

## **Psychological/Behavioral Pain Management**

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Until the 1970s, the predominant model for psychological treatment of pain was psychodynamic, which viewed pain as an external expression of internal conflict. The works of Wilbert Fordyce (1976) on the role of Operant Conditioning in the etiology and maintenance of pain led to a zeitgeist in the psychological approach to pain. The operant view, which he espoused, proposes that external contingencies of reinforcement of acute pain behaviors, (for example, limping to avoid pain), may evolve into chronic pain problems. Pain behaviors may be positively reinforced by a spouse or healthcare provider through attention to them, through the reinforcement of rest and drugs, or by avoidance of undesirable activities, such as work. Dr. Fordyce's work has been supported by numerous studies showing that operant conditioning is effective in improving both behavioral and functional abilities in individuals with chronic pain (Compass *et al.*, 1998 and Morley *et al.*, 1999). Fordyce and his coworkers systematically controlled events such as attention, rest, and medication, and made engaging in these events contingent on adaptive behaviors such as increased activity and socialization. The goal of therapy is to increase those aspects of behaviors associated with wellness (*e.g.*, activity) and decrease or eliminate pain behaviors. One major goal of Dr. Fordyce's program, and those patterned after it, was the reduction in the amount of pain medication used by these chronic pain patients. The anticipation of pain may lead to decreased activity, and anticipatory anxiety related to activity may develop leading to increased muscle tension and accompanying pain.

Common to the majority of pain clinics and private practices specializing in the treatment of pain, is the use of some form of Cognitive Behavior Therapy (CBT). What is meant by "cognitive issues" with respect to pain? In this context, the term refers to thinking. In the words of William Shakespeare in Hamlet, "There is nothing either good or bad, that thinking does not make it so." Although differing terminology has been used to describe this concept, this model of acknowledging the role of cognition and perception in feelings has been documented in literature throughout the ages. Development of specific strategies to change thinking, thereby changing feelings and perceptions has been based primarily on the seminal works of Albert Ellis, Ph.D., and Aaron T. Beck, M.D.; these theorists were instrumental in the development of Cognitive Behavior Therapy. A patient's perception of their condition and the treatment provided is one cognitive factor that has a significant effect on outcome. Often, individuals who sustain an injury are medically unsophisticated and may be unable to understand the information presented to them regarding their condition. The poor communication that often results may lead to misinterpretation and worsening of symptoms due to a negative "self-fulfilling prophecy." This failure to understand can impair compliance with treatment recommendations or result in anger toward the provider. This treatment issue may be addressed by utilizing a Case Manager

and by including the person's spouse/partner or other trusted individual to assist the patient with recall, understanding, and participation in their treatment and recovery. This is especially important when the person experiencing pain has a low level of education, brain injury, or sensory loss, such as visual or hearing deficits. Even those individuals who are cognitively intact, and who would otherwise be able to understand the information, may fail to do so because of the interference of pain on their attention and other cognitive and emotional resources.

Research performed in the area of chronic pain has demonstrated that an individual's beliefs and appraisals play an important part in determining how that individual copes with their symptoms. Certain beliefs may lead to maladaptive coping, exacerbation of pain, increased suffering, and greater disability. (Williams & Keefe, 1991; Williams & Thome, 1989). Perceptions and interpretation of symptoms help form the person's internal representation of their condition (Turk & Rudy, 1986). Having a negative view of one's ability and the expectation of increased pain influences behavior more than actual events or sensations. Moreover, the failure to perform activities reinforces the perception of helplessness.

Individuals may use either emotion- focused coping (passive) or problem focused coping (active) as a way to deal with difficulties. Individuals utilizing a proactive or problem focused coping style are more likely to engage in behaviors that enhance wellness, whereas those using a passive coping style are more likely to become enmeshed and begin to identify with the sick role. This may be clinically evaluated, to some extent, by the degree to which the person takes responsibility for improving versus dependence on others to provide them with improvement. For example, the person who seeks multiple providers in an effort to find a cure is likely to have a belief that an all-knowing professional will be able to provide relief. This internal versus external locus of control may substantially influence outcome. Individuals whose personality style is one of internal locus of control are likely to become most distressed by the loss of control inherent in a physical injury and their inability to control pain. Those with an external locus of control are more likely to look to others for support and may become dependent on treatment providers, even when there are no objective changes in functioning or self-reportedly level of pain. It is incumbent on the Life Care Planner, Case Manager, and members of the treatment team to assess this factor, to the degree possible, to prevent the development of iatrogenic secondary issues such as depression, drug addiction, or surgeries or other invasive procedures with little likelihood of success. This may be best accomplished by early evaluation by a Neuropsychologist or a Clinical Psychologist skilled in the evaluation and treatment of pain. Determining the barriers to a positive outcome, as early in the process as feasible, will not only improve the likelihood of a positive outcome, but in some ways, even more importantly, will limit the development of negative attributes and beliefs, which may be difficult to overcome. Negative attributions regarding one's abilities and the anticipation of pain with activity has a greater

influence on behavior than actual events or sensations. Moreover, the failure to perform activities reinforces the perception of helplessness. In Mateer's work related to memory, the caveat is to ensure that the person is not encouraged to guess regarding an answer since they are likely to learn incorrect responses and continue to use them. If one extrapolates this model to the area of pain, learning inappropriate coping responses is particularly detrimental, since in order for the person to learn to cope efficiently; they must first overcome the negative coping behaviors that will have become ingrained, and possibly reinforced, over time. Treatment will be most beneficial when it is initiated before chronic pain and learned helplessness have an impact on the lifestyle and behavior of the individual.

Following injury, individuals often catastrophize about the injury and the effect that it has had on their life. Catastrophizing, or exaggerating the negative consequences of a situation, leads to reports of higher pain intensity, greater emotional distress and greater levels of functional disability, (Giardino, Jensen, Turner, Ehde, & Cardenas, 2003). Other individuals feel a sense of loss of control has a negative impact on coping (Biedermann, McGhie, Monga, & Shanks, 1897). Chronic pain patients often perceive lack of personal control and this may lead to maladaptive coping (Turk & Rudy, 1988) and (Jensen & Karoly, 1991). Both of these factors may have a deleterious effect on ones overall ability to cope. Allowing the injured patient control of their treatment, to the degree possible, and gaining agreement regarding treatment, where possible, is instrumental in improving one's feelings of control. This is best accomplished through ongoing education of the patient by the all members of the multidisciplinary treatment team. The research on catastrophizing demonstrates a negative impact of this behavior on outcome. There are individuals, including those with a depressive or negativistic personality style, who are prone to catastrophize. Cognitive behavior therapy is geared toward addressing these negative cognitions. The degree to which individual patients benefit depends on a number of factors including secondary gain, personality factors, environmental issues, and treatment issues. Actively involving spouses/partners in the treatment program is one way to obtain valuable information regarding the effect of environmental factors, such as marital conflict or inadvertent reinforcement contingencies operating outside of the treatment setting. These issues then become "grist for the mill" in therapy to improve the patient's ability to cope.

Knowing the previous psychological history of an individual provides information regarding several factors that have been shown to effect outcome following injury. Individuals with a history of physical or sexual abuse are more likely to develop pain and disability. A premorbid history of substance abuse or substance dependence may lead the individual to seek medications as a primary way to cope. Knowing that the individual has such a history will assist the physician in determining whether the use of narcotic or other medications with the potential for abuse are appropriate. Seventy-seven percent of individuals in a study by Kinney and colleagues (1993) met the lifetime diagnostic criteria for a psychiatric

disorder and almost 60 percent evidenced current symptoms of a psychiatric disorder. Polatin *et al.* (1993) found the most common co-morbid diagnoses were depression, substance abuse, and anxiety. It appears that some psychiatric disorders, specifically anxiety and substance abuse disorders, precede pain. Depression appears to be equally likely to occur pre- and post-morbidly.

An individual with a previous history of Major Depressive Disorder and/or Anxiety Disorder may be predisposed to the recurrence of these problems after an injury. Individuals with an exacerbation of chronic depression are less responsive to treatment than those with new onset depression. Therefore, patients who have been treated in the past for anxiety, depression, or other psychological disorders should be considered at risk for the psychological factors that may impede progress. Individuals with chronic anxiety or depression may have more inefficient coping skills or the advent of pain may become the "straw that breaks the camel's back" for an individual who is functioning emotionally or intellectually, at a marginal level. A conceptual model promoted by Gatchel and Dersh (2002) assumes that individuals have unique characteristics that predispose them to respond to events in certain ways; these factors may then interact with or be exacerbated by the additional stress of chronic pain. There is extensive documentation in the scientific literature regarding the influence of stress on mental health. The model referenced above, by Gatchel and Dersh, presumes that behavioral and psychological problems maintain and enhance pain through an acceptance of the sick role and strengthening of abnormal illness behavior.

There is a significant co-morbidity between depression and chronic pain. The degree to which one precedes the other cannot always be determined. Although the rates of depression vary widely among the research in the area, 45 to 50 percent of pain patients suffer depression. Rates of depression as low as 10 percent to a high of 100 percent have been reported (Romano & Turner, 1985). Much of the variability appears to be related to differences in research methods and the assessment instruments used. What is the protective factor for those who do not develop depression? Some investigators have proposed that there is a common trait of susceptibility to dysphoric physical symptoms (to pain) and to negative psychological symptoms (Sullivan, 2001). Another model suggests that the resilience of those who do not become depressed is related to the appraisal of events and feeling of control. As previously noted, those individuals who feel more competent in controlling their pain and who have more effective coping strategies are less likely to develop depression as a result of chronic pain. Gatchel (1991) proposed that individuals bring with them individual characteristics that may be exacerbated by stress. The role of stress in the exacerbation of both mental health problems and chronic pain has been documented in the scientific literature. Gatchel, in the 1991 article, argues that as behavioral and psychological problems persist, they become reinforcers for illness behavior.

There is evidence that the physical deconditioning syndrome interacts with other

factors affecting pain and its experience, as well (Mayer & Gatchel, 1988). The physical deconditioning syndrome refers to a significant decrease in physical capacity (strength, flexibility, and endurance) due to disuse and resultant atrophy of the injured area. This syndrome may have a deleterious effect on emotional functioning and self-esteem (Gatchel, Baum, & Krantz, 1989). Conversely, negative emotional reactions, such as depression, can significantly "feedback" to physical functioning. This may result in reduced motivation for participation in work or recreational activities thereby contributing to additional physical deconditioning. Research further demonstrates that psychosocial variables are potent predictors of pain and disability chronicity.

In fact, research shows that psychosocial factors, rather than physical factors have greater predictive ability in determining which patients will develop chronic disabilities and have a poor response to rehabilitation efforts (see Gatchel and Gardea, 1999 for a review of relevant studies).

Anxiety is another emotional problem that frequently accompanies chronic pain or precedes chronic pain. Fear of movement and re-injury is the best predictor of the patient's self-reported disability among chronic back pain patients (Vlaeyen, Kole-Snijders, Boeren, & van Eek, 1995). Strategies that serve to reduce anxiety lead to improved functioning and decreased affective distress, pain, and pain related interference (McCracken, Gross, & Eccleston, 2002). The strategies that are most often used are relaxation techniques, biofeedback, neurofeedback, and medication. Individuals who are able to use non-medication management may benefit from feeling an increased sense of control, thereby gaining additional relief from pain. Several studies have shown an association between persistent pain and PTSD. This association has been documented in chronic headache (Chibnall & Duckro, 1994), chronic pain (Benedickt & Kolb, 1986) and those with PTSD following traumatic injury (Geisser, *et al.*, 1996).

Results of research suggest an exceedingly high prevalence of PTSD in patients presenting to chronic pain clinics (Aghabeigi, Feinmann, and Harris, 1992; Sherman, *et. al*, 1988). As many as 80 percent of Vietnam veterans with PTSD report chronic pain in various body sites (Beckham, *et al*, 1997). In one study, 21 percent of patients diagnosed with fibromyalgia met the diagnostic criteria for PTSD (Amir, *et al.*, 1997). Other researchers, including Sherman, Turk, and Okifuji (2000) and Sherman *et al* (2000), found that more than 50 percent of their FMS samples had symptoms of PTSD.

The degree to which this is reflective of the etiology of the trauma or to pre-morbid trauma that begins to exert an effect is not clearly documented in the literature. There are some patients who have a history of physical or sexual trauma as children who begin to relive the experiences following trauma that subsequently results in chronic pain. It may reflect an overload of the individuals coping strategies and thus lead to a resumption of symptoms of PTSD. Multiple studies document higher rates of childhood abuse in patients with chronic pain

than in comparison groups. When the conditions coexist, it is important that both the PTSD and pain be addressed. If the PTSD appears to have a primary role in the etiology and maintenance of pain, then it should be addressed before beginning any other comprehensive pain management. Individuals who have had trauma in the past may respond to treatment in ways that must be addressed prior to initiating treatment. For example, a woman who has been sexually assaulted may have difficulty participating in physical therapy modalities with a male therapist. Lack of assertiveness may prevent a person from expressing their fear and instead they may avoid the treatment and be labeled as non-compliant. Whenever PTSD is suspected, based on the patient's self report or medical records, it should be evaluated by a Psychologist or Neuropsychologist to determine whether the symptoms should be addressed prior to beginning intensive treatment. Since by definition, PTSD symptoms, as delineated in the DSM-IV-TR., include both emotional and cognitive symptoms, there may be considerable overlap with other emotional conditions. Depending on the patient's self-report alone will not allow the fine grained analysis needed to make the diagnosis. As has been previously noted in this reading assignment, individuals with psychological disorders may report physical symptoms, such as pain, in response to their emotional symptoms. This conversion of affect may be seen in patients with PTSD. In any case, development of a therapeutic relationship will be difficult and the focus of cognitive behavior therapy in a pain management program will likely be inadequate in addressing PTSD.

Behavioral factors including job satisfaction and the vocational aspects of return to work may affect treatment outcome. For some individuals, it is of concern that they will not be able to provide for their family as they did in the past. In other cases, the anticipation of the financial settlement is a negative indicator for recovery. In some instances, the person is in a double bind; that is, if their pain and physical status improve, they may be released to return to a job that they feel they will be unable to perform long-term; if their pain and physical status do not improve, they will continue to have a poor quality of life. It is important to have the person assisted by a Vocational Specialist to address concerns about the future and to assist the injured person in determining options, or lack thereof, for gainful employment. Life Care Planners should be sensitive to these issues and consult with appropriate vocational specialists to assist the injured party. Failure to address these issues may result in compliance issues in pain management.

The response of family members may also affect outcome. Some individuals not only receive increased attention from their spouse and other family members after an injury but also avoid activities that were aversive before the injury. Marital dissatisfaction may be exacerbated by an injury; this should be a consideration in treatment.

Psychological factors are an integral part of the patient's emotional, cognitive, and behavioral persona. A multidisciplinary approach, providing for consideration

of these factors before there is significant disruption of the patient's lifestyle, is most likely to yield optimum treatment outcomes and enhance the likelihood of return to previous levels of functioning. In recent years, there has been a trend toward increasing the use of pharmacological agents and procedures. These treatments alone have been shown to be effective in a subgroup of patients; however, most patients benefit from the input of a treatment team to address the multiple issues inherent in each case.

In dealing with special populations, *e.g.*, SCI patients, TBI patients, amputees, and the younger and geriatric patients, the Life Care Planner and other rehabilitation professional should be familiar with the specific difficulties that are likely to be encountered from both a physiological and psychological perspective. As previously noted, geriatric patients, especially in nursing homes may be under-treated for pain. Similar findings have been documented in the child and adolescent population. For example, younger children who suffer amputations may not receive the level of pain management or psychological intervention that would be provided to someone who is middle aged. These groups of individuals are especially vulnerable since they have experienced other changes in their lifestyles that may ensue as a result of co-morbid conditions. In the case of spinal cord injury, the patient has to cope with multiple changes in lifestyle that may tax coping abilities. If, in addition, the patient must cope with intractable pain, considerable psychological stress may result.

There is a significant body of research in the area of Spinal Cord Injury documenting the high risk at which those with SCI are for pain syndromes. The complaint of pain often begins when the person is in acute rehabilitation (Yap, Tow, Menon, Chan, & Kong, 2003) and after five years, a large proportion (81%) of patients continue to report pain (Siddall, McClelland, Rutowski, & Cousins, 2003). This interferes with functioning in other areas and is responsible for psychological distress and perceived impairment of quality of life. One of the syndromes often encountered in chronic pain is below level central pain; while medications and other treatments are effective in some cases, many individuals continue to suffer from this syndrome. Chronic pain after SCI has been shown to cause great emotional distress, which is in addition to that caused by the SCI alone (Henwood & Ellis, 2004). Assisting these individuals with coping skills may result in increased acceptance of the pain condition and thereby improve their perception of quality of life. It is important, as in other cases of individuals with chronic pain, that the treatment team address all aspects of the person's condition in order to achieve maximal outcomes. One treatment modality that has been shown to be effective in these cases is exercise; there is a significant negative correlation between pain and exercise adherence. Those individuals who exercised consistently over a period of time were found to have decreased pain and increased quality of life (Ditor, Latimer, Ginis, Arbour, McCartney, & Hicks, 2003). Encouraging this activity is particularly important since the aging increases the effects of pain on Quality of Life in the individual with a Spinal Cord Injury.

The evaluation of treatment effectiveness is important in the development of a Life Care Plan in order to ensure that the treatment recommended is the one that is likely to meet the needs of the individual for whom the plan is being developed. While there is a plethora of research, it can be difficult to interpret because of the variability in the outcome measures used in various research projects. Pain is a multifaceted, sometimes, dynamic experience that can and has been measured in a variety of ways. In some studies, pain intensity changes have been used as the variable of interest (cf. Mayer, *et al*, 1987; Flor, Miltner, & Birbaumer, 1992; Jensen & Karoly, 1992). Other researchers have chosen to study pain distribution (e.g., Margolis, Tait, & Krause, 1986) and still others have addressed changes in psychological aspects of pain. For functional restoration programs and multidisciplinary pain programs, Return to Work is often used as the variable of interest. In spite of the difficulty in assessing effectiveness that is inherent in the use of different dependent variables, much of the research supports the effectiveness of the non-surgical treatments that are presently available.

As noted in the introduction to this reading assignment, chronic pain is expensive in a number of ways. There are often multiple diagnostic work-ups, treatment expenses, and indemnity payments (Okifuji & Turk, 2002). In 1995, Marketdata Enterprises estimated that 176,500 chronic pain patients required treatment at pain rehabilitation facilities at an average cost of \$8,100 per patient, for a total cost of more than \$1.4 billion. Other treatments, such as Physical Therapy and chiropractic care, increase this total. There have been several studies that document the decrease on cost of health care following treatment for pain as compared to those patients who receive standard care. Cassissi and colleagues (1989) found that 8 percent of chronic pain patients who completed a pain rehabilitation program underwent additional surgery within a year following treatment. In contrast, 46 percent of those who had standard care underwent surgery. Another cost savings that has been documented is related to the reduction in opioid medication required following treatment. In one long-term study, completed in the 1980s, found that the percentage of patients requiring opioids dropped from 61 percent to 21 percent after treatment at a rehabilitation pain program (Guck, Skulterty, Meilman, & Dowdy, 1985). From the standpoint of functional abilities, which would be expected to further improve the quality of life for the patient, Flor and colleagues (1992) found that those patients who completed treatment were almost twice as likely, 65 percent versus 35 percent, to increase their abilities when compared to those who had standard care. This becomes more impressive when contrasted to the outcomes for those who underwent surgery; in these cases, 58 percent of patients suffered a decline in functional abilities following surgery (Gallon, 1989).

Third party payers are often concerned with Return to Work issues when considering whether to approve treatment in a pain management program. The most successful treatments as determined by research, in terms of return to work, are pain rehabilitation and functional restoration programs. In these

programs, the likelihood of return to work is approximately 50 percent. There are multiple factors that may influence return to work that are unrelated to the person's willingness to return to work or physical capability. Okifuji and Turk (2002) have delineated the following as primary influences on return to work in patients with chronic pain:

- a. "Physical demands of the job
- b. Job availability
- c. Regional variation in the job market
- d. Availability of job accommodations
- e. Marketability of patient's skills
- f. Extent of wage replacement
- g. Financial incentives"

Other factors which have been shown to predict the ability to return to work include the number of surgeries, time off work, application for pension payments, and the patient's pre-treatment beliefs regarding return to work (Vendrig, 1999). In the preparation of a Life Care Plan, or for that matter, any rehabilitation plan for an individual who has a primary or secondary pain diagnosis, individual factors must be considered in assessing needs. However, it is important to address both the mind and the body, not in a dualistic fashion, *i.e.*, treating first body and if necessary, treating the mind, but ensuring that both aspects are addressed early in the process. The sooner the issues are addressed, the greater the likelihood of a successful outcome. Utilization of a team of professionals with experience in treating chronic pain is crucial. The assistance of a Case Manager and Vocational Specialist is also crucial in ensuring that the injured person obtains maximal pain relief while maintaining functional abilities, preventing co-morbid psychological dysfunction, and increasing independence.

Psychological assessment and treatment adds another component to the medical treatment of the patient with pain. One must view the person in holistic fashion and avoid the dichotomy of organic versus psychogenic pain. There is a complex relationship between the physiological and emotional/behavioral effects of pain. It is incumbent on the Life Care Planner and other rehabilitation professional to consider all aspects of pain management in developing a Life Care Plan or serving as a case manager to chronic pain patients. Utilizing a treatment team, whether housed under one roof or in different sites with easy telephone access to each other, will provide the most efficacious outcome. There are numerous options for patients with pain, failure to provide those options that have demonstrated efficacy will result in a reduced quality of life for the pain sufferer and, in the both short and long term, more reliance on the healthcare professional.

## References

- American Psychiatric Association, (1994). *Diagnostic and Statistical*

*Manual of Mental Disorders-IV-TR*. Author.

- Amir, M., Kaplan, Z., Newmann, L., Sharabani, R., Shane, N., Buskila, D. (1997). Posttraumatic stress disorder, tenderness, and fibromyalgia. *Journal of Psychosomatic Research*, 42, 607-613.
- Aghabeigi, B., Feinmann, C., & Harris, M. (1992). Prevalence of Posttraumatic stress disorder in patients with chronic idiopathic facial pain. *British Journal of Oral Maxillofacial Surgery*, 39, 360-364.
- Beck, A.
- Beckham et al., 1997.
- Benedikt, R., A., & Kolb, L.C. (1986). Preliminary findings on chronic pain and posttraumatic stress disorder. *American Journal of Psychiatry*, 143(7), 908-910.
- Biedermann, H.J., McGhie, A., Monga, T.N., & Shanks, G.L. (1987). Perceived and actual control in EMG treatment of back pain. *Behavior Research and Therapy*, 25, 137-147.
- Cassissi, J., Sypert, G., Salamon, A., & Kapel, L. (1989). Independent evaluation of a multidisciplinary rehabilitation program for chronic low back pain. *Neurosurgery*, 25, 877-883.
- Chibnall, J.T., & Duckro, P.N. (1994). Posttraumatic stress disorder in chronic posttraumatic headache patients. *Headache*, 34(6), 357-361.
- Compass, B.E., Haaga, D.A., Keefe, F.J., Leitenberg, H., Williams, D.A. (1998). Sampling of empirically supported psychological treatments from health psychology: smoking, chronic pain, cancer, and bulimia nervosa. *Journal of Consulting and Clinical Psychology*, 66(1), 89-112.
- Ditor, D.S., Latimer, A.E., Ginis, K.A., Arbour, K. P., McCartney, N., & Hicks, A.L. (2003). Maintenance of exercise participation in individuals with spinal cord injury: Effects on quality of life, stress, and pain. *Spinal Cord*, 41(8), 446-450.
- Ellis, A.
- Flor, H., Fydrick, T., & Turk, D.C. (1992). Efficacy of multidisciplinary pain treatment centers: A meta-analytic review. *Pain*, 49, 221-230.
- Flor, H. Miltner, W., & Birbaumer, N. (1992). Psychophysiological recording methods. In D.C. Turk & R. Melzack (Eds.), *HANDBOOK OF PAIN ASSESSMENT* (pp.169-90). New York: Guilford Press.
- Fordyce, W.E. (1976). *Behavioral methods for chronic pain and illness*. St. Louis, MO: C.V. Mosby.
- Gallon, R. (1989). Perception of disability in chronic back pain patients: A long term follow-up. *Pain*, 37, 67-75.
- Gatchel & Dersen, 2001.
- Gatchel, R.J. (1991). Early development of physical and mental deconditioning in painful spinal disorders. In T.G. Mayer, V. Mooney, & R.J. Gatchel (Eds.), *CONTEMPORARY CONSERVATIVE CARE FOR PAINFUL SPINAL DISORDERS* (pp. 278-279). Philadelphia: Lea & Febiger.
- Gatchel, R.J., Baum, A., & Krantz, D.S. (1989). *An introduction to health*

- psychology* (2<sup>nd</sup> ed.). New York: Random House.
- Gatchel, R.J., & Gardea, M.A. (1999). Psychosocial issues: Their importance in prediction disability, response to treatment, and search for compensation. *Neurologic Clinics*, 17(1), 149-166.
  - Geisser, M.E., Roth, R. S., Bachman, J.E., & Eckert, T.A. (1996). The relationship between symptoms of posttraumatic stress disorder and pain, affective disturbance and disability among patients with accident and non-accident related pain. *Pain*, 66, 207-214.
  - Giardino, N.D., Jensen, M.P., Turner, J.A., Ehde, D.M., & Cardenas, D.D. (2003). Social environment moderates the association between catastrophizing and pain among persons with spinal cord injury. *Pain*, 106, 1-2.
  - Guck, T.P., Skultety, F.M., Meilman, P.W., & Dowd, E.T. (1985). Multidisciplinary pain center follow up study: Evaluation with a no treatment control group. *Pain*, 21, 295-306.
  - Henwood, P., & Ellis, J.A. (2004). Chronic neuropathic pain in spinal cord injury: The patient's perspective. *Pain Research and Management* 9(1), 39-45.
  - Jensen, M.P., & Karloy, P. (1991). Control beliefs, coping effort, and adjustment to chronic pain. *Journal of Consulting and Clinical Psychology*, 59, 431-438.
  - Jensen, M.P., & Karloy, P. (1992). Pain specific beliefs, perceived symptom severity, and adjustment to chronic pain. *The Clinical Journal of Pain*, 8, 123-130.
  - Kinney, R.K., Gatchel, R.J., Polatin, P.B., Fogarty, W.J., & Meyer, T.G. (1993). Prevalence of psychopathology in acute and chronic low back pain patients. *Journal of Occupational Rehabilitation*, 3, 95-103.
  - Margolis, R.B., Tait, R.C., & Krause, S.J. (1986). A rating system for use with patient pain drawings. *Pain*, 33, 49-51.
  - Marketdata Enterprises, 1995.
  - Mateer's.
  - Mayer & Gatchel, 1991.
  - Mayer et al., 1987.
  - McCracken, L.M., Gross, R.T., & Eccleston, C. (2002). Multi-method assessment of treatment process in chronic low back pain: comparison of reported pain-related anxiety with directly measured physical capacity. *Behavior Research and Therapy*, 40(5), 585-594.
  - Morley, C., Eccleston, C., & Williams, A. (1999). Systematic review and meta-analysis of randomized controlled trials of cognitive behavioral therapy and behavior therapy for chronic pain in adults, excluding headache. *Pain*, 80, 1-13.
  - Okifuji & Turk, 2002.
  - Polatin, P.B., Kinney, R.K., Gatchel, R.J., Lillo, E., & Meyer, T.G. (1993). Psychiatric illness and chronic low back pain. *Spine*, 18, 66-71. *Promoting pain relief and preventing abuse of pain medications: A critical balancing*

act. (n.d.). Retrieved from  
<http://www.ampainsoc.org/advocacy/promoting.htm>.

- Romano, J., & Turner, J.A. (1985). Chronic pain and depression: Does the evidence support a relationship? *Psychological Bulletin*, 97, 18-34.
- Sherman et al., 1988.
- Sherman et al., 2000.
- Sherman, J.J., Turk, D.C., & Okifuji, A. (2000). Prevalence and impact of posttraumatic stress disorder-like symptoms on patients with fibromyalgia syndrome. *Clinical Journal of Pain*, 16, 212-219.
- Siddall, P.J., McClelland, J.M., Rutkowski, S.B., & Cousins, M.J. (2003). A longitudinal study of the prevalence and characteristics of pain in the first five years following spinal cord injury. *Pain*, 103(3), 249-257.
- Sullivan, 2001.
- Turk, D.C. & Rudy, T.E. (1986). Assessment of cognitive factors in chronic pain: A worthwhile enterprise? *Journal of Consulting and Clinical Psychology*, 54 (6), 760-780.
- Vendrig, A.A. (1999). Prognostic factors and treatment-related changes associated with return to work in the multimodal treatment of chronic back pain. *Journal of Behavioral Medicine*, 22, 217-232.
- Vlaeyen, J.W., Kole-Snijders, A.M., Boeren, R.G., & vanEek, H. (1995). Fear of movement/(re)injury in chronic low back pain and its relation to behavioral performance. *Pain*, 62(3), 363-372.
- Williams, D.A., & Thorne, B.E. (1989). An empirical assessment of pain beliefs. *Pain*, 36, 251-258.
- Williams, D.A., & Keefe, B.E. (1991). Pain belief and the use of cognitive behavioral coping strategies. *Pain*, 46, 185-190.
- Yap, E.C., Tow, A., Menon, E.B., Chan, K.F. & Kong, K.H. (2003). Pain during in-patient rehabilitation after traumatic spinal cord injury. *International Journal of Rehabilitation Research*, 26(2), 137-140.