Turner 1985). In the studies described
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symptomatology in depressed chronic pain patients. Depressed chronic pain patients appear to be treated in the same manner as non-depressed patients.

Antidepressants are frequently prescribed for the treatment of chronic pain. However, as with the psychological approaches to chronic pain, the focus has been on treating pain as opposed to depression. Antidepressants have been shown to produce analgesic effects in CLBP as well as in other pain conditions (Jenkins et al. 1976; Gomersall and Stuart 1978; Gourlay et al. 1986; Ward 1986). The analgesic effects of antidepressants are generally produced at dosage levels approximately 1/5 to 1/3 of the dosages recommended for the effective treatment of depression.

It has been suggested that failure to specifically address the treatment of depression in the management of chronic pain may account for some of the treatment failures in chronic pain rehabilitation (Atkinson et al. 1986; Dworkin and Gitkin 1991). While there have been no studies specifically designed to examine the impact of depression on rehabilitation outcome in CLBP, several studies have reported data suggesting that depression can interfere with rehabilitation outcome. Depressed chronic pain patients show a greater tendency to drop out of treatment prematurely, and may be more likely to relapse following treatment (Painter et al. 1980; Kerns and Haythornthwaite 1988). Pre-treatment depression has been associated with poor outcome in chronic pain rehabilitation, and post-treatment depression has been associated with increased medication utilization and higher unemployment (Forrest and Wolkind 1974; Dolce et al. 1986).

It should be noted that research in this area has not been unequivocal in showing a relation between depression and poor rehabilitation outcome (Kramlinger et al. 1983). Several factors related to experimental design, sample size, the nature of outcome variables, and the efficacy of treatment impact on the probability of detecting a significant relation between depression and treatment outcome. However, a complete analysis of the research examining predictors of rehabilitation outcome is beyond the scope of this review.

A few studies have examined the efficacy of pharmacological and psychological treatment of depression in chronic low back pain. Anecdotal reports and the findings of uncontrolled studies suggest that therapeutic dosages of antidepressants and cognitive-behavioral treatments may be effective means of treating pain and depression in depressed chronic pain patients (Blumer and Heilbronn 1981; Lindsay and Wyckoff 1981; France et al. 1986).

One placebo-controlled trial of tricyclic antidepressants in depressed chronic pain patients has been reported. Hameroff et al. (1982) reported that doxepin, compared to placebo, led to significant reductions in pain frequency, sleep disturbance, and depressive symptoms in 15 depressed chronic pain (primarily CLBP) patients following 6 weeks of treatment. Dose level began at 50 mg/h and increased to 300 mg/day. One patient discontinued due to dry mouth. There are unfortunately several methodological shortcomings that limit the nature of conclusions that can be drawn from this study. First, patients were classified as depressed based on their scores on a self-report measure of depression as opposed to standard diagnostic criteria. In addition, treatment-related changes in depressive symptoms were reported as group means, and it is not possible to determine the number of patients who showed significant clinical improvement. Finally, follow-up data were not reported. When this study was expanded to include a larger sample size, similar results were obtained (Hameroff et al. 1984). In the expanded study, maximum improvement was observed at a dose level of 200 mg/day.

Ward et al. (1984) compared the effects of doxepin and desipramine in a sample of 36 depressed CLBP patients recruited through newspaper advertisements. Patients had a diagnosis of major affective disorder, unipolar depression, or dysthymic disorder. All patients were initially given a placebo, and placebo responders (n = 4) were excluded from the study. Forty patients discontinued due to side effects: 3 due to drug rash on desipramine and 1 due to sedation on doxepin. Twenty-six patients completed 4 weeks of treatment, with initial dose levels of 50 mg/day and average final dose levels of 188 mg/day and 173 mg/day of doxepin and desipramine, respectively. Significant reductions in depression were observed for patients in both drug conditions, with no significant difference between drug conditions. When success was defined as 40% reduction in pre-treatment depression scores, response rate was 73%. When success was defined as 60% reduction in pretreatment depression scores, response rate was 54%. Significant reductions in pain frequency and pain severity were also observed, although the magnitude of the analgesic effect was less pronounced than the antidepressant effect.

It has also been reported that cognitive–behavioral pain management programs may be an effective means of alleviating depression in patients with CLBP. Following a 3-week multidisciplinary inpatient pain management program, Kramlinger et al. (1983) reported an 88% remission rate for depression in a group of 25 chronic pain (primarily CLBP) patients with major depressive disorder.

It is interesting to note that response rates to antidepressants and cognitive–behavior therapy reported in depressed CLBP patients are similar to the response rates reported for depressed patients without chronic pain. Tricyclic antidepressants show response rates of approximately 55–75% in depressed patients without chronic pain (Rickels et al. 1985; Elkin et al. 1989).
Reports indicate that rates of improvement in cognitive therapy and interpersonal psychotherapy are similar to those obtained with tricyclic antidepressants after 12 weeks of treatment (Rush et al. 1977; Blackburn and Bishop 1981; Beck et al. 1985; Elkin et al. 1989).

Summary of treatment studies

The findings reviewed above suggest that depressed chronic pain patients may respond favorably to pharmacological and psychological treatments for depression. Treatment effects do not appear to be limited to depressive symptoms but have a positive impact on sleep disturbance, pain severity and pain frequency as well. However, the findings reported must be interpreted with caution. In the only study to use a placebo-controlled design, patients were classified as depressed based on self-report, and response rates for treatment were not reported. In the studies by Ward et al. (1984) and Kramlinger et al. (1983) classification of depression was based on standard criteria, but the studies were not placebo controlled. In the absence of placebo control, it is difficult to evaluate the representativeness of the study samples. Indeed, in the Kramlinger et al. (1983) study, unusually high response rates were reported for a patient population that is generally viewed as treatment resistant.

Based on the research that has been conducted to date, strong statements about the efficacy of treatment for depression in chronic pain cannot be made. Indeed, several investigators have recently called for more attention to the treatment of depression in chronic pain patients (Atkinson et al. 1986; Ingram et al. 1990; Dworkin et al. 1991). Placebo-controlled trials comparing different types and dose levels of antidepressants are needed before recommendations can be made confidently about the best means of managing depression in CLBP patients.

More research is also needed to address the efficacy of psychological approaches to depression in chronic pain. The data reported by Kramlinger et al. (1983) indicate that cognitive–behavioral modalities can effectively alleviate depressive symptoms in CLBP patients. It is interesting to note that psychological treatments for chronic pain are often associated with improvements in mood even if other dimensions of functioning such as level of pain or work status remain unchanged (Linton 1985; Turner and Clancy 1986; Stevens et al. 1988; Maruta et al. 1989). A comparison of psychological and pharmacological treatments for depression in chronic pain may yield interesting information about treatment-specific changes in psychological and somatic symptom profiles.

Extrapolating from the treatment outcome literature for depression in patients without chronic pain, tentative suggestions for the treatment of depression in patients with chronic pain may be made. Therapeutic doses of tricyclic antidepressants, as well as structured psychological interventions such as cognitive therapy and interpersonal psychotherapy, may be effective treatments for major depression in patients with CLBP. Combining tricyclics with cognitive or interpersonal interventions may lead to more pronounced treatment effects or greater stability of treatment gains (Weisman et al. 1979; Beck et al. 1985). There are also indications that cognitive and emotional symptoms may improve more rapidly with psychotherapy while vegetative symptoms may improve more rapidly with tricyclics (Di Mascio et al. 1979). Finally, MAO inhibitors may be useful for chronic pain patients with atypical depression (Quitkin et al. 1989).

Clinical and conceptual issues

While it seems clear that there is a need for increased focus on managing depression in chronic pain, it is important to examine the factors that may interfere with the treatment of depression in chronic pain patients. One factor is problematic diagnosis. It has been frequently noted that depressed chronic pain patients may focus on the somatic aspects of depression and fail to spontaneously report symptoms of affective distress (Blumer and Heilbronn 1982). Patients’ reluctance to discuss emotional issues related to their pain is likely to pose problems for accurate diagnosis and treatment planning. It has been suggested that diagnosis and treatment of depression in chronic pain patients as well as in patients with other medical conditions may be facilitated if symptoms of depression are specifically addressed with all patients (Rodin et al. 1991).

The degree to which patients’ are willing to accept antidepressant treatment will also be a determinant of whether depression will be treated. Chronic pain patients may be reluctant to participate in treatments aimed at emotional functioning. The legitimacy of chronic pain complaints is often questioned either implicitly or explicitly. Patients may infer that their problem is being conceptualized as a psychological problem if they are prescribed psychotropic drugs or referred for psychological treatment (Dworkin and Gitlin 1991). Sensitivity to the patients’ concerns and a sound rationale for treatment may need to be provided to ensure an adequate degree of treatment compliance. While reduced tolerance to the side effects of antidepressant medication in chronic pain patients has been discussed as a major obstacle to the pharmacological management of depression, the reports of Hameroff et al. (1982) and Ward et al. (1984) do not indicate that depressed
chronic pain patients are less able to tolerate antidepressant side effects (Dworkin and Gitlin 1991).

Current conceptualization of the relation between depression and pain may also have contributed to the relative inattention to the treatment of depression in chronic pain patients. For example, an underlying assumption in many chronic pain treatment programs seems to be that depression, when it occurs, is secondary to the pain (Brown 1990). This notion is reflected in current psychological models where depression in chronic pain is seen as being the result of dysfunctional appraisals, maladaptive coping, or reactions to functional loss (Rudy et al. 1988; Keefe et al. 1989). By implication, this line of reasoning suggests that treating depression in chronic pain patients may not be successful because the cause of the depression still remains. Similarly, it could be argued that the distress of the pain experience may increase the risk of relapse even if treatment of depression is initially successful.

The conceptualization of depression as being the result of the chronic distress of chronic pain has intuitive appeal. However, the empirical basis for this position can only be considered tentative. Indeed, there are indications that for a significant proportion of depressed chronic pain patients, depression was present prior to the onset of pain, or pain and depression occurred simultaneously (Romano and Turner 1985). At this time, the strongest statement that can be made about the relation between pain and depression is that the two conditions frequently coexist. Thus, from an empirical perspective, there is no basis for focusing treatment on pain to the exclusion of depression.

Summary

In summary, while the relation between CLBP and depression has been the focus of considerable theoretical debate, depression has been a clinically neglected topic in the management of CLBP. Research indicates that clinically significant depression may be present in more than half of CLBP patients seeking treatment. However, it appears that many depressed chronic pain patients are currently not receiving treatment for depression and, thus, may be experiencing prolonged and unnecessary distress. In order to maximize treatment benefit for CLBP patients, more attention may need to be given to the identification of depression in this population and the implementation of treatment modalities specifically aimed at reducing depressive symptoms. The research presented in this review suggests that treatment modalities specifically targeting depressive symptomatology deserve serious consideration as an integral component of chronic pain rehabilitation.

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