

**EFFECTS OF CHRONIC PAIN MANAGEMENT TREATMENT
ON PERCEIVED PAIN LOCUS
OF CONTROL AND DEPRESSION**

by

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of the Requirements for the Degree
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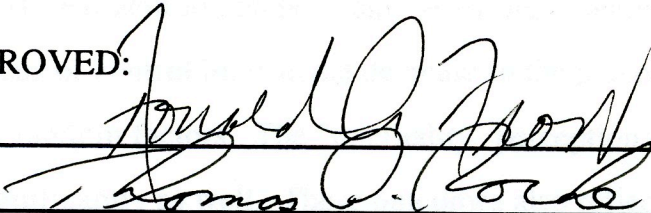
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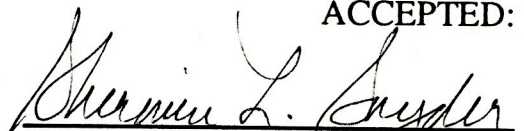
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ABSTRACT

This research studied selected patients' locus of control and depression levels pre and post treatment in the St. Luke's Outpatient Pain Management Program. The purpose of this study was to evaluate the effects of treatment to provide a greater understanding of the program's effectiveness.

This study evaluated, through pre and post tests, depression level and locus of control on the dimensions of "internality," "chance," and "powerful other." This six-month study included data from the tests of the twenty patients who completed the program within this period. The mean difference was calculated between the pre and post test measurements using a t-test of significance.

The data showed a significant decrease in the patients' level of depression post treatment in this program. A strong reduction of the "chance" factor of locus of control indicated a decrease in the perception of pain relief controlled by random factors. The "internality" perception of pain control increased significantly as well. These outcomes also reflect an increase in the perception of personal control and greater ability to self-manage the pain experience. Through these significant shifts in scores, the testing results indicate that this prescribed program influenced positive outcomes in the areas of reduction of depression and increased perceived self-control of chronic pain for the patients completing treatment.

DEDICATION

To my mother, who gave me my interest in this field. Thank you for always believing in me.

To my dream partner, S. M. P. May they all come together as easily as this one and our vision stay clear.

I thank all the chronic pain patients I've worked with throughout the years. My knowledge and education comes from you.

And, finally, to all the "teachers" in my life, from my very beginning. You have given guidance and purpose to my life.

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CHAPTER 1

THE PROBLEM

Introduction

Chronic pain disables tens of millions of Americans, often crushing their spirits and destroying their lives. It has remained a medical enigma, particularly because diagnosis and treatment of this prevalent condition is often not easily defined. Physical pain lasting longer than six months is generally termed "chronic," which is a measure of time-passed rather than an indication the individual "will always feel this way." Individuals with chronic pain often feel sentenced to an uncertain and anguished future.

Despite the advanced diagnostic capabilities of current technology, the origin of one's pain may not be detectable. Frequently patients are told they "need to live with it" and may feel their only hope, modern medicine, has failed them. These impressions can emotionally devastate the individual with chronic pain.

Since allopathic medicine is often based on "find it, fix it" interventions, this "Western" model of medicine may not be most appropriate in addressing chronic pain problems. Surgery upon identified pain sources may also prove ineffective or even worsen the original condition. Narcotic analgesics, effectively designed for acute or short term pain conditions, may further complicate the recovery picture by causing addiction, increasing depression and loss of physical feedback needed for pacing activities and regulating energy expenditure. The individual may then

circulate through a disjointed maze of medical physicians, physical therapists, and psychiatrists, resulting in feelings of anger, hopelessness and despair.

Medical advances, such as major organ transplants and cures for previously fatal diseases, often give the "medical consumer" the impression that "medicine can do it all." The individual with chronic pain may feel that if there is no definitive course of treatment outlined by his/her physician, then there is no hope for improvement. In addition to this source of discouragement, those with chronic pain often incur significant changes in economic status due to partial or total inability to work at their past job, alterations in self-image due to role changes within the family and society, and physical changes caused by inactivity and/or surgery. In general, chronic pain can alter every area of one's life and markedly affect those around him/her.

What is initially presented by the patient as a physical problem grows into emotional distress as well. Depression is the most common manifestation of this distress and can be equally or primarily contributory to the overall problem (Sternbach, 1987). Individuals often report an overwhelming sense of "loss of control" in describing their depression, as well as an attendant hopelessness. Control may be defined as "the ability to cause an effect in the intended direction" (Rodin and Littlefield, 1991, p. 1274).

A sense of hopelessness and helplessness may be augmented in individuals with chronic pain disorder when the cause and future course of their condition is unclear. The perception of where one's sense of control is located can significantly influence the way in which he/she copes with health problems. Those sensing greater external control may believe in powerful interventions of

others or in random influences such as fate or chance. More internally influenced individuals perceive control "comes from within" themselves (Rodin, 1986).

Those with chronic pain who may have originally had a primarily internal locus (location) of control may experience a shift to a primarily external locus due to their circumstances. This shift may develop into a circular pattern of depression, chronic pain disorder and a pattern of perceptions externalizing their locus of control. This pattern may ultimately contribute to a sense of hopelessness and helplessness. Primary treatment interventions into all three of these treatment issues may facilitate greater recovery numbers, or at least contribute to more positive treatment outcomes. The recognition of these needs determined this researcher's choice of factors to study within this specific program.

Development of the Problem

Until the 1970s, chronic pain was treated primarily with narcotic analgesics, physical therapy, and/or surgery. At this time, new models of multidisciplinary interventions within specific programs were developed to treat disorders such as alcoholism and drug addiction. Chronic pain was considered a syndrome which generally indicates a problem consisting of a specific constellation of symptoms. These symptoms, such as depression, prolonged physical pain, poor self-image, sleep disruption, and excessive body focus appeared to fit this new paradigm of treatment. Inpatient units for chronic pain treatment were established, as was the Pain Center at St. Luke's Behavioral Health Center in 1980. This program was modeled after one of the original Pain Centers designed by Dr. Norman Sheeley, formerly a neurosurgeon. The need for such comprehensive services became more

identified, as treatment for people with chronic pain problems was expensive and often fragmented.

In the late 1970s and early 80s, the nation's health care economy flourished and these programs, including the one at St. Luke's, employed an array of medical and psychological practitioners, as well as physical therapists and adjunctive staff. The services provided at that time within the St. Luke's program included modalities such as relaxation skills training, physical therapy with exercise, stress management, anti-depressant medication when indicated, reduction of narcotic analgesics, and group and family therapy. These interventions were designed to comprehensively meet the many needs of the chronic pain patient.

The economy of the health care system changed and the inpatient service models began closing as did the one at St. Luke's. Treatment models of inpatient services were modified to fit an outpatient structure. The outpatient Pain Program at St. Luke's has continued since 1990. Since treatment was short-term and done with a limited staff, identification of vital treatment issues and interventions became important. This researcher observed, through years of previous experience in the inpatient hospital setting, that individuals with chronic pain seemed to improve most when they had a greater sense of personal control or involvement in their health recovery and when they experienced less depression. Interest in "locus," or location, of control has been prevalent in psychological arenas for a number of decades. Whether one has an "external" or "coming from outside" perception of control or an "internal" or "within" perception may influence depression level and one's sense of physical well-being. Therefore, primary interventions within the St. Luke's program were designed to reduce

depression level and increase the patient's "internal" sense of control regarding their pain and health status. The patient is actively involved within the St. Luke's Pain Program from the very beginning of treatment. This involvement emphasizes the changes patients can make in their lives to positively affect their pain experience and mood. Pacing their activities, better communication with family and health care providers, exercise, and practicing relaxation techniques are all autonomous activities which can affect the patient's emotional and physical health. The goal of this approach is for patients to feel more independent and capable of creating positive changes for themselves as well as to experience greater optimism for improvement of their health.

The problem investigated in this study is whether treatment in the St. Luke's Pain and Stress Management Program alters the perceived pain locus of control and depression level in a specific group of chronic pain patients. Perceived pain locus of control, degree of depression, and the effects of treatment on these variables are the issues addressed in this study.

The logical rationale for this study is concerned with evaluating specific approaches within a pain management program to provide information regarding treatment effectiveness. This information may provide avenues for effecting the most constructive treatment outcomes for those with chronic pain disorder. Pain management programs are beginning to study treatment outcomes in seeking the most effective intervention strategies in terms of cost and patient benefit.

Need for the Study

Chronic pain has recently become more recognized and defined as a treatable disorder rather than merely a collection of symptoms. This recognition has created a need for more definitive treatment approaches and goals for this condition. In addition, treatment effectiveness of the current shorter-term, outpatient model needs to be assessed. Information regarding successful interventions and approaches in treating chronic pain disorder may be useful in a variety of settings, from physician's offices to the development of formal programs.

The effectiveness of the St. Luke's Pain Program had never been formally evaluated. Health services, particularly within hospital systems, are being increasingly held accountable for figures showing treatment outcomes. The lack of program evaluation in terms of treatment outcomes motivated this researcher to complete this study. This study is an effort to clarify the outcomes of one Pain management program's effect on altering the perception of pain control and depression level upon a specific group of chronic pain patients. Sharing the outcomes of this study with new clients entering treatment in the Outpatient Pain and Stress Management Program may provide them with more concrete data of the program's effect and focus. This data may facilitate their participation with treatment from the very start, as well as provide them with a clearer idea of the rationales for the interventions used within the program. On a larger scale, information regarding treatment can provide more helpful directions for care on the part of all health care providers.

Purpose of the Study

The purpose of this study was to evaluate how, and if, treatment in the St. Luke's Outpatient Pain Management Program affects perceived pain locus of control and level of depression in a specific population of chronic pain patients.

Research Question

What is the effect of treatment in a select Pain Management Program upon chronic pain patients' perceived pain locus of control and level of depression?

Definitions of Terms

For the purpose of this study, the following terms are defined as:

Detoxification: Gradual weaning from chemicals. Often other medications are utilized to avoid dangerous physical withdrawal symptoms in narcotic analgesic detoxification.

Locus of Control: The location or source of perceived control over specific or general areas of one's life.

External locus of control: Indicating a) a belief that random or chance happenings cause change or, b) change occurs from the efforts or influence of "powerful others" (such as physicians).

Internal locus of control: Indicates the perception that the individual has the ability to effect change or influence over events and circumstances.

Relaxation Skills Training: Teaching individuals techniques such as self-hypnosis, mental and physical relaxation with breathing and imagery, and the use of biofeedback machines to show physical responses to mental control techniques.

Somatic: *Pertaining to the body or physical symptoms.*

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter reviews literature concerning pain disorder and related topics, locus of control, and depression. The relationship of locus of control and depression to the experience of chronic pain disorder and its treatment is also examined.

Development of Pain Disorder Diagnosis

The Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), (American Psychiatric Association (APA), 1994), provides diagnostic guidelines with improved accuracy for Pain Disorder. Those with chronic pain disorder had previously often been erroneously been given primarily psychiatric diagnoses such as Somatoform Disorder (currently included in the broader category of Somatization Disorder) or Major Depression, with physical problems then being listed in Axis III, the diagnostic listing indicating physical problems. Pain Disorder takes into consideration both physical and psychological factors of the individual with chronic pain while avoiding a view of the problem as strictly emotional. The Diagnostic criteria for Pain Disorder within the DSM-IV are as follows:

- A. Pain in one or more anatomical sites is the predominant focus of the clinical presentation and is of sufficient severity to warrant clinical attention.
- B. The pain causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- C. Psychological factors are judged to have an important role in the onset, severity, exacerbation, or maintenance of the pain.
- D. The symptom or deficit is not intentionally produced or feigned (as in Factitious Disorder or Malingering).
- E. The pain is not better accounted for by a Mood, Anxiety, or Psychotic Disorder and does not meet criteria for Dyspareunia. (American Psychiatric Association, 1994, p. 458)

Somatization of Emotions and Physical Symptoms

The mind-body paradigm of health and illness is a contemporary illustration of the concept of somatization, which is not to be mistaken for malingering or hypochondriasis. It is a manner of perception and communication of a person's emotional distress. Becker (1991) warns that it is important to remember that somatization frequently coexists with organic pathology and "either/or thinking should be avoided" (p. 25). He further states that chronic pain (in this subset of individuals) is more likely to be the initial manifestation of depression than the cause of depression (Becker, 1991). Somatizing patients may have a background of emotional deprivation during childhood. Often, a history of childhood physical abuse or sexual molestation is seen. Related to these factors, somatizing patients can become increasingly passive and dependent and often recreate a victim role. Family history is a precipitating factor for somatization and may result in identification with a significant figure who has experienced chronic pain or hypochondriacal problems (Becker, 1991).

Individuals who are insensitive to, or who cannot acknowledge or describe their emotions, are often convinced that their problems are totally physical. These symptoms alter physical reactivity and create a primarily emotionally-influenced etiology for their pain. This may indicate what is called a "pain prone" person, or one who frequently uses pain as a "psychic regulator" (Shanfield and Killingsworth, 1977).

Pre-existing depression may also influence the experience of pain in the individual. Katon, Egan, and Miller (1985) found that 43.2% of patients with chronic pain had experienced past episodes of major depressive illness. In their study, they hypothesized that:

...a subgroup of chronic pain patients have underlying psychopathology or chronic psychological pain that is expressed in more than half of the patients by major depressive episodes and/or alcohol abuse or dependence that preceded the onset of the chronic pain syndrome. The chronic pain may then be an expression of these patients' chronic psychiatric illness. (Katon, et al., 1985, p. 1159)

In the memoir of his personal experience with clinical depression, Darkness Visible, author William Styron (1990) articulates what physical effects he experienced from his emotional disorder:

I felt an odd kind of numbness, an enervation, but more particularly an odd fragility--as if my body had actually become frail, hypersensitive and somehow disjointed and clumsy, lacking normal coordination. And soon I was in the throes of a pervasive hypochondria. Nothing felt quite right with my corporeal self; there were twitches and pains, sometimes intermittent, often constant, that seemed to presage all sorts of dire infirmities. ...It is easy to see how this condition is part of the psyche's apparatus of defense: the mind correctable defects--not the precious and irreplaceable mind--that is going haywire. (pp. 43-44)

Comer (1992) states that depression is often accompanied by such physical ailments as headaches, indigestion, constipation, dizzy spells, unpleasant

sensations in the chest, and generalized pain. In fact, many depressions are initially misdiagnosed as medical problems.

Therefore, good initial assessment and diagnostic tools are important treatment elements in determining the possibility of somatization of emotions or preexisting psychiatric conditions in the individual with chronic pain disorder. Becker (1991) states that patients who somatize are highly resistant to psychological interpretations of their symptoms. Often, the patient can more easily "hear" the possibility of a *stressor* causing the predicament, and will accept psychological help based upon treating that particular stressor. It is important not to confront these defenses, and psychological intervention should not cause a patient to "lose face" (Becker, 1991, p. 24).

"Control" Concepts and Related Theories

A theory which relates to a sense of feeling "out of control" with part or all of one's life is that of learned helplessness, developed by Martin E.P. Seligman in 1975 (cited by Carson, Butcher and Mineka, 1996). Seligman's theory states that when an organism believes it has no control over aversive events, this perception elicits three kinds of deficits: (a) motivational (not even trying to escape negative events); (b) cognitive (interfering with future ability to learn control); and (c) emotional (no control producing passivity and perhaps depression) (Carson, Butcher and Mineka, 1996). The emotional deficit was intriguing to Seligman as a possible precursor to the development of depression. Seligman found that actual loss of control over reinforcements is not the critical

feature in producing the learned helplessness response in laboratory studies; it is necessary only that learned helplessness response in laboratory studies; it is necessary only that subjects perceive a loss of control (Comer, 1992).

Abramson, Metalsky and Alloy (1989), published a reformulation of the previous control theory, taking into consideration various attributions people make about uncontrollable events. Another important dimension of control perception was formulated from the attribution theory and can be referred to as a type of "locus of responsibility." This dimension measures the degree of responsibility or blame for events placed upon the individual or system (Jones et al., 1972). This theory is independent of the locus of control indexes used in this study, but shows some similarities in regards to assigning cause and effect and influences of perception. The attributional person-centered focus could relate to an internal locus of control, with the situation-centered attribution focus possibly relating to an external locus of control (Jones et al., 1972).

Abramson et al. (1989) further revised their attributional theory with the "hopelessness theory." In the previous theory, having a pessimistic attributional style in conjunction with one or more stressful life events was suggested to cause depression. The revised viewpoint held that one also needed to experience a state of hopelessness to merit the diagnosis of depression. This lack of positive expectancy was defined by the perception that one had no control over what was going to happen when expecting a negative outcome (Carson, Butcher and Mineka, 1996).

The Development of the Locus of Control Theory

In 1962, Julian Rotter first developed a twenty-nine item version of the Internal-External Locus of Control Scale (I-E scale) which is essentially a forced-choice scale measuring an individual's internal and external control levels. He found that people differ in the tendency to attribute satisfactions and failures to themselves rather than to external causes, and these differences were seen as relatively stable (Rotter, 1971). In 1966, Rotter (1971) further formulated the concept of internal-external control or the internal-external (I-E) dimension. Internal control (IC) refers to people's beliefs that reinforcements are contingent on their own actions and that people can shape their own fate. External Control (EC) refers to people's beliefs that reinforcing events occur independently of their actions and that the future is determined more by chance and luck (Rotter, 1971).

Rotter conceived this dimension as measuring a generalized personality trait that operated across several different situations (Sue and Sue, 1990). To date, a large number of studies have been done which examine perceptions of locus of control upon behavior. Considerable emphasis in these studies has been placed upon the "advantage of internality" (Sue and Sue, 1990, p. 141). Various cultural and socioeconomic influences are present in this orientation perspective as differing values and opportunities exist within subgroups and society as a whole. These influences may be reinforcing of or discouraging to the development of a particular sense of control. A discussion of specific cultural influences upon the area of locus of control is included later in this chapter.

In the realm of test development for locus of control and health, the Wallston's "Health Locus of Control Scale" was formulated in 1976 (Wallston, Wallston, and DeVellis, 1978). Following this initial test, the Wallstons and colleagues (1978) developed the "Multidimensional Health Locus of Control Scale" which provided for both internal and external scores. In addition, this instrument measured two aspects of external control, namely "chance" (randomness) and "powerful other" elements (Shapiro, et al., 1993).

Based primarily upon past experience, people learn one of two world views: The locus of control rests with the individual or the locus of control rests with some external force. Sue and Sue (1990) cite studies that have research findings that correlate high internality with (a) greater attempts at mastering the environment, (b) superior coping strategies, (c) better cognitive processing of information, (d) lower predisposition to anxiety, (e) higher achievement motivation, (f) greater social action involvement, and (g) placing greater value on skill-determined rewards. In addition, social reinforcement of these attributes would be high, as these are highly valued by American society and constitute the core features of mental health (Sue and Sue, 1990).

Perceived Control and Physical Illness

Patients with chronic or advancing disease often generate perceptions that they or others can control aspects of their illness such as symptoms, course, and treatment (Taylor, Helgeson, Reed, & Skokan 1991). Research cited within this chapter suggests that beliefs in personal control generally appear to be adaptive. Perceptions of control may represent spontaneous coping efforts and thus

constitute a coping resource. The greater the appraised threat in a situation, the more influential perceptions of control will be (Folkman, 1984). Arntz & Schmidt (1989) state that various studies have shown that

control can be perceived even when it is not actually present, but may still have the same effect as real control. Thus, the belief that pain can be controlled may have positive consequences, even when the controlling response is not used. (p. 132)

Improved adjustment to illness (implying less anxiety and depression) is illustrated by the study by Taylor, Lichtman, and Wood (1984). They interviewed 78 breast cancer patients and found that those who believed they could exert control over the course of their cancer, or over the likelihood of recurrence, were significantly better adjusted than those who lacked such perceptions of control. In a questionnaire study with arthritis patients, Nicassio, Wallston, Callahan, Herbert & Picus (1985) found that perceptions of helplessness or diminished control were associated with reduced self-esteem, greater anxiety and depression, personal perceptions of poorer clinical status, and greater impairments in daily living.

Research cautions, however, that maintenance of beliefs in personal control over chronic illness may be maladaptive when a sense of failure is created by the personal inability to influence the course of a disease; therefore, prognosis may be an important factor as perceptions of control may be adaptive only when there is, in fact, something to be controlled. Chronic pain and illness levels fluctuate and are generally erratic as well, and people may experience inconsistent control related to these patterns (Burish et al., 1984).

Taylor et al. (1991) cites that several researchers have found that people need not feel personally in control of their illness, but may benefit from the sense of

vicarious control from the belief in powerful others in their environment.

Powerful Others is a category included in the pain perception of locus of control instrument used in this study. Under certain circumstances, the belief that there are powerful others in one's environment who can control negative events on one's behalf may produce responses similar to feelings of direct control (Taylor et al., 1991). The influence of this vicarious control would have obvious implications in health care settings regarding the importance of one's faith in physicians and other health care agents. In terms of traditional sex role expectations, vicarious control may be seen as adaptive in females and not in men. In this light, women may be more socially accustomed to relying upon others to maximize their outcomes, and thus may experience positive emotions in regards to the interventions and assistance from powerful others (Taylor et al., 1991). In a socialization perspective, women may also respond more positively to a sense of cooperative effort rather than to the emphasis on individualism of the traditional male sex role. Overall, Taylor's study indicated benefits of vicarious control as being confined to women and only those women with a good prognosis.

A study by Melvin and Teresa Seeman (1983) of a representative metropolitan sample of the general public's health care management examined three domains of health behavior: (1) preventative care; (2) health knowledge and perspectives; and (3) physical status. The findings of their year-long investigation showed a low sense of control over illness was significantly associated with:

- (1) Less self-initiated preventative care
- (2) Less optimism concerning the efficacy of early treatment
- (3) Poorer self-rated health

- (4) More illness episodes, more bed confinement, and greater dependence upon the physician (Seeman & Seeman, 1983, p. 144).

The Seemans (1983) concluded that "The sense of helplessness may well be the 'disease' that it is claimed to be, for we find that those who believe that their health can be effectively influenced by their own behavior act in more positive ways with apparently positive results" (p.155).

Arntz et al. (1989) observed that many chronic low back pain patients do not seem able to detect early low back discomfort, and may continue exertion until the pain level becomes severe and debilitating. A related characteristic of chronic pain patients is "the combination of increased pain threshold and decreased pain tolerance" (Arntz et al., 1989, p. 140). Thus, these patients may have had a prior sense of significant control over their physical functioning. Arntz et al. (1989) add,

...increased pain threshold and decreased pain tolerance may be important factors in maintaining the perceived uncontrollability of pain; at lower levels of noxious stimulation nothing is felt, so that patients cannot learn pain prevention responses; and very quickly the pain is experienced as intolerable and overwhelming, making the patient a helpless victim. (p. 150)

The perception of control has three major factors influencing the chronic pain patient's experience of this disorder: "1) Controllability changes the meaning of pain or the meaning of the cause of the pain, 2) Perceived control is a positive experience per se which can compensate negative experiences, and 3) Perceiving control allows people to distract themselves from their pain" (Arntz et al., 1989, p.156).

"Depression and "Helplessness"

"Depressed people hold clearly negative views of themselves. They usually blame themselves for negative events and feel helpless to control or improve their lives" (Comer, 1992, p. 275). A sense of helplessness contributes to the lack or absence of a sense of control over one's life. The preponderance of evidence suggests that feelings of control reduce anxiety and depression, as opposed to anxiety and depression leading to low perceptions of control. Therefore, if someone is experiencing a "mixed anxiety/depression syndrome" he or she may become convinced of their helplessness. This is also compounded by a certainty that bad outcomes will occur, helplessness becomes hopelessness, and depression occurs (Carson et al., 1996).

Artnz et al. (1989) state that "the extent of suffering, disability beliefs and passive avoidance seen in the chronic pain individual are all associated with lack of perceived control....The similarity between chronic pain and depression is in line with learned helplessness theory" (p. 141). The avoidance behaviors of the chronic pain individual "are more reminiscent of the passivity of depressives than the avoidance behaviour of phobics" (Arntz, et al., 1989, p. 141).

A variety of different psychotherapeutic approaches speak to this element of the sense of helplessness as a primary symptom or component of depression. Karasu (1990) cites Strupp stating that in psychodynamic theory, "the formulation of omnipotent wishes upon the part of the individual experiencing depression are developed which both tenuously support and defensively fend off a sense of helplessness and hopelessness" (p. 135). The cognitive approach, currently most developed by Beck (1987) believes a sense of helplessness is derived as a direct

by-product of distorted thinking. This processing occurs due to an individual's "defective information processing mechanisms, thus predisposing the individual to depressive disorder" (Karasu, 1990, p.138). Within the interpersonal approach, the belief is held that "one's social bonds, their quality (how supportive) more than their quantity, are crucial to the individual's total adaptation and susceptibility to depression" (Karasu, 1990, p. 140). The interpersonal approach thus places high priority, during illness and health, on the presence of gratifying intimate relationships with others and positive communication. This type of support may neutralize a sense of isolation and related helplessness. Most other forms of psychotherapies acknowledge the profound sense of helplessness reported by the depressed individual. In fact, the symptom of helplessness reported through one's self-description of depression appears nearly universal.

Depression in Chronic Pain Disorder

The prevalence of major depression clearly increases in medically ill patients, including those with chronic pain. The prevalence of depression in chronic pain disorder is universally accepted as being much higher than in the general population, though statistics and classification of the type of depression vary from study to study. Rodin, Craven & Littlefield (1991) state that "most studies have found that the diagnosis of major depression can be made in about one-half of patients with chronic pain" (p. 116).

There are three points of view regarding the relationship between depression and chronic pain. The first, "pain is analogous to depression or is a depressive

equivalent," views the pain patient as possessing poorly differentiated emotions (alexithymia) which are poorly verbalized, and "experienced mostly in the somatic sphere" (Rodin et al., 1991, p. 116). The pain patients' responsiveness to antidepressant medication may suggest an analagous relationship of pain and depression. It is unclear, however, if such medication acts in such patients through the potentiation of analgesic effects or through mood-activating properties. Often, those with chronic pain are treated with a significantly lower dose of antidepressants with a more rapid onset of action than is usual with depression (Rodin et al., 1991). Tricyclic antidepressants have been the most widely used in treating chronic pain through their apparent analgesic (endorphin) potentiation. Again, however, the dosage for analgesia and sedation (for improved nighttime sleep) is usually effective at a level significantly lower than the usual prescription for depression. Improved sleep can be a major influence on depression in the chronic pain patient as well as upon their sense of physical and mental resilience.

The second viewpoint is that "depression arises secondary to chronic pain" (Rodin et al., 1991, p. 117).

...The most parsimonious explanation for the association of chronic pain and depression is that depressive symptoms are secondary to the experience of having distressing chronic symptoms that are poorly understood and ineffectively treated. (Rodin, et al., 1991, p. 117)

Rodin et al. (1991) cited findings of Maruta, Vatterot, and McHardy (1989) who found that "depressive symptoms resolved in almost all chronic pain patients following admission to a pain management program" (p. 117).

The third viewpoint of this possible relationship is that the depression and chronic pain are coincidental. Some cases may just occur simultaneously, or both may relate to a psychological vulnerability and/or an underlying medical condition. This viewpoint underlines the need for exploring the possibility of undetected or untreated organic disease in the chronic pain patient. It should not be assumed that chronic pain and depression are synonymous (Rodin et al., 1991).

Gender/Sex Role Differences in Control and Depression

Gender differences have been observed to play a role in how an individual responds to specific elements of perceived control. It is not specifically clear as to whether "nature vs. nurture" plays a larger role in the development of these responses. Statistics show women are about twice as likely to become clinically depressed (Carson et al., 1996). Gender response differences were compared in the study performed by this researcher and will be discussed in a later chapter. Nolen-Hoeksema (1990) offers a hypothesis stating that by virtue of their roles in society, women are more prone to experiencing a sense of lack of control over negative life events. Elements contributing to this sense may include: workplace discrimination, power imbalance within heterosexual relationships, high rates of female physical and sexual abuse and excessive expectations (Carson et al., 1996). Thus, the disparity of level of perceived control between men and women may contribute to the higher incidence of depression in women.

Cultural Influences Upon Control and Chronic Pain

A study by Bates and Rankin-Hill (1993) yielded some pertinent information regarding additional influences upon locus of control and the chronic pain disorder experience. The researchers in this study measured behavioral response (to what degree does the pain interfere with daily activities), attitudinal and emotional and/or psychological responses (degree of worry, anger, fear, depression, unhappiness, and tension associated with the pain and their attitudes about the pain experience), as well as care and treatment actions (when did the patient seek the care of a medical doctor, does the patient use non-biomedical treatments, etc.). They were assessing the degree of positive adaptation or "the process of adjusting behaviors and attitudes in order to resume or continue a life the individual defines as meaningful and worthwhile" achieved by the person with chronic pain disorder (Bates and Rankin-Hill, 1993, p. 631). These researcher's two quantitative and qualitative research projects (1988 & 1993 respectively) revealed significant relationships between patients' locus of control (LOC) and variations in reported chronic pain intensity and responses. They also saw a relationship between LOC and ethnic/cultural backgrounds, thereby implying the need to develop "deliberately culturally appropriate and personally relevant programs designed to help establish a sense of control over the patients' lives and their pain" (Bates and Rankin-Hill, 1994, p. 644)

Another significant finding of the studies performed by Bates and Rankin-Hill (1994) was that of the "LOC style" changing at various stages in the chronic pain disorder process. This suggests that earlier interventions in the chronic pain

disorder development aimed at increasing the individual's internal sense of control may positively alter the process of the disorder. The benefit of perceiving an increased sense of control was also found in many ethnic/cultural groups which "may contribute to an increased ability to cope successfully with the chronic pain experience" (Bates and Rankin-Hill, 1994, p. 629). Indeed, within this study, culture and ethnicity were shown to affect one's experience with chronic pain disorder. The authors, however, state at the conclusion of their report that "ethnocultural identity is not an absolute predictor of LOC style" (p. 644). They thus conclude that each patient should be assessed individually "within the context of her or his total psychosocial and biocultural environment" (p. 644).

Pain Coping Strategies and Perceived Control

Coping strategies such as using mental techniques of imaging, relaxation, have been studied regarding their effectiveness in chronic pain management treatment. Arntz and Schmidt ,(1989) state that many researchers have found that "vivid distracting mental activity" (via internal or external stimuli) is a superior strategy. Vivid distraction also appears to be the most powerful spontaneous coping strategy for coping with pain as well. The most sensitive element affected by this approach is pain tolerance, with pain threshold and subjective discomfort appearing less influenced.

The element of perceived control has an influence in the effectiveness of the application of coping strategies. Not only is it a powerful factor for effectiveness, but may be a necessary factor for a strategy's success (Arntz and Schmidt, (1989). An important element in this control factor is the ability to exercise personal

choice. Avia and Kanfer (1980) state that the choice of coping strategy enhances pain tolerance compared with prescribed strategies (Arntz and Schmidt, 1989, p. 141). Choice of elements of the coping method is also important as illustrated by Worthington's (1978) observation that "the effects of vivid imagination of distracting scenes on pain tolerance and on subjective pain were higher when subjects could choose the content of what should be imagined, compared to prescribed content" (p. 232). Another factor of the effects of choice is seen in the personal influence over the timing of external distraction. Those subjects who could exert control over the pace of their distractions were seen to exhibit greater pain tolerance than those responding to other-controlled rates of distraction(s) (Arntz and Schmidt, 1989, p.141).

In addition to the choice of technique and the influence on the timing of elements of the technique, Arntz (1989) state three more elements essential to promote perceived control over pain:

- 1) Contingent reinforcement of the use of the technique, either through pain relief or other reinforcers;
- 2) Attribution of pain coping to stable, internal sources; and
- 3) Attribution of pain sensations to non-harmful, controllable sources (p. 143).

Relationship(s) Between Locus of Control, Chronic Pain and Depression

In a 1982 study of fifty subjects with chronic pain, Skevington (1983) linked beliefs about control to the depression found in those she studied with chronic pain. As discussed, the belief system held about control (based on attributions) by the individual with chronic pain may be altered by the perception of helplessness. Skevington (1983) stated that the previous outline by Abramson et al. (1989) of attributional styles of those appearing to be depressed created two types of

helplessness. She identified failure as integral to this model as both categories of people believe they are unable to help themselves. In personal helplessness, "people self-blame for this failure (internal attribution) but believe 'relevant others' may be able to help them" (Skevington, 1983, p. 310). Lowered self-esteem is a result of self-blame and an identifying characteristic of personal helplessness. People displaying universal helplessness have the belief that they are not to blame for failure to control events (external attribution), but in addition believe that nobody is able to help them. No lowering of self-esteem is seen in universal helplessness due to lack of self-blame (Skevington, 1983).

Skevington (1983) used a control scale by Levenson (1974) which examined internal and external attributions about control in those with chronic pain, as well as measuring self-esteem. Internal attributions were measured independently from the two external measures (powerful others and chance). In her results, Skevington (1983) did not find self-blame or scores on the powerful others scale to correlate with depressive symptoms. There was a highly significant correlation between beliefs in chance happenings and depressive symptoms, showing that strong external attributions about control accompany a high frequency of depressive symptoms (universal helplessness).

Skevington (1983) showed that while pain patients report more depression (than controls), there is no evidence to support Abramson's et al. (1989) hypothesis that these symptoms are an expression of personal helplessness. She did find universal helplessness to be present with those in pain reporting stronger beliefs in chance. These beliefs are linked, in her findings, to considerable depression. She also found that pain patients seem to hold stronger beliefs about internal or

personal control. Her test results support the idea that pain sufferers try to control their pain and believe that they have some degree of success in doing so. As the majority of those with chronic back pain experience intermittent rather than continuous pain, an occasional positive reinforcement of control could be the reason for greater beliefs in personal control. In addition, the intermittent successes of personal control may also enhance perceptions of bad luck or chance when attempts to cope with pain fail.

In light of Skevington's findings of personal control and control by chance, Skevington states the "reporting behavior" of the pain patient may be influenced by these factors. She points out that pain patients will unlikely present themselves as successful copers when requesting medical treatment. In order to maximize treatment aid, they are much more likely to present external beliefs of uncontrollability. Coping behavior "is unlikely to win help or sympathy" (Skevington, 1983, p. 315). This, in turn, may encourage a victim posture by the chronic pain patient in need of treatment and/or acknowledgment.

With this attributional approach, the study of control is removed from the framework of stable personality traits implied by the previously mentioned locus of control design, and placed into the realm of more transient attributions about control, governed by social, environmental, and individual factors (Skevington, 1983).

Harkapaa's (1991) study yielded some notable results from the 476 chronic or recurrent low back pain participants. Data was collected on the severity of low back pain, health locus of control beliefs, psychological distress, and coping

strategies during the 1.5 year study. The average length of back pain problems was two years and they were all engaged in physically strenuous work.

Harkupaa (1991) found that subjects with more severe back pain

tended to report higher levels of psychological distress, weaker beliefs in internal control, and somewhat stronger beliefs in external control. They also tended to use passive cognitive coping strategies, such as hoping and praying and catastrophizing thoughts, more often than other subjects on the average. (p. 279)

In this study, beliefs in chance control had no significant connections with maladaptive or passive coping strategies. This result was acknowledged as unusual; the slight connections may be due to the less disabled sample of persons with back problems.

Harkapaa (1991) stated that "the patient's beliefs and attitudes may be more important than the actual coping strategies themselves. This is also in the realm of locus of control beliefs influencing the amount of effort allocated for initiating coping strategies" (p. 280). Hence, beliefs may be the motivator for recovery.

Crisson and Keefe (1988) examined the relationship of locus of control orientation to pain coping strategies and psychological distress in chronic pain patients. Sixty-two patients were studied with the mean duration of pain since initial onset being 6.7 years. Locus of control, pain coping strategies, and level of psychological distress were all assessed. Crisson and Keefe (1988) maintain that self-control strategies are most effective in the early stages of a pain problem. This subject was examined as "there was a lack of significant relationship seen between internal locus of control orientation and pain coping strategies" (Crisson and Keefe, 1988, p. 153). The possible reason cited for this may have been the

and Keefe, 1988, p. 153). The possible reason cited for this may have been the chronicity of symptoms experienced by the subjects.

Crisson and Keefe (1988) stated that correlational analyses revealed that patients who viewed outcomes as controlled by chance factors such as luck or fate tended to rely on maladaptive pain coping strategies and rated their abilities to control and decrease their pain as poor. They also exhibited greater psychological distress. Patients with an elevated chance locus of control also reported feeling helpless to deal effectively with their pain problem. The authors state at the conclusion of their study that "educational efforts designed to instruct patients in the role that they can play in managing their own pain may reduce the tendency to ascribe outcomes to chance factors and improve patients' functional status" (Crisson and Keefe, 1988, p. 147). In addition, "behavior therapy techniques can also improve the coping skills of patients having a chance locus of control orientation thereby providing them with tangible evidence of their own effectiveness in pain management" (Crisson and Keefe, 1988, p. 153).

Toomey, Mann, Abashian & Thompson-Pope (1990) conducted a study of the relationship between perceived self-control of pain, pain description and functioning. The researchers revised the Multidimensional Health Locus of Control Scale to refer to pain rather than general health. The instrument thus became the Pain Locus of Control Scale (PLOC). Toomey's et al. (1990) study was focused solely on the internality dimension "because of the potential use of that factor as a measure of pain coping" (p. 130).

Subjects in the study were 51 patients with an average pain duration of 49 months. Data revealed, as seen in other studies, that a logical and consistent

relationship was found between reported pain control ability and pain intensity and frequency. Those in the "high I group" (greater personal control of pain) rated as significantly lower both average pain level and least pain level. In addition, this population were significantly more likely to report some time without pain (Toomey, et al. 1990).

Toomey et al., (1990) raised a pertinent clinical question in working with this patient population, that is, "should treatment programs be tailored to individual differences in locus of control or can perceptions of control be augmented via specific interventions?" (p. 132). Toomey et al. suggest looking at changes in PLOC scores as a function of treatment.

Summary

The literature reviewed in this chapter revealed some significant consistencies regarding important issues pertinent to the field of chronic pain disorder and its management. Perception was seen as paramount to how an individual interprets and responds to a stressor, in this case, chronic pain. Of particular importance is the location, or locus, of perceived control over aspects of the experience of pain. The literature consistently suggests that the chronic pain individual may become involved in an endless cycle of unmet expectations and resignations. Individuals with chronic pain who previously had a sense of strong internal control may abandon this perspective and adopt a greater randomness or chance factor for their future recovery. This was seen as contributory, for the most part, to feelings of helplessness, depression, and passivity. A sense of helplessness was seen as being part of a society or systems which do not naturally promote involvement or

empowerment of the person who is ill or in pain. Depression appears to both manifest in and contribute to this sense of personal impotence.

Cultural and gender factors also seem to influence the perceptions of those with chronic pain, as individuals naturally respond significantly out of their personal experience and societal perspectives. Females were seen to respond to stressors with a greater sense of lack of personal control, but greater belief in powerful others. This form of gender inequity may be significantly influenced by the difference in the power structure of society between males and females. Studies of ethnicity and gender regarding beliefs about control indicate the need to consider this factor in creating individualized treatment plans.

In addition to the experience of depression as a result of the pain experience, the literature discusses the need to address somatization when providing pain management treatment. This element of mind-body interaction in health management takes chronic pain disorder out of the realm of hypochondrisis or hysteria into the more contemporary perspective of treating the whole person and into the realm of psychoneuroimmunology and related fields.

The literature discussed the importance of a sense of control over treatment modalities as well as personal efforts. This perception of control, states the studies cited in this chapter, seems to influence outcomes more than which modalities are chosen. Of equal importance is the need to develop realistic parameters of control so as to not create further feelings of frustration and disempowerment within the chronic pain disorder individual.

Interrelationships were established between chronic pain disorder, depression, externalization of the perception of control, societal influences and cultural

differences, and mind/body interaction. Whether or not these relationships are created by cause and effect is not clear. However, the literature does establish strong influences of a variety of factors in the realm of chronic pain disorder and its treatment.

CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to evaluate how, and if, treatment in the St. Luke's Outpatient Pain Management Program affects perceived pain locus of control and level of depression in a specific population of chronic pain patients. This information, in turn, may be used to assess and develop effective treatment planning within this program as well as offer approaches useful to other outpatient pain management programs.

Research Design

Perceived pain locus of control, degree of depression and the effects of treatment upon these two variables are examined in this study. These variables were studied using the one-group, pre- and post- testing quasi-experimental design. No members of the group had had previous chronic pain management program treatment.

Due to the small sample size of the patient population, randomization was not possible. Therefore, in following the quasi-experimental design of research, the pre- and post- treatment change in test results are controlled through covariant analysis. Control is attained through this method of analysis through the differences found in the dependent variable at the beginning and end of the study (Merriam and Simpson, 1995).

In deciding the most fitting testing instruments for this study, a review of previous studies was performed. Descriptions of the studies were also reviewed to determine their possible usefulness. The independent variable in the study was considered to be the treatment in the program, with the two dependent variables being locus of control and depression level. Testing was therefore performed on the dependent variables.

Sample and Population

The participants in the study were patients receiving treatment in the Out-Patient Pain Management program at St. Luke's Behavioral Health Center in Phoenix, Arizona. These individuals were admitted for treatment of chronic pain disorder, usually with related depression, for a period of at least twelve sessions.

The size of the sample was twenty individuals chosen through their participation in the program (thus creating a convenience sample). All individuals admitted to the program who were agreeable to participating in this study and who completed at least twelve program sessions were included.

Those individuals with previous Pain Management Program treatment were excluded from the study because this factor was considered to be a possible influence upon treatment outcomes. During their intake evaluation, patients were asked if they had received previous pain management program treatment and the researcher eliminated those who had from participation in the study. Those eliminated were given the rationale for this action when they began the program, as they observed others being tested.

Assumptions and Limitations

A number of assumptions and limitations may be present in this study, for a variety of reasons. They may present themselves as extraneous variables, such as:

- 1) The level of pre-existing depression prior to the individuals' chronic pain disorder may vary.
- 2) Some individuals may be engaging in concurrent therapy/medications for their depression.
- 3) Individuals are assumed to be accurately reporting their depression levels as well as their abstaining from the use of narcotic analgesics while in treatment.
- 4) Some individuals may have had previously, in their lives, an internal locus of control which would be more easily "retrieved" than creating an original shift from external to internal.
- 5) Some patients' family/significant others participate in the Family Focus treatment group which may also influence changes in their depression and/or locus of control.
- 6) Some individuals' level of depression may respond to their merely receiving more concentrated attention upon their problems and needs, rather than specifically responding to treatment interventions.
- 7) The presence of a primary chemical dependency disorder was identified at the time of intake evaluation and appropriately treated.
- 8) The presence of active litigation may hamper (albeit often unconsciously) the alteration of presenting problems.

- 9) The patient is assumed to be participating in the program of his or her own choice rather than as a result of undue duress (from medical/legal dictates).
- 10) General events occurring between the pre- and post- test periods may have contributed differences in pre- and post- data.
- 11) Maturation may occur which would influence the variables in question. This includes all of those biological or psychological processes which systematically vary with the passage of time, independent of specific external events (Campbell & Stanley, 1963).
- 12) The testing process, states Campbell and Stanley (1963), may elicit the reactive effect in which the testing process is in itself a stimulus to change rather than a passive record of behavior.

Procedure

Upon admission to the program, indicated by attendance at their first session, new patients were given the Beck Depression Inventory and the Pain Locus of Control Scale. The testing was performed directly outside the group room where treatment was given and was initially administered and scored by a Master's of Counseling intern working within program. After two months, when the intern left the program, this researcher administered and scored the tests. Patients were given a permission form to sign which was reviewed with them in detail by the intern and this researcher. This form was signed, and a copy was given to the patient before the end of their first group session. At the conclusion of the individual's treatment, following twelve group sessions, the patients were given

the same two tests directly before going into their final group session. These results were manually scored as well. The results of the pre- and post- tests were shared with the patient by letter from this researcher with an offer for further discussion as desired. Treatment was the independent variable in the study, so changes in the final tests may indicate an influence of treatment upon locus of control and depression levels.

Patients usually attended two, three-hour sessions per week for six weeks. However, due to a variety of reasons (e.g. illness, conflicts in schedule, elevated pain level), some patients completed their allotted twelve sessions in a more extended time period. Also, some found it more helpful to extend their treatment longer in the final phase by attending on a weekly, or every other week, basis.

To obtain the desired sample size, this study was performed in a six month period with all those admitted to the program being tested (except for those with prior pain management program treatment). Five people did not complete the program within that period of time due to attrition. Individuals not completing the full twelve-session program were not tested, as they were not receiving the standard amount of treatment for the study.

Instrumentation

The testing instrument utilized in the study "Pain Locus of Control Scores in Chronic Pain Patients and Medical Clinic Patients With and Without Pain" (Toomey, et al., 1993) was deemed appropriate for the purpose of this study. This scale was devised from the "Health Locus of Control Scale" (Wallston, et al.,

1978) by modifying the health aspect into a pain aspect of consideration. The Pain Locus of Control Scale (PLOC) is a thirty-six item questionnaire measuring the manner in which different people view pain and what they believe has an influence on it getting better or worse. This information is approached through the questionnaire via chance factor questions, external control or powerful other questions and internal control questions. These various types of questions are presented in combination with the scoring index identifying which questions measure what viewpoint or belief. Each response is numbered from 1 to 6 to establish degree of belief, with 1 indicating "strongly agree" and 6 indicating "strongly disagree." Written directions emphasize the importance of the test taker's actual beliefs, and not those they feel they should believe or how they think the researcher would like them to believe. The instrument is scored easily by hand. This instrument was obtained through Dr. Toomey by mail.

A review of various depression tests revealed the "Beck Depression Inventory" (BDI) to be an adequate tool for the purpose of this study. This determination was based upon the test's straightforwardness in indicating general experience of major depression without including any other elements of pathology assessment. This inventory, designed by Dr. Aaron Beck, was originally developed in 1961 to assess the diagnosis of clinical depression. The abbreviated version of the BDI (Beck, 1978) was utilized in this study as it appeared less burdensome for the patient to answer while maintaining its overall accuracy at measuring general levels of depression. It consists of twenty-one questions, scored from absence of symptoms (0) to most severe experience of symptoms (3). The simple written instruction of "Please circle the appropriate answer which best applies to you" is

given at the beginning of the test. Present experience is again stressed rather than how one has felt in the past or believe they presently should feel. The questions address symptoms of depression such as suicidal thinking, sleep disruption, lack of satisfaction in daily living, etc. The scores are added up with totals of 1-10 indicating no appreciable level of depression, 11-16 indicating mild depression, 17-20 suggesting clinical depression, 21-30 indicating moderate depression, 31-40 indicating depression severe enough to warrant clinical intervention such as intensive out-patient treatment or hospitalization, and over 40 indicating severe depression. Scoring instructions indicate a level of 17 or above may indicate the need for professional treatment. The instrument can be scored by hand.

Method of Analysis

The percentage of change between the pre- and post- test means was calculated. A t-test of means was used to determine if these differences were significant at the .05 level of confidence.

CHAPTER 4

PRESENTATION AND ANALYSIS OF THE DATA

Findings

This chapter presents the findings and results from the responses to the Perceived Pain Locus of Control Scale (PLOC) and the Beck Depression Inventory. These tests were used pre- and post- treatment to evaluate whether treatment in St. Luke's Pain and Stress Management Program affects level of depression and perceived pain locus of control.

A t-test of significance was performed for the difference between the pre- and post-test scores in the areas of Internality, Chance, and Powerful Other for the PLOC and Depression (Beck). The post-test results reflect post treatment scores, following participation in twelve sessions of this Pain Management Program. Figure 1 graphically displays the results of the analysis. Twenty participants completed the four (total) tests.

The test group included seventeen females and three males. Median age of participants was 58.7 and were all residents of Arizona.

Statistically significant differences between the mean pre-test and post-test scores were seen in the Internality, Chance, and Depression areas of evaluation. The mean difference between the pre and post-test score for Powerful Other was not statistically significant at the .05 level of significance.

In terms of percentages, Internality increased by 31.1 % from the pre-test

Figure 1
Study Results and Findings

Measurement	Mean	Mean Difference	Standard Deviation	Probability
(Perceived) Pain				
Locus of Control				
Internal				
Pre	42.65	-----	13.09	-----
Post	55.9	-13.25	9.26	.0003*
Chance				
Pre	33.4	-----	9.25	-----
Post	23.2	10.2	10.32	0.0001*
Powerful				
Other				
Pre	32.9	-----	13.28	-----
Post	28.1	4.8	14.25	0.1068
Beck Depression				
Inventory				
Pre	18.75	-----	8.93	-----
Post	6.5	12.25	5.32	.0000*

* Indicates statistical significance at .05

score. Depression level and the Chance factor decreased on the post-test by 65.3% and 31%, respectively.

As indicated, all scores were statistically significant with the exception of "Powerful Other" (PLOC). The most dramatic change is seen in the Beck Depression Inventory scores, though the "Chance" and "Internality" (PLOC) scores notably changed as well. The decrease in the Beck score indicates a lessened depression level. The decrease in the "Chance" factor would indicate fewer feelings of "randomness" of perceived pain control as well as a less externalized sense of control. The increase in Internality would indicate a greater sense of personal, or internal, perceived pain control.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This research studied the effects of chronic pain management treatment upon locus of control and depression levels within a select group of patients in the Outpatient Pain and Stress Management Program at St. Luke's Behavioral Health Center in Phoenix, Arizona. Patients participating in this quasi-experimental study were pre- and post- tested using the (Perceived) "Pain Locus of Control" Scale and the "Beck Depression Inventory." Individual scores were determined on the following factors: depression, chance, internal and powerful other perceptions of locus of control. Scores pre- and post-treatment were then compared for degree of change using a t-test on the mean difference.

The literature reviewed addressed a variety of factors related to chronic pain such as perceived helplessness, attributions of control and outcomes, somatization, illness and depression, and more specifically, influences of control perception upon chronic pain and depression levels. Research interest examining the importance of the relationship factors between perceived control and chronic illness/pain and the experience of depression symptoms is reflected in the numerous current studies addressing these topics.

Conclusions

The data obtained from this study strongly indicate a change in perceived pain locus of control and depression levels pre and post treatment in the specific program under study. These results are similar to findings reported in studies discussed within Chapter Two.

The Chance factor had decreased significantly in this study as did the depression scores. Studies cited such as those conducted Arntz and Schmidt, (1989), and Skevington (1983) revealed a highly significant correlation between beliefs in chance happenings and depressive symptoms. The study by Crisson and Keefe (1988) revealed that outcomes considered to be governed by chance factors elicited more maladaptive coping strategies and greater psychological distress. They also reported a greater sense of helplessness in these individuals which has been seen in the literature to significantly affect depression levels. The preponderance of literature suggests a significant correlation between lower Chance perceptions and decreased depression symptoms. The results of this study support this viewpoint.

A relationship between Internality and depression levels was also frequently mentioned in the studies cited in this research. The ability to perceive a personal sense of control over illness or pain appears adaptive, with a reduction in the sense of one's helplessness. This, in turn, influences depressive symptoms. The increase in Internality and the reduction of depression scores in this study support this relationship.

The reduction of the perception of helplessness as a treatment focus within the treatment program included in this study may have also affected the

decrease in reported depression level. As the literature suggested, a decrease in one's sense of helplessness assists in decreasing the experience of depression.

Of interest to this researcher is the testing outcome of the category of Powerful Other. The scores were virtually unchanged pre- and post-treatment. Often patients enter treatment for chronic pain feeling very angry and frustrated with the medical profession for failing to help them by not reducing their pain. They often feel emotionally unacknowledged and often invalidated as not having a severe, real, physical problem. At the same time, they often view the medical profession as their only hope. This researcher speculated a decrease in the Powerful Other control locus would occur with the increase in Internality. As previously mentioned, having more realistic and direct involvement with one's health care and practitioners is a treatment focus within the program under study. Perhaps a shift occurs in this area during treatment though not reflected by a change in post-treatment scores. The patient may feel more personally empowered and develop a more realistic, hence less frustrating, viewpoint of the roles and abilities of their health care providers by the conclusion of treatment. This researcher also suggests that the patients may have had positive experiences with the practitioners involved in the program, which may renew their faith that some help can be obtained via assistance from others.

Recommendations

Reducing one's sense of helplessness, increasing the perception of personal control, establishing realistic and empowered involvement with healthcare

providers, decreasing somatization of emotions, and developing a treatment model which does not engender externalized control and symptom amplification are some important considerations in developing effective chronic pain management treatment protocols. Socio-cultural concerns should be considered in treatment approaches as should respect for the presence of defense mechanisms in somatization. Treatment approaches should always be individualized.

This research also indicates that specific treatment focuses may result in more positive treatment outcomes. Early intervention into these presently long-term conditions may decrease the incidence or severity of this disorder. Further research examining the effects of a health care approach designed to help maintain a sense of personal control, decrease the sense of randomness in outcome and one which offers a sense of partnership with health care providers would be very constructive. Integration of mind/body factors in pain and illness management in general has been recognized as vital. Basic, respectful acknowledgement of one's experience of dis-ease may serve to reduce feelings of isolation and invalidation in the chronic pain individuals' health care.

A longitudinal study with more patient numbers could be helpful in viewing the topic under study. Analysis of gender differences would be possible with a larger sample number as well as allow for randomization of the study. Follow-up studies at regular intervals for the year after treatment would be important in establishing the long-term effects of treatment. Follow-up testing is particularly important in those who have experienced a chronic health

problem. Utilizing this quasi-experimental method of outcome study would be applicable in measuring the effectiveness of other treatment modalities within the program under study, as well as within other pain management programs.

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