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SELF-EFFICACY EXPECTATIONS, OUTCOME EXPECTATIONS AND THE PREDICTION OF MEDICATION USAGE, PAIN LEVEL AND WORK READINESS

The Ohio State University

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SELF-EFFICACY EXPECTATIONS, OUTCOME EXPECTATIONS AND THE
PREDICTION OF MEDICATION USAGE, PAIN LEVEL AND WORK READINESS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Wanda L.J. McEntyre, B.A., M.A.

* * * * *

The Ohio State University
1985

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Wanda L.J. McEntyre
1985
To my parents, Don and Marie McEntyre,

with love and appreciation.
ACKNOWLEDGEMENTS

As I write these words of thanks and appreciation, many people come to mind along with many years of hard work, long hours of study and writing. The long hours and difficult hurdles would have been insurmountable without the support and encouragement I got along the way from faculty, family, friends and staff at work.

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CHAPTER I

INTRODUCTION

Many millions of Americans suffer from what is referred to as chronic pain and a substantial number of those are classified as partially or totally disabled. Low back pain alone, one of the most common pain complaints, has disabled an estimated 7 million Americans and accounts for more than 8 million office visits to physicians yearly in the United States (Clark, Gosnell & Shapiro, 1977). The cost of chronic pain in the United States has been estimated to total $60 billion annually (Turner & Chapman, 1982a). This cost includes not only hospitalization, outpatient treatment, medication and surgical costs, but also loss of work productivity, loss of income, disability payments and litigation settlements. Millions of dollars alone are handed over each year to a drug industry that promises relief to pain sufferers who are guided by societal norms which encourage popping the right pill to deal with ills and pain (Weisenberg, 1977).

It is important to note that there are various types of pain and that all forms of pain are not alike. Pain varies in intensity, duration, quality and meaning (Turk, Meichenbaum & Genest, 1983). It is commonly divided into two major categories: acute (pain of recent onset
or short duration) and chronic pain (pain of over six months duration). Both forms of pain require different types of treatment and lead to different adjustments in an individual's life.

The traditional medical treatment of acute and chronic pain typically includes the use of pharmacological agents, anesthetic nerve blocks and surgical procedures. Although standard medical and surgical interventions have proven reasonably effective with acute forms of pain, it is estimated that no more than 50% of chronic pain patients report satisfactory reduction of pain as a function of purely somatic treatment (Toomey, Ghia, Mao & Gregg, 1977). The reason for this occurrence is attributed to the fact that traditional medical interventions focus solely on organic factors and ignore the complexity of the pain phenomena (Turner & Chapman, 1982a), and in addition, leave the multitude of emotional and environmental factors related to complaints of chronic pain unresolved (Cairns, Thomas, Mooney & Pace, 1976).

Alleviating chronic pain is not a recent concern and many individuals with diverse backgrounds, training, and education have speculated about the nature and cause of chronic pain while searching for effective means of treatment.

Reviews of the pain literature have provided compelling evidence to discredit simplistic theories of chronic pain and demonstrated that these theories do not adequately explain the pain experience (Weisenberg, 1977; Turner & Chapman, 1982a). Clinical observations and laboratory data converge in suggesting that an adequate conceptualization and treatment of chronic pain must be multidimensional, incorporating cognitive and affective phenomena as well as the physical stimuli and sensory

A variety of psychologically based treatment regimens have been employed with chronic pain patients with a wide variety of syndromes (e.g. headaches, low back pain, cancer, abdominal pain of unknown etiology and peptic ulcers). The most widely used approaches for the management of chronic pain are the operant and cognitive-behavioral approaches. The operant treatment approach was pioneered by Wilbert Fordyce and his colleagues and is based on learning theory principles and operant conditioning methods (Turner & Chapman, 1982b). The goal of this approach is to decrease or extinguish "pain behaviors" while increasing and reinforcing "well behaviors". Verbal pain complaints, grimacing, groaning, avoiding physical activities, and medication usage are observed, measured, and are the targets of intervention. The family members are usually encouraged to participate in the program and are given instruction and information regarding their role in helping to increase "well behaviors" in the patient. In general, the operant treatment program does not include cognitive-behavioral techniques (e.g. relaxation training, biofeedback), and therefore, does not focus on changing the patient's cognitions or subjective pain experience (Turner & Chapman, 1982b).
Cameron (1980) reviewed the literature and found that those patients whose pain behaviors are being reinforced, who come from intact families and who find the treatment acceptable would be expected to benefit from an operant treatment approach. In their review of the literature, Turner & Chapman (1982b) concluded that this treatment approach does appear to increase physical activity level, and decrease pain medication usage, however, there is very little information concerning whether operant treatment programs reduce subjectively experienced pain.

A recent development in the field of pain management has been the application of cognitive-behavioral theory and techniques for the management of chronic pain (Turner & Chapman, 1982b). A basic assumption is that the cognitions or beliefs that people hold can determine their emotional and behavioral reactions in situations. In terms of chronic pain, it is believed that cognitive and emotional variables influence the experience of pain and that modification of the cognitions can be used to alter the pain experience. The cognitive-behavioral approach does not ignore the patient's subjective experience of pain as does the operant approach. Patients learn to identify their distorted beliefs and to substitute positive thoughts. In addition, cognitive-behavioral approaches to pain management attempt to change an individual's sense of control and reliance on medication for pain relief. Typically, this approach consists of teaching pain management strategies (e.g. deep muscle relaxation, imagery, biofeedback, and hypnosis) and also increasing the patient's awareness of events that exacerbate pain. The patient is taught to deal more effectively with pain-increasing events and to utilize pain-relieving strategies.
After reviewing the research of both the operant and cognitive-behavioral approaches to pain management, Turner & Chapman (1982b) have commented that a comprehensive assessment of the patient is needed to further understand pain phenomena, to determine effective treatments for specific aspects of various pain problems, to accurately evaluate treatment approaches and to compare results of different studies. In addition, these authors cite the need for process as well as outcome measurement. If a treatment has been found to alleviate pain or decrease pain behaviors, by what means is it effective? Do patients in a cognitive-behavioral program believe they have more control over their pain, and is this associated with positive outcomes?

The effect of a patient's beliefs regarding control of his/her pain and whether or not this is associated with positive treatment outcomes is an area that has not been fully investigated. However, patients' beliefs and expectations have been widely examined in other areas. Most theorists agree that there is a relationship between what a person believes and expects and what he/she does in any situation (Lee, 1984).

Bandura (1977) proposed a theory of "self-efficacy expectations" based on the principle assumption that psychological procedures, whatever their form, alter the level and strength of expectations of personal effectiveness. His proposed theory argues that people have highly specific expectations about their ability to perform highly specific behaviors (Lee, 1984). The theory distinguishes between two types of expectancies: self-efficacy expectancies and outcome expectancies. Self-efficacy expectations represent an individual's conviction that he/she can successfully perform the behavior required. Outcome
expectations involve an individual's estimate that a given behavior will lead to a certain outcome. Outcome and efficacy expectations are differentiated because individuals can believe that a particular course of action will produce certain outcomes, but may entertain doubts about their ability to perform the necessary activities or behaviors. Thus, outcome expectations are seen as independent of the individual's belief in his/her capabilities.

Bandura has stressed the importance of assessing both types of expectancies in attempts to predict mastery behavior (Manning & Wright, 1983). He has hypothesized that expectations of personal efficacy determine whether coping behavior will be initiated, how much persistence will be shown, and how long it will be sustained in the face of obstacles and aversive experiences (Bandura & Adams, 1977). The stronger the perceived self-efficacy, the more active the coping efforts.

Self-efficacy expectancies have been consistently related to mastery behavior in a number of settings. A large and diverse body of research exists showing that efficacy expectations can be measured for a wide range of behaviors, that they change during successful behavior change programs and that they closely match behavioral level. The research has examined specific phobias (Bandura, Adams, Hardy & Howells, 1980), vocational choice (Betz & Hackett, 1981), smoking cessation (Condtotte & Liechenstein, 1981), and persistence in pain control during childbirth (Manning & Wright, 1983).

One area in which self-efficacy expectations have not been examined but for which they may play an important role is the management of chronic pain without the use of medication. The attempt to manage
chronic pain without medication is a mastery task that is undertaken by millions of Americans. The treatment approaches for the management of chronic pain typically provide training in the use of a number of different coping skills that are "self-controlled" (Turk, 1978). Turk, Meichenbaum & Genest (1983) have stressed that it is not necessarily the coping strategy per se, but the patient's "attitude" or sense of confidence about these strategies that may play an important role in the pain situation and determine whether the treatment strategy employed is efficacious. Along these same lines, Turner & Chapman (1982b) have noted the importance of the patient's perception that he/she is taking charge of the pain as playing a major role in pain management approaches.

This study will examine self-efficacy expectations and how they may influence/predict the use of relaxation techniques for pain management. On the basis of Bandura's (1977) theory, a successful intervention designed to teach a patient to use various coping skills for pain management would be expected to increase a patient's efficacy expectations regarding his/her ability to manage their pain. Secondly, the patient's beliefs concerning the usefulness of these techniques in bringing about management of pain would also be expected to increase. Thirdly, the level, strength, and generality of these altered expectations should predict follow-up maintenance of treatment gains in the face of obstacles.
CHAPTER II

LITERATURE REVIEW

This chapter includes a selective review of the literature on Bandura's theory of self-efficacy. The theory will be presented along with research that has been done by Bandura and others in the area. In addition, differentiation of self-efficacy from other expectancy models will be discussed as well as criticisms that have been directed towards the theory. The remaining sections will focus on the area of chronic pain and how self-efficacy theory and research can be applied to the management of pain.

Introduction

Patients suffering from chronic pain frequently rely on medical procedures for pain relief and do not view themselves as capable of producing changes in their ability to manage pain (Gottlieb, Alperson, Koller & Hockersmith, 1979). Problems arise when the individual becomes physically of psychologically dependent on addictive analgesics, looses a sense of control in dealing with their pain and submit to many ineffective surgical procedures (Chapman, 1977; Bradley, Prokop, Gentry, VanderHeide & Prieto, 1981).
A common factor present in cognitive-behavioral treatment approaches for the management of chronic pain is that the patient is provided with training in the use of a number of different coping skills that are self-controlled (Turk, 1978). Since one of the goals of treatment is to teach chronic pain patients to gain control of their pain by incorporating these self-control techniques, it is important for the chronic pain patient to believe in the efficacy of these techniques and that they have the ability to use pain management techniques. This focus on learning and incorporating coping skills is contrary to traditional medical intervention which requires patients to be passive recipients of treatment. Therefore, many individuals may come to expect treatment and relief of chronic pain to come about with the use of medication alone and may not consider the importance of him/herself in being able to achieve relief by using cognitive-behavioral approaches to pain management.

The laboratory studies on pain represent a complicated array of findings and two general conclusions (Turk, Meichenbaum, & Genest, 1983). The first conclusion is that psychological and cognitive factors affect performance in pain situations; second, no one form of coping strategy has proven effective in helping individuals improve their tolerance of pain. It may be said that the coping strategies subjects bring to the laboratory may prove as effective or more effective than the coping strategies the investigator teaches. This led Turk, Meichenbaum & Genest (1983) to state that there is a need to tap the patient's expectations about the proposed treatment and the patient's attitude or sense of confidence about the strategies used.
In a study conducted by Genest (1978), female subjects were interviewed and asked to recall the feelings and thoughts they experienced prior to and during a cold-pressor trial. He found that those in the high-tolerance group (i.e., those who endured the full 5-minute trial) felt they could use strategies to affect both the pain and their power to persevere despite the pain, whereas the low tolerance group (i.e., those who withdrew early in the trial) used strategies with less conviction of their usefulness and with less sense of their own ability to influence their situation. The low tolerance group was apt to catastrophize and doubt their ability to control pain while the high tolerance group displayed a sense of self-efficacy and conviction of their ability to remain in control.

These findings underscore the contention that it is not only the presence or absence of coping skills or cognitive strategies, but also the nature of the beliefs and self-statements about one's coping ability that determines the nature of the pain experience (Turk, Meichenbaum & Genest, 1983).

Given these research findings, Turk, Meichenbaum, & Genest (1983) have stated that the following types of queries about self-efficacy may be useful with chronic pain patients: (1) self-efficacy concerning the patient's ability to prevent pain; (2) self-efficacy concerning patient's ability to reduce pain; (3) self-efficacy concerning patient's ability to cope with pain; and (4) self-efficacy concerning patient's ability to change. They further state that much needs to be learned about the concept of self-efficacy and how it relates to treatment outcome. One
such relation they suggest for study is whether self-efficacy expectations change after being in a cognitive-behavioral program.

This notion that cognitions or one's beliefs about coping ability or the treatment's effectiveness can have an influence on treatment outcome are not novel areas of research. However, in their review of the literature on chronic pain management, Turner & Chapman (1982a) stated that there has been a disregard for cognitive dimensions of the pain problem. They have stated that the patient's perception that he/she is taking charge of the pain must play a major role in the interventions employed to help individuals learn pain management techniques, but that these variables have rarely been properly controlled in studies of treatment effect.

Bandura has proposed an expectancy theory which states the strength of people's conviction of their effectiveness is likely to determine whether they will try to cope with a given situation. He proposes a theory of "self-efficacy" or a conviction that one can successfully execute behavior required to produce a suitable outcome. The theory purports that behavior is influenced and often determined, by an individual's expectations of self-efficacy. The theory returns the focus to the individual's cognitions and provides a model to investigate the mechanisms by which different modes of influence produce their effects, in particular, the role of cognitions.

The following selective review will, therefore, examine Bandura's self-efficacy theory and its role or influence in the use of pain management techniques.
The Theory

Bandura has proposed a theory of behavior change derived from social learning theory which postulates a common mechanism of psychological change. The thrust of the theory is that different modes of influence alter coping behavior partly by creating and strengthening self-percepts (Bandura, 1977). Self-efficacy is viewed as an influential although not sole determinant of behavior (Bandura, 1978).

Bandura has claimed that expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended and how long it will be sustained in the face of obstacles and aversive experiences. According to the theory, these expectations of personal efficacy are derived from four major sources: 1) performance accomplishments; 2) vicarious experiences; 3) verbal persuasion; and 4) physiological cues. Efficacy expectations are believed to be formed when information from these sources is cognitively processed by an individual.

Although the theory focuses more on efficacy expectations, outcome expectations are also believed to play a role, though minor, in behavior change. Outcome expectations are defined as a person's estimation that a given behavior will lead to certain outcomes (Bandura, 1977). It is differentiated from personal efficacy expectations because individuals can believe that a particular course of action will produce certain outcomes but if they entertain serious doubts about whether they can perform the necessary activities such information does not influence their behavior. Thus, while Bandura does not dismiss the importance of outcome expectations, he proposes that when skills are adequate, and incentives are appropriate, an individual's expectations of personal
efficacy will largely determine the initiation and persistence of coping behaviors. This emphasis on efficacy expectations is what distinguishes Bandura's expectancy theory from other expectancy theories.

Efficacy expectations vary on several dimensions that have behavioral or performance implications (Bandura, 1977). These dimensions are magnitude, generality and strength. Magnitude or level of expectancy is assessed by determining how many behaviors or tasks an individual says he/she can do. Thus, when tasks are ordered in level of difficulty, the efficacy expectations of different individuals may be limited to the simpler tasks, extend to more difficult tasks, or include the most taxing performance (Bandura, 1977). Generality of expectations is assessed by examining the variety of conditions under which an individual anticipates being able to perform the behavior. Strength of expectations is measured by having an individual indicate his/her degree of certainty that they can indeed perform a behavior which they have identified as "can do". The strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations. Bandura has stated that people fear and tend to avoid threatening situations they believe exceed their coping skills, whereas they get involved in activities and behave assuredly when they judge themselves capable of handling situations that would otherwise be intimidating. According to Bandura, an individual who possesses strong expectations of mastery will persevere in their coping efforts despite disconfirming experiences. An adequate expectancy analysis, therefore, requires detailed assessment of the magnitude, generality and strength of efficacy expectations.
Bandura (1977) has outlined assessment procedures to safeguard against potential contamination effects on assessments made before and during treatment. Bandura stresses the importance of subjects revealing their expectations in private rather than in public, in descriptive rather than interpretative form, under conditions that provide positive incentives for veracity and do not arouse evaluative apprehensions. Furthermore, Bandura has stated the role of thought is best examined under conditions in which participants have no incentives either to distort their reports of what they know and believe or to lead researchers astray by deceptive actions.

Despite the assessment safeguards outlined by Bandura, the question has been raised as to whether stating efficacy judgments can in itself affect performance. If judgments are made publicly in an evaluative context the assessment procedure may raise public commitment and evaluative concerns, especially on tasks of limited personal involvement. In an article by Brown & Inouye (1978) subjects voiced their self-efficacy judgments publicly on a trial-by-trial basis. They found that performance on an achievement task was the same regardless of whether subjects did or did not make prior efficacy judgments.

Gauthier & Ladouceur (1981) also evaluated the extent to which undergoing assessment for the level of self-efficacy expectations prior to a behavioral test may influence subsequent overt behavior. These researchers found that performance on the behavioral avoidance test was not influenced by requiring subjects to make their expectancy judgments explicit. Furthermore, the degree of congruence between level of
perceived self-efficacy and overt behavior was not influenced by privately recording or publicly voicing the perceived self-efficacy ratings.

**Differentiating Self-Efficacy Theory from Other Expectancy Models**

Self-efficacy theory is an illustration of a social learning model in which the influence of environmental events on behavior is partly mediated by internal cognitive mechanism (Wilson, 1978). Self-efficacy theory should not be confused as being another term for self-confidence, or simply as another version of what is known as either self-esteem (Coopersmith, 1967) or locus of control (Rotter, 1966). It is important to recognize that personal efficacy, as defined by Bandura, is neither a motive, disposition or personality trait (Poser, 1978). Instead, it is a highly situation-specific expectancy that does not operate independently of contextual factors and their cognitive processing. As a concept, self-efficacy is inferred not only from what subjects say about their expected future performance in a given situation, but also from the congruence of that verbal report with subsequent performance.

Locke, Frederick, Lee and Bobko (1984) have stated that the concept of self-efficacy holds obvious close resemblance to what is referred to as E1 (or E ---- P) in expectancy theory, which is the belief that effort (E) will lead to a certain level of performance (P). The two concepts differ however, in that Bandura views self-efficacy as a much wider concept than effort-performance expectancy. Bandura posits that self-efficacy is determined by many factors (e.g. ability to function under stress, adaptability) and not solely effort.
Seligman (1976) put forth the view that people behave resignedly because they acquire expectancies that they cannot affect environmental outcomes through their actions. He termed this "learned helplessness". In comparing self-efficacy to Seligman's ideas of learned helplessness, Poser (1978) has advanced the belief that the coinage, "learned helplessness" comes close to being the negative version of personal efficacy. He states both concepts posit an expectancy mechanism of operation, but Seligman focuses on uncontrollable aversive events as the major antecedent of helplessness while Bandura sees mastery experiences as leading to self-efficacy. Both seek to explain how expectancies induced by past experience determine future performance (i.e. success in one case; failure in the other).

Bandura (1978) has refuted Poser's (1978) argument that learned helplessness theory is a negative version of the expectancy mechanism operating in self-efficacy theory. Instead, Bandura asserts the two conceptual schemes are founded on different expectancy systems; draw different expectancies from sources of information and focus on different determinants of futility.

In Seligman's model, learned helplessness occurs because the organism learns that outcomes are independent of its responses. On the other hand, self-efficacy theory distinguished between two different sources of futility (Bandura, 1978), the one being, that people can give up trying because they seriously doubt they can realize the required level of performance; or they may be assured of the capabilities but give up trying because they expect their efforts to produce no results. The two sources of futility have different causes and remedial implications.
according to Bandura (1978). To change efficacy-based futility requires development of competencies and a sense of personal effectiveness. In contrast, to change outcome-based futility necessitates changing the social environment so that people are rewarded for using the competencies they already possess.

Another difference between self-efficacy and learned helplessness theory, is Bandura's contention that when people repeatedly fail in their efforts, they not only alter their view about the relationship between actions and outcomes, they also lower their self-judged efficacy in that activity. Research studies have supported this view with the finding that repeated failure in itself does not produce performance deficits, but rather it is failure which lowers self-perceived capableness that debilitates performance (Brown & Inouye, 1978). It is attributions of the causes of outcomes to personal inefficacy that is most likely to undermine performance and cause despondency. In other words, the cognition of "uncontrollability," rather than the experience of uncontrollability itself, is critical for producing helplessness effects (Brown & Inouye, 1978).

In addition to the concepts of "uncontrollability" and performance deficits in learned helplessness theory, the theory also focuses on the development of depressive affect as a result of learned perceptions of response-outcome independence (Maier & Seligman, 1976). Self-efficacy theory offers an alternative conceptualization of the development of depressive affect. Self-efficacy theory distinguishes between the expectancy that performing a particular response will produce a desired outcome and the individual's expectancy that he/she can perform that
response. Using the self-efficacy model, performance deficits would occur if either of the expectancies in the composites: self $\rightarrow$ response, or response $\rightarrow$ outcome scheme were low. This model, therefore, suggests that the combined performance deficit and negative affect that constitute depression should occur only if (a) self $\rightarrow$ response expectancy is low; and (b) response $\rightarrow$ outcome expectancy is high. Contrary to the learned helplessness theory of depression, a low response $\rightarrow$ outcome expectancy does not by itself produce depression. Three other requirements for the development of depression are needed in Bandura's self-efficacy model. These are (c) attainment of the outcome is highly valued by the individual, (d) outcome can be attained in the person's perception, and (e) the person generalizes the low self $\rightarrow$ response expectancy to a high proportion of other self $\rightarrow$ response expectancies attached to important outcomes (Davis & Yates, 1982).

The reformulated theory of learned helplessness advances two types of depression differing in the locus of causality to which failure is assigned. This new model of depression is a combination of the original learned helplessness theory combined with attribution theory (Abramson, Seligman & Teasdale, 1978). In the reformulated model, if the individual perceives that others can obtain an outcome but he/she cannot, the individual attributes his/her failure to his/her own incompetence. This is equivalent in self-efficacy terminology to a low self $\rightarrow$ response expectancy combined with a high response $\rightarrow$ outcome expectancy (Abramson et al., 1978). If, on the other hand, the individual cannot obtain the desired outcome but believes that other people also cannot, then the individual attributes his/her failure to the impossibility of obtaining
the outcome regardless of the response. According to the revised learned helplessness model depression involving both performance deficits and depressive affect would occur in both situations cited above. In contrast, self-efficacy theory projects that depression would only occur in the first situation or, stated differently, only if self $\rightarrow$ response expectancy is low while response $\rightarrow$ outcome expectancy is high.

To investigate these different predictions of the conditions under which performance deficits and depressive affect would occur, Davis & Yates (1982) independently manipulated self $\rightarrow$ response and response $\rightarrow$ outcome expectancies in a factorial design.

The results indicated that combined performance deficits and depressive affect occurred only when self $\rightarrow$ response expectancy was low and response $\rightarrow$ outcome expectancy was high. This finding supports self-efficacy theory and is contrary to the revised learned helplessness model of depression. Of interest, however, is that these findings were produced only for male and not for female subjects. They found that repeated subject ratings of self $\rightarrow$ response and response $\rightarrow$ outcome expectancies during experimental manipulations suggested that females set their self $\rightarrow$ response expectancies low before manipulations possibly to avoid depression.

Self-efficacy theory has also been distinguished from the broader trait conception of locus of control (Goldfried & Robins, 1982). Although having some similarities to earlier conceptualizations, self-efficacy theory is more detailed in the sense that it specifies the nature of the situation and response but at the same time is integrative by virtue of its broad scope of applicability. In contrast, Rotter's
conceptualization of the role of expectancies centers on more general causal beliefs regarding the relation between actions and outcomes (Wilson, 1978). Self-efficacy refers to expectancies about very specific interactions with one's environment. Furthermore, efficacy expectations are said to vary on several dimensions that influence actual performance. These dimensions (magnitude, strength, and generality) were discussed in the previous section.

Research on Self-Efficacy:

Some empirical evidence has begun to appear in support of self-efficacy theory from diverse areas of research (e.g. assertiveness training, smoking cessation, childbirth, career decision-making; sports psychology). Much of the research conducted by Bandura and his colleagues has centered on adult phobics and persons with generalized anxiety disorders (Bandura, Adams & Beyer, 1977; Bandura & Adams, 1977; Bandura, Adams, Hardy & Howells, 1980). The focus of these studies has mainly been concerned with different aspects of the relationship between environmental influences, self-percepts of efficacy and action (Bandura, 1980).

Bandura believes that the most precise test of the relationship between self-efficacy judgment and action is through computing the degree of congruence between these two sets of factors on individual tasks (Bandura, 1980). This procedure has been named the "microanalytic procedure". Using this procedure, subjects are provided with a list of the performance tasks included in the behavioral test and are asked to designate those they judge they can do. The subjects rate the strength
of their self-judged efficacy on a 100-point probability scale, ranging in 10-unit intervals, from high uncertainty, through intermediate values of certainty, to complete certitude. Performance attainments are then assessed and the measure of congruence is obtained by computing the percent of accurate correspondence between efficacy judgment and actual performance on the tasks.

In his research, Bandura has investigated the hypothesis that systematic desensitization effects changes in avoidance behavior by creating and strengthening expectations of personal efficacy (Bandura & Adams, 1977).

Subjects whose social, recreational and vocational activities were adversely affected by chronic snake phobias were recruited for participation in the study. The subjects completed a Behavioral Avoidance Test and answered a "Fear Arousal Accompanying Approach" series of questions and efficacy expectations questions. In addition, a "Situational Generalization of Fear" and self-efficacy measure were given to assess subjects' anticipatory fear of snake encounters under different natural conditions and their self-efficacy in coping with them. These measures were assessed during a behavioral pretest, and within a week after the completion of treatment. Efficacy expectations were measured prior to, and after the behavioral posttest to examine the reciprocal influence between expectations and performance accomplishments.

Results indicated that phobics whose anxiety arousal to visualized threats was thoroughly extinguished emerged from the desensitization treatment with widely different expectations of personal efficacy (Bandura & Adams, 1977). The higher the level of perceived self-efficacy
at the completion of treatment, the higher the level of approach behavior. As predicted, microanalysis of congruence between self-efficacy and performance demonstrated self-efficacy to be a highly accurate predictor of the degree of behavioral change following desensitization treatment. Furthermore, correlational analysis lends some support that perceived self-efficacy mediates anxiety. The higher the subject's level of self-efficacy following treatment, their anticipatory arousal was less at the prospect of performing threatening tasks they had previously avoided. A similar pattern of relationships was obtained between strength of self-efficacy and degree of arousal. A strong sense of self-efficacy was associated with low anticipatory arousal and low anxiety while performing threatening tasks.

An additional investigation was conducted to examine the process of efficacy and behavioral change during the course of treatment by participant modeling. Self-efficacy proved to be a "superior" predictor of the amount of behavioral improvement phobics gained from partial mastery of threats at different phases of treatment.

Results of this series of experiments by Bandura & Adams provided evidence that efficacy expectations predict with considerable accuracy the level of performance regardless of whether self-efficacy is altered through enactive mastery, vicarious experience, or extinction of anxiety by systematic desensitization.

In a treatment study with snake phobics, Bandura, Adams & Beyer (1977) tested the theory that psychological procedures achieve changes in behavior by altering the level and strength of self-efficacy. Adult phobics were placed in one of three treatment groups: participant
modeling; modeling alone; or no treatment control group. Their efficacy expectations and approach behavior toward threats differing on a similarity dimension were measured before and after treatment. As predicted, the mastery based treatment produced higher, stronger and more generalized expectations of personal efficacy than did the treatment relying solely on vicarious experiences. The vicarious experience group, in turn, exceeded the expectancies and performance of those in the no-treatment control group. This finding supports the assumption that performance accomplishments provide the most dependable information for efficacy expectancies. Furthermore, subject's efficacy expectancies were most predictive of posttest performance than were measures of past behavior on the same item. The results provide further evidence for Bandura et al.'s (1977) statement that perceived efficacy not only predicts behavioral changes accompanying diverse modes of treatment, but even in treatments relying on enactive mastery as the principle vehicle of change, perceived efficacy can surpass performance accomplishments in predictiveness.

In yet another series of tests, Bandura, Adams, Hardy & Howells (1980) tested the explanatory and predictive capability of self-efficacy theory across additional treatment modalities. Subjects were mostly female snake phobics, with mean age of 32 years. The investigative procedure consisted of pretreatment measures (e.g. Behavioral Avoidance, Fear Arousal Accompanying Approach Responses and Efficacy Judgments), and random assignment to conditions either with or without measurement of perceived efficacy after treatment. The treatment consisted of cognitive modeling sessions in which subjects were to visualize different models
performing a set of threatening scenes involving interactions with snakes. Prior to receiving the treatment, subjects practiced imagining two scenes vividly in order to become familiar with the general procedure and to create the set for visualization.

Within a week after completing treatment, all subjects were readministered the behavioral avoidance and fear arousal accompanying approach response. Those subjects in the condition combining treatment with assessment of efficacy judgments were also administered a measure of the level and strength of their perceived efficacy.

Results indicate that making efficacy judgments had no effect on either posttest approach behavior or fear reduction on either the initial subset of approaches responses or on the total responses. These results are comparable to the findings of Brown & Inouye (1978) in which they found performance on an achievement task was the same regardless of whether subjects did or did not make self-efficacy judgments. It would seem, therefore, that making efficacy judgments does not influence performance in and of itself.

Another finding from this study was the stronger the perceived efficacy at the completion of treatment, the higher were the performance attainments. With regards to perceived coping efficacy and fear arousal, the overall findings show that perceived inefficacy is accompanied by high anticipatory and performance fear arousal, but as strength of perceived efficacy increases, fear arousal decreases.

This series of studies by Bandura and his colleagues provide several lines of support for the theory that perceived efficacy mediates change in coping behavior and fear arousal. Results of the microanalytic
procedure confirm that self percepts of efficacy, whether produced enactively, vicariously, emotively or cognitively, predict not only level of behavioral change resulting from different modes of treatment but variations in coping behavior by different individuals receiving the same type of treatment, and even specific performance attainments by individuals on different tasks (Bandura et al., 1980).

Efficacy percepts were also found to be good predictors of coping behavior in nonenactive modes of treatment, which is of interest since individuals do not perform the feared activities but observe coping performances of others. Consequently, they have no behavioral data for forming generalizable perceptions of their own ability. These individuals must therefore, raise their sense of coping efficacy on the basis of indirect sources of efficacy information.

While it is possible to generate alternative explanations for particular subsets of data, Bandura and his followers contend that the mechanism proposed in the present theory accounts equally well for the diverse explanations made by other investigations. An example cited is that self-efficacy may be viewed as an accurate predictor of performance in enactive mode of treatment because people judge their future performance from their past behavior. However, this type of interpretation does not account for the findings of treatments using vicarious, emotive and cognitive approaches in which perceived efficacy has been demonstrated to be an equally accurate predictor of performance changes, although the individuals did not engage in overt behavior. Even in the enactive treatment perceived efficacy is often a better predictor of behavior in generalization tests than is past performance.
Criticisms of the Theory

Self-efficacy theory has not gone without criticism, nor has the data obtained in its support (Goldfried & Robins, 1982). A special issue in Advances in Behavior Research and Therapy (1978) was devoted to critical analysis of Bandura's theory. The main thrust of the articles was that efficacy expectations were defined in a way that included within them expectations of outcome and thus, the two terms could not be regarded as conceptually distinct. Another major point of contention by several writers was whether the theory is causative or not and some dealt with the related matter of the extent to which self-efficacy expectations are a major determinant of change. Finally, the need for a cognitive theory of behavior change was questioned by some of the writers.

On the issue of defining self-efficacy expectations as distinct from outcome expectations, Kazdin (1978) noted that the two concepts seem very closely related. An example he cites is that phobic clients may believe they can perform the requisite behaviors, however, they may also believe that the behavior would result in disastrous consequences. Self-efficacy would then not be the problem, but instead the problem would be with outcome expectations. Kazdin disagreed with Bandura's (1977) statement that "people fear and tend to avoid situations they believe exceed their coping skills..." (p. 194). Rather, Kazdin states the coping skills that individuals have may be a function of their estimate of outcomes.

Teasdale (1978) agreed with Bandura (1977) that a distinction between outcome expectations and efficacy expectations is useful, but has noted ambiguity in Bandura's definition of efficacy expectations. The problem centers on Bandura's use of the words "successfully" and
"required to produce the outcomes" in his definition. Teasdale argued that by including those words, Bandura has combined beliefs about ability to make a response with expectations concerning the outcome of the response.

With regards to the definition Bandura has proposed for outcome expectations, Borkovec (1978) posed the question whether the phrase "successfully execute the behavior" (Bandura, 1977, p. 193) implied without "anxiety".

In the area of whether or not self-efficacy expectations are a major determinant of behavior change, Borkovec (1978) and Eysenck (1978) both argued that other existing principles can adequately account for behavioral change without recourse to unobservable cognitive events. Eysenck stated he believed Bandura had merely restated the major features of his theory of conditioning and behavioral change into a cognitive language.

In another series of articles devoted to critical analysis of self-efficacy theory, Eastman & Marzillier (1984) cite conceptual and methodological problems they perceive in self-efficacy theory. Their first criticism is a restatement of earlier criticisms that self-efficacy theory is conceptually problematic and, more specifically, the central concept of efficacy expectations is not unambiguously differentiated from outcome expectations. The second problem is with self-efficacy assessment procedures used by Bandura and the experimental findings in three papers published by him and his colleagues (i.e. Bandura & Adams, 1977; Bandura et al., 1980; Bandura, Adams & Beyer, 1977). Eastman and Marzillier argue that the relationship demonstrated
in these studies can be more simply explained without reference to self-efficacy.

In their discussion of the distinction between efficacy and outcome expectations, Eastman and Marzillier cite that the essential feature of Bandura's definition of self-efficacy is a person's perceived ability to cope with a potentially aversive event. They question, however, whether people can make self-efficacy judgments by totally ignoring the potential outcomes that can result from their actions. Eastman and Marzillier do not believe people can do this and therefore, draw the conclusion that people's estimation of their ability to cope with threats or aversive events is strongly affected by their concern about outcome. Efficacy expectations can never be independent of outcome considerations contrary to Bandura's (1977) proposal.

With regard to the experimental findings of Bandura and his colleagues, these authors raise the question concerning what is being asked of the subjects and whether or not this relates to the theoretical construct of self-efficacy. They argue that what is being tested is an individual's "rational appraisal" of their future behavior based upon previous knowledge.

In summary, Marzillier and Eastman (1984) presented an argument that self-efficacy expectations as presented by Bandura is ambiguous and cannot be understood without reference to considerations or outcomes. Furthermore, experimental studies carried out by Bandura and his colleagues on self-efficacy are believed to be most simply interpreted as indicating that people can successfully predict their future behavior on discrete and circumscribed tasks provided that they have sufficient
information to appraise their likely performance and the outcomes for their performance are limited. They contend that self-efficacy theory oversimplifies the variables involved in behavior change. More specifically, the emphasis on self-efficacy is believed to direct attention away from other determinants of therapeutic change (i.e. outcome expectations).

**Bandura's Rebuttal to the Criticisms**

Bandura (1984) has refuted the ideas of Eastman and Marzillier (1984) and stated they hold a number of misconceptions of perceived self-efficacy.

Bandura maintains that people are not simply reactors to their immediate environments but are guided by the exercise of forethought. Among the forms of forethought that affect action, none is more central than one's judgment of their capabilities to deal with a variety of realities (Bandura, 1984). Perceived self-efficacy is concerned with people's judgments of their capabilities to execute given levels of performance. However, these self-perceptions are not defined or measured in terms of purely motor components of an act. Instead, self-perceptions represent a general capability which must be altered with the continually changing realities. An illustration of Bandura's meaning is in measuring driving self-efficacy. People in this situation are not being asked to judge the purely motor components of their ability to turn the ignition key, shift the automatic transmission, steer, accelerate or stop. Rather
they are asked to judge the strength of their perceived self-efficaciousness to drive along busy roads, in congested traffic and on busy highways. People who judge themselves capable of managing traffic predicaments likely to arise in certain situations, will drive in those settings but not in settings where they believe traffic demands exceed their capabilities. In short, efficacy expectations are not discrete acts, but rather one's estimate of ability to exercise control (Bandura, 1984).

The second major point Bandura attempts to clarify is with his definition of outcome expectations. Bandura vehemently states that outcomes do not appear disembodied from actions. How one behaves (actions) largely determines the outcomes one experiences. He contends "one cannot conjure up outcomes without giving thought to what one is doing and how well one is doing it" (p. 232). Similarly, the types of outcomes people anticipate depend largely on their judgment of how well they will be able to perform in given situations.

Contrary to the statements made by Eastman and Marzillier, Bandura reaffirms that self-efficacy theory does not include among its premises the notion that people are unconcerned about adverse consequences they envision as a result of their self-judged ineptness. Instead, because people see outcomes as contingent on the adequacy of their performance, and care about those outcomes, they rely on self-judged efficacy in deciding which course of action to pursue and how long to persist in a chosen course (Bandura, 1984). The stronger their perceived self-efficacy, the more vigorous and persistent are their efforts even in the face of difficulties.
The last point is that perceived self-efficacy does not include anxiety in either the definition or in assessment devices. Self-efficacy scales ask people to judge their performance capabilities and not if they can perform nonanxiously.

**Beyond the Criticisms**

Quite apart from these criticisms of self-efficacy theory, it nonetheless seems to possess a number of advantages as a conceptualization of behavior change, some of which have been noted by others (Wilson, 1978; Kazdin, 1978; Rosenthal, 1978; Poser, 1978). One such advantage is that it is a broad and integrative theory, that is testable and proposes specific expectancies unlike global trait measures (Goldfried & Robins, 1982).

Rachman (1978) has described Bandura's unifying theory of behavioral change as a "bold enterprise". Kazdin (1978) has stated that the theory warrants attention for two main reasons. First, most of the previous attempts to explain the means through which different techniques accomplish change have not fostered a great deal of research. Second, and related to the above, self-efficacy is proposed in a way that allows further investigations.

In a similar vein, Rosenthal (1978) cites what the construct of self-efficacy accomplishes if one assumes a cognitive frame of reference. He outlines the following key roles of self-efficacy construct: (1) It supplies a cognitive mechanism to explain the basis of behavior change; (2) It offers one construct, molar self-efficacy, in place of myriad routes and symbolic processes that eventuate in expectancies which guide
action; (3) It connects diverse antecedent events to the same phenomenological guidelines which can be easily measured through simple, straightforward inquiries; (4) It permits comparison of individual differences in self-efficacy as predictors of overt performance; (5) It creates a yardstick for comparing the momentary and long-range benefits of various performance based and symbolic interventions in the same units; and (6) The construct makes an important conceptual and operational distinction between estimating one's ability or competence to execute certain behavior (self-efficacy) and estimating the consequences such behavior will lead to (outcome expectations).

Other Research on Self-Efficacy Theory

Diverse lines of research provide converging evidence for the notion that perceived self-efficacy is a significant mediator of psychological functioning (Bandura, 1984). Research on the self-efficacy construct have focused on two major areas: the enhancement of self-efficacy expectancies through a variety of treatment strategies and the relation of self-efficacy expectations to mastery behavior. Construct-validation studies on self-efficacy expectancies and behavior demonstrate that the greater an individual's perceived self-efficacy for handling a different situation, the greater the likelihood that he/she will perform the responses that lead to effective mastery of the situation (Bandura et al., 1980; Bandura & Adams, 1977; Bandura, Adams & Beyer, 1977). Self-efficacy expectancies have been consistently related to mastery behavior in a number of settings with clinical and nonclinical populations. In this section a review of research studies focused on the
relation of self-efficacy expectancies and such mastery behavior as smoking cessation, and pain control at childbirth will be examined.

With regards to research on smoking cessation, several investigators have examined how perceived self-regulatory efficacy effects relapse in smoking cessation (Conlottle & Lichenstein, 1981; Diclemente, 1981; McIntyre, Lichenstein & Mermelstein, 1983). Cigarette smoking represents a behavior that has been found particularly resistant to long-term modification (Bernstein & McAlister, 1976). Short-term smoking cessation has been achieved by a wide variety of techniques, but substantial recidivism after three to six months is a common problem. Nonsmoking has been viewed, therefore, as a coping behavior that must be sustained to ensure long-term success.

Conlottle & Lichenstein (1981) examined whether or not successful interventions designed to eliminate smoking or other addictive behavior would increase efficacy expectations surrounding an individual's ability to resist the urge to smoke. In a microanalysis of the relation between self-percepts of efficacy and smoking, they found that perceived self-regularly efficacy predicted months later which participants would relapse, how soon they would relapse and even the situation under which the experience would occur. Furthermore, their findings revealed that higher levels of perceived self-efficacy at termination of treatment were strongly related to longer periods of abstinence after completion of treatment. Moreover, subjects who violated their abstinence yet did not relapse completely demonstrated levels of post-treatment self-efficacy similar to those subjects who did not smoke. Subjects who relapsed completely had the lowest post-treatment efficacy scores.
In a very similar study, DiClemente (1981) examined the construct of self-efficacy and applied it to the problem of long-term maintenance of smoking cessation. In this study, post-treatment abstinence was examined at a five-month follow-up. All subjects were confirmed, heavy smokers with previous unsuccessful attempts to quit smoking. The hypothesis was that if self-efficacy is an important component of smoking cessation behavior, successful maintainers five months after initial success should have higher self-efficacy ratings than recidivists. The subjects had undergone three types of cessation procedures before involvement in the self-efficacy research. The cessation procedures were aversion group; behavioral management group and self quitters.

The results indicated no significant initial group differences in the measure of self-efficacy. All subjects were relatively certain they could avoid smoking in the future. However, successful abstainers at the five-month follow-up had significantly higher self-efficacy scores measured at the time of their initial success, than the recidivists. Self-efficacy and follow-up measures were the only variables that discriminated between successful maintainers and recidivists. In contrast, neither demographic factors, history of smoking behavior, nor degree of physical dependence on nicotine differentiated relapsers from abstainers.

The major finding of this study and that by Conditote and Lichenstein (1981) is that efficacy expectations appear highly related to the ability to maintain smoking cessation. Successful abstinence at the initial interview contributed to the overall high level of confidence of the subjects but did not account for the higher efficacy expectations of
the maintainers. These results contribute further evidence that efficacy expectations show predictive superiority over past performance and involve more than performance self-evaluation (Bandura, 1977; Bandura & Adams, 1977).

A replication, extension of the previous findings of Condieotte and Lichenstein (1981) was undertaken by McIntyre, Lichenstein and Mermelstein (1983). In this study, they found end-of-treatment self-efficacy scores were significantly correlated with follow-up smoking status at three months and six months but not at one year. These investigators attribute the lack of correlation for self-efficacy scores and one year smoking status to Bandura's stipulation that efficacy ratings are better predictors of more proximal outcomes.

Another finding from this study was that smoking status at quit date and the number of cigarettes smoked between quit date and the last session correlated with end-of-treatment self-efficacy. These correlations suggest that end-of-treatment efficacy is partly determined by the ability to control one's smoking during treatment.

A promising new area for study of self-efficacy theory involves mastery in attempts to control pain. In a study by Manning & Wright (1983) they investigated the relative roles of self-efficacy expectancies and outcome expectancies as predictors of pain control in medication-free childbirth.

The investigation involved 52 women who were enrolled in childbirth-education classes. Women were excluded if this was their second or later child or if there was a probability of complications that could preclude a medication-free labor and delivery.
Measures were collected in three phases: after the last childbirth-education class; during the early stages of labor; and after delivery. Self-efficacy expectations, outcome expectations and importance of a medication-free labor were assessed in all three phases of data collection. Locus of control (Rotter's I-E scale), social desirability and past medication use for pain were assessed in Phase 1, after the last class. Pain-control training and pain-control practice were also assessed in Phase 1. Persistence in pain control was determined by (a) whether the subject used pain medication during labor and (b) the percentage of time spent in labor without medication.

As these researchers hypothesized, both persistence criteria were related to each of the self-efficacy theory variables. Use of pain medication was negatively correlated with self-efficacy expectancy, with outcome expectancy and with importance. Percentage of time in labor without medication was positively correlated with self-efficacy expectancy and outcome expectancy and with importance. Also as hypothesized, self-efficacy expectancy contributed more to the prediction of persistence in pain control than did outcome expectancy or the importance of having a medication-free childbirth.

Overall, this study and its findings demonstrated that self-efficacy can be applied and tested in a field setting. Furthermore, this study supports previous findings that self-efficacy predicts behavior after treatment better than actual behavior during treatment. These findings are consistent with the hypothesis that self-efficacy expectancies mediate behavior change. In addition, self-efficacy expectancies were more related to mastery of pain at childbirth than locus of control.
The Chronic Pain Patient

The attempt to control the pain of childbirth without medication is a mastery task that holds similarities to chronic pain management. In both instances, the individual is being taught "self-control" techniques, such as deep breathing, imagery and hypnosis to manage pain. In addition, because of the complications involved with the use of medications/sedatives, the chronic pain patient and mothers-to-be are strongly encouraged not to rely on medication. As with mothers-to-be, pain patients are also provided with information designed to help them reconceptualize the experience of pain and better understand their pain experience.

As was discussed in the previous section, self-efficacy has been found to provide a theoretical perspective for studying the role of cognitive variables in pain control at childbirth. However, self-efficacy and the role of cognitive variables in the treatment of chronic pain has not been explored. Self-efficacy theory may be able to contribute to our knowledge of chronic pain management as it has with pain control at childbirth. While both situations have similarities, there are also differences which may have bearing on the transferability of the research findings on self-efficacy and pain control at childbirth to chronic pain management.

Unlike pain control at childbirth, chronic pain management is not time limited and for most people it is a problem that they will have to cope with for life. Following this line of thought, the management of pain as opposed to total alleviation of pain is a more realistic goal strived for in treatment and therapy (Maruta, Swanson & Swenson, 1979).
Another difference between the two groups is that those individuals who suffer from chronic pain as a result of an industrial, or work-related injury, may be receiving compensation pay for being injured and in pain.

Since the problem of chronic pain is not time limited, there are a number of changes that take place in an individual's life who suffers from chronic pain.

As Bradley et al. (1981) noted, the pervasive, negative effects of chronic pain are related to (a) medication abuse; (b) submission to many ineffective procedures; (c) changes in family and social group status; and (d) significant, inexplicable suffering. As compared to patients with acute pain, chronic pain patients present a different clinical conceptualization (Webb, 1983). They have been described as irritable, manipulative and demanding (Sternbach, 1978) and may demonstrate minimal evidence of autonomic arousal (Webb, 1983). In addition, there is often a prevailing feeling of depression and loss of self-esteem (Shanfield, Hameroff, Boyer & Cox, 1979).

There have been numerous studies seeking to investigate the capacity of the Minnesota Multiphasic Personality Inventory (MMPI) and other measures to discriminate among groups of patients with different types of pain (Bradley et al., 1978; Armentrout et al., 1982; and McGill et al., 1983). Some studies have attempted to use the MMPI to distinguish chronic pain patients who have an identifiable physiological basis for their pain from those patients who have no apparent physiological cause for their pain (Sternbach, 1974; Fordyce, 1976; Freeman, Calsyn & Louks, 1977). In one such study, Cox, Chapman & Black (1978) found that the MMPI could discriminate acute pain from chronic pain patients in general,
but it could not discriminate between chronic pain patients whose pain problems were of known origins from those of unknown organic origin.

Overall, studies attempting to use the MMPI to establish a personality profile for pain sufferers have been inconclusive (Bradley, et al., 1978). One major problem has been the "a priori" assumption of the existence of a specific "personality type" (Liebeskind & Paul, 1977), while the other difficulty stems from focusing on mean MMPI profiles produced by patient samples assuming within group homogeneity (Beals & Hickman, 1972).

An illusion of homogeneity also exists with respect to the psychological treatment of pain patients (Fordyce, 1976). Chronic pain patients are often referred for "behavior modification" or "psychotherapy" as if these treatment labels denote a fix set of procedures and interventions utilized without regard to the individual. However, there exists a large amount of interindividual variability in the degree of relief attained by various treatment interventions and procedures (Liebeskind & Paul, 1977).

As a result of the large amount of variability in treatment success, Maruta, Swanson & Swenson (1979), attempted to ascertain whether chronic pain patients could be identified as likely to benefit from a pain management program before actual treatment. The study involved 200 patients treated at the Mayo Clinic Pain Management Center. The patients were evaluated with regards to improvement based on changes in three
categories: modification of attitude; reduction of pain-related medication; and improvement of physical function.

Results demonstrated that age, sex and marital status did not differ significantly between success and failure groups. However, the two groups differed significantly on four items from their clinical history: (1) prior duration of pain; (2) work-time lost because of it; (3) number of prior surgeries related to pain; and (4) dependency on medication. Another significant difference was pain level indicated at the beginning of treatment. As these items increased, the likelihood of success in pain management decreased. More specifically, pain of less than three years duration and work-time loss of less than one year were favorable indicators, whereas pain of five years duration or more, and work-time loss of one and one-half years or more were unfavorable criteria. Likewise, three or more operations were unfavorable as was a pain level of seven or above. Pain levels of five or less were favorable predictors along with zero to one operations for pain-related problems. No significant difference was found in how many pain-related drugs were being taken or in whether or not disability compensation was being received.

Other findings included elevations for women in both groups on the following scales from their composite MMPI profile: hypochondriasis, depression and hysteria. While the elevations for the failure group were higher, the differences from the success group was not significant. The composite profiles for men in both groups were slightly more elevated on the hypochondriasis and hysteria scales, but again, the differences were not significant between success and failure groups.
Another investigation was designed to compare the progress of chronic pain patients receiving compensation with the progress of other patients in a structured rehabilitation program (Hammonds, Brena & Unikel, 1978). Of the 61 patients involved in the study, 35 were receiving compensation for work-related accidents, and 26 were receiving no financial compensation for their chronic pain. Of the patients not receiving compensation, 69% made significant increases in their daily activity, while only 43% of the compensation group made similar increases.

In another investigation, Block, Kremer & Gaylar (1980) found patients referred by a disability office improved reliably less, remained hospitalized longer and were reliably less compliant. Moreover, failure to benefit from treatment of chronic pain correlated with duration of the presenting complaint.

In summary, chronic pain patients present a variety of personality characteristics which some have attempted to examine and define using the MMPI. However, the research results using the MMPI have been inconclusive. Another area of research indicates that a multidisciplinary approach can offer an effective means of treating chronic low back pain (Newman et al., 1978) but no treatment has been proven universally effective. Personality profiles provide only the partial picture as to who will benefit. Self-efficacy expectations could provide more information and clarification, as it has in other areas of mastery behavior (e.g. smoking cessation and childbirth), and differentiate those who succeed and are able to report an increased ability to manage their
pain after undergoing a multidisciplinary treatment program from those who do less well.

**Hypotheses**

The following hypotheses were examined:

1) Self-efficacy expectations and outcome expectations after completing the Pain and Stress program will be able to predict both pain level and medication usage at a three-month follow-up. However, self-efficacy expectancy will be a more significant predictor of pain level and medication usage than outcome expectancy.

2) There will be a significant positive correlation between self-efficacy expectations and work-readiness.

3) Self-efficacy expectations will be a more accurate predictor of both pain level and medication usage at a three-month follow-up than Nowicki & Strickland's Internal-External Locus of Control Scale.

4) There will be a significant, negative correlation between self-efficacy expectations, and both medication usage and pain level over the three assessment time periods.

5) There will be a significant, negative correlation between self-efficacy expectations and the externally-scored Locus of Control scale.
CHAPTER III

METHODOLOGY

In this chapter, the descriptive and procedural details germane to this investigation will be presented. Subject sample, instruments employed, procedures and treatment will be considered as well as statistical analyses.

Subjects

A total of 37 subjects (M = 28, F = 9) participated in this investigation and completed the pre and post-treatment questionnaires. Of the 37 total sample, 28 (76%) completed and returned the three-month follow-up questionnaire. All the subjects were industrially injured workers who had been accepted and agreed to participate in a pain and stress management rehabilitation program operated by the State of Ohio under the auspices of the Ohio Industrial Commission. The following admission criteria are presently employed by the Ohio Industrial Commission to screen potential claimants for acceptance into the Pain and Stress Management Program (Industrial Commission of Ohio, 1984, policy memo):
INCLUSION CRITERIA:
The claimant must demonstrate all of the following:

1. Subsequent to an industrially related accident or illness:
   a. The claimant has experienced significant stress and emotional manifestations of it such as depressions, anxiety, and impaired functioning.
   b. The claimant reports experiencing chronic pain and/or exhibits pain behavior.

2. The claimant expresses interest and/or exhibits motivation by stating and signing the treatment contract that they are willing to fully participate in and comply with the treatment regimen with the objective of Return to Work.

3. The claimant possesses sufficient cognitive functioning to understand and use didactic information, treatment recommendations, operating policies and procedures so as to receive maximum benefit from all components of a multidisciplinary treatment program.

EXCLUSION CRITERIA:

Decision Rule:
The claimant must demonstrate one or more of the following:

1. The claimant's abuse of alcohol or drugs is so excessive that it is likely to interfere with full participation in the program.

2. The claimant exhibits psychological disturbances of such a severe and/or chronic nature that it is likely to interfere with full participation in the program.

3. There is a strong likelihood that the claimant is likely to exhibit suicidal, disruptive or dangerous behavior that would interfere with
the safety of the claimant and/or other claimants and treatment staff.

4. The claimant exhibits objective medical findings which warrant further testing or medical or surgical intervention to assure the individual's physical well being and to lessen the risk of further disabling conditions.

5. There is strong evidence that participation in the program would result in compounding any existing related or unrelated conditions.

**Treatment**

After admittance to the Pain and Stress Management Program, all subjects underwent an intensive, multidisciplinary rehabilitation program of six-weeks duration. Each claimant was part of a treatment group which consisted of eight to ten members entering the Pain and Stress Program at the same time. The standard program consists of treatment in each of the following modalities: physical therapy, occupational therapy, health psychology, work evaluation, and work readiness group. This standard treatment program was not manipulated as part of the investigation.

Although the decision to enter the treatment program is voluntary, each claimant is asked to sign an agreement to participate fully in all modalities after being accepted and admitted to the Pain and Stress Program. In addition, all claimants are informed that their participation in research projects or studies might be requested at some time during their treatment.

During treatment, most of the claimants are lodged at local hotels and are allowed to go home on weekends. A typical week of treatment consists of 35 hours of: strength and endurance building in physical and
occupational therapy areas; group instruction and practice in the use of various relaxation techniques in self-management group; biofeedback training and practice; dietary consultations for weight loss; medication reduction/elimination groups; individual counseling to discuss vocational plans/options and personal/family problems related to the injury or return to work; and group discussion on work-related topics, resume writing and interviewing techniques.

There are several self-management groups operating simultaneously although each group is at a different phase of treatment. Claimants attended the self-management group with other members of their treatment group. The self-management group (SMG) consisted of four, one-hour sessions each week for five weeks. (Admission processing consumes most of the first week of the six-week program.) The self-management group is designed to be a "psychoeducational" hour on various topics including: conceptualization of pain beyond the traditional medical model; use and practice of relaxation techniques; discussion of stress and stress management; communication skills enhancement; and assertiveness training. A manual entitled "Self-Management Group Treatment Modules" is used as a basis for conducting SMG and is included in Appendix A. A fundamental goal of SMG is to restore claimants' sense of self-competency and follows the basic principles outlined by Richard Sternbach, Ph.D. regarding living with or despite pain (Sternbach, 1974).
Procedure

During admission weeks at the Center between June and August, 1984, all incoming claimants were invited to participate in this study after receiving a general orientation on biofeedback and its purpose. All incoming claimants willingly signed consent forms and agreed to participate in the study, however, several people (11 total) did not remain in the program long enough to complete the 6-week questionnaires, and were eliminated from further involvement in the study. A breakdown of those who left the program early reveals that: 2 people left because of medical reasons (i.e. knee-injury flare ups); 2 people completed the 6-week program but left a day before the 6-week questionnaires were administered; 2 people were in the General Rehabilitation Program and were not in the Pain and Stress Management Program; one person left early for psychiatric reasons and completed the program at a later date; one person was of borderline cognitive functioning and was taken from the program by his mother; and one woman's husband was not supportive of her involvement in the program and would not provide her transportation to the bus station. In addition, two claimants left early for unknown reasons.

For those involved in the study, participation consisted of completing four main measures during the first and sixth weeks at the Center and at a three-month follow-up. The measures completed by those claimants who agreed to participate were the following: (1) self-efficacy rating scale designed to measure self-efficacy expectations and outcome expectations regarding the benefit of using relaxation techniques to manage or reduce chronic pain; (2) internal versus external locus of
control scale developed by Nowicki & Strickland (1973); (3) subjective pain index scale; and (4) questions regarding medication usage. In addition, demographic information was gathered as well as subjects' belief of whether or not they could return to work. This "work-readiness" question was asked pre, post, and at the three-month follow-up. All measures were administered orally at pre and post to insure valid completion and were administered in a group setting. All data collected was number coded by use of the claimants' health record number.

Standard treatment procedures already established at the Center were followed and nonparticipation/nonconsent in the present study did not influence treatment for the claimants. The treatment consisted of the standard six-week, multidisciplinary rehabilitation program with the focus on pain management, increased activity and return to independent living and gainful employment. All claimants who entered the treatment program underwent the same treatment procedures regardless of whether or not they were subjects in the study.

During the sixth week of the treatment program, the subjects were asked to complete the self-efficacy rating scale, the internal versus external locus of control scale; the medication usage questions and the present pain index. The measures were completed in the morning prior to any physical therapy or strenuous activity. After three months (90 days), the four main measures were sent to the participants for completion. The subjects were provided with a stamped, self-addressed envelope for their convenience. A "reminder" phone call was made to all subjects who failed to return the follow-up data after one week.
Completion of the follow-up questionnaires over the telephone was requested by one subject who allegedly did not receive the follow-up packet.

**Instruments**

(1) **Self-efficacy and Outcome Expectations Rating Scale.** A self-efficacy and outcome expectations scale was constructed for use in this study and is shown in Appendix B. This self-report instrument contains 13 items measuring the level, and strength of the subject's self-efficacy and outcome expectations. It was developed for use in this study based on the research and work of Turk et al. (1983), Manning & Wright (1983), and Conditote & Lichenstein (1981) in their construction of similar scales for pain management, pain control at childbirth and smoking cessation. There was no reliability information on this scale prior to the present investigation. Test-retest reliability measures are presented in the result chapter under other findings.

The instrument asks respondents, "How confident are you that you can manage or reduce your pain. In addition, questions designed to tap "outcome expectations" are posed such as, "How confident are you that relaxation techniques can help to manage pain?" Participants respond by indicating on a six-point Likert scale how confident or certain they are that they can perform the task. A score of 1 indicates "no confidence"; 2 indicates "very little confidence"; 3 indicates "some confidence"; 4 indicates "moderate confidence"; 5 indicates "much confidence"; and 6 indicates "total confidence". Potential range on the rating scale is from 13-78 with a high score reflecting a greater degree of self-efficacy.
expectation and outcome expectation with regard to the use of relaxation techniques for the management of pain.

(2) Nowicki-Strickland Locus of Control Scale - Adult Form (ANS-IE). This index was developed to assess the construct of locus of control of reinforcement and is shown in Appendix C. Rotter (1966) has defined locus of control of reinforcement as the perception of a connection between one's action and its consequences. The ANS-IE consists of 40 items which are answered either "yes" or "no" and were derived through modification of the children's form of the scale. The items were written so that the test could be taken by persons with a fifth grade reading level. The scale is keyed such that the higher the score, the more external the locus of control orientation.

Research on validity and reliability of the ANS-IE suggests that the scale meets the minimal requirements necessary for its use as a measure of locus of control in adults (Nowicki & Duke, 1974). Split-half reliability over a six-week period, revealed $r = .83$.

With regards to validity testing, discriminative validity of the scale found it not related to social desirability scores or intelligence test scores, as had been the criticism of Rotter's (Rotter, 1966) original scale.

(3) Present Pain Index. This index measures subjective pain level on a scale ranging from 1 to 10, where 1 indicates "slight discomfort" and 10 indicates "excruciating" pain (see Figure 1). The subjects are required to indicate their present pain level by putting an X through the number which best describes their pain. This index is adapted from a scale developed by Davis, Robbins-Eshelman & McKay (1982). The pain
index scale was administered in the morning at pre- and post- data collection times before subjects had begun any strenuous physical therapy activity. There is no reliability information available on this index.

(4) Medication Usage Questions. Several questions were asked regarding current medication being taken for pain and/or for some other physical condition/illness (see below). Questions required subjects to report type of medication, current dosage and frequency of use.

**MEDICATION USAGE QUESTIONNAIRE:**

1. Are you currently taking medications for your pain? Yes/No
2. If so, what medication(s) are you taking for your pain?
3. What is the current dosage of your medication? (e.g. 25 mg., 100 mg., etc.)
4. How many times a day do you take your medication?
5. Are you taking medication for other physical conditions or illnesses? Yes/No
6. If so, what medication(s) are you taking?

Medication reduction is one of the main goals of treatment because of the inappropriate and/or excessive medication usage by pain patients. In a study on medication use by chronic pain patients, Ready, Sarkis & Turner (1982) found evidence which supported clinical observations that patients with chronic pain tend to underestimate their medication use. This seemed particularly true for narcotic analgesics and was found to occur more often with women than with men. Therefore, in order to obtain an accurate account of the current medication being taken by those subjects who were taking pain medication, the nurse's intake evaluation was used to record prescribed medication and dosage. The nurse's discharge summary was also used to make a similar comparison of medication usage at the sixth week data collection time. When the subject's account of medication usage conflicted with the nurse's, both
Indicate your pain level below by putting an X through the number which best describes your pain level today. A one indicates "mild or slight discomfort"; ten indicates "extreme discomfort or excruciating pain".

<table>
<thead>
<tr>
<th>Slight Discomfort</th>
<th>Moderate Discomfort</th>
<th>Extreme Discomfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
<td>MILD DISCOMFORTING</td>
<td>DISTRESSING</td>
</tr>
<tr>
<td>8 9 10</td>
<td>HORRIBLE EXCRUCIATING</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1

Present Pain Index
were noted and recorded. Most often, subjects were unable to spell the medication correctly or were not able to specify the dosage. In no instance did a subject not report using medication, while the nurse reported he/she did, or vice-versa.

(5) Work Readiness Question. The subjects were all asked the question, "Do you believe you can manage your pain enough to return to work?" The response choice was either a "yes" or "no". This question was asked to ascertain the subject's belief regarding generality of their ability to manage their pain enough to return to work. The question provided information on whether or not subjects felt ready to return to the work setting.

(6) Field Team Work Readiness Questions. In addition to the claimants' answer regarding work readiness, their district consultant or nurse was asked to answer three questions to verify: whether the subject had returned to work; was actively looking for employment; or was undergoing retraining.

Statistical Analysis

This investigation was nonexperimental in nature and sought to establish whether or not there existed significant relationships among the variables over time. Hence, there were no experimental manipulations of treatment or conditions nor random assignment of subjects to conditions or levels of the independent variable. The variables under observation were: 1) self-efficacy expectations; 2) outcome expectations; 3) medication usage; 4) pain level index; 5) work readiness; and 6) internal versus external locus of control. The
constant was the 6-week pain and stress management treatment program all subjects underwent.

In the present study, self-efficacy expectation scores were correlated with medication usage and pain level at week 1, week 6, and at a 3-month follow-up. In addition, self-efficacy expectations were correlated with work readiness at the three collection times.

Bandura has claimed repeatedly (1977, 1978, 1979, 1984) that self-efficacy expectations are better and more accurate predictors of future behavior than outcome expectations. In order to test Bandura's theory, self-efficacy and outcome expectations were used in two separate simple regression analyses to predict 3-month pain level and medication usage. A test of the significance of the difference between the two variables was performed following the formula outlined by Cohen and Cohen (1975).

Locus of control of reinforcement (Internal versus External) was included in this study because it also claims to predict mastery behavior (Manning & Wright, 1984) as does self-efficacy. Self-efficacy theory provides differentiated cognitive constructs that are situation-specific, and therefore, is suspected of being a potentially better predictor of mastery behavior than locus of control. This investigation correlated self-efficacy scores with internal versus external locus of control scores over time. In addition, the internal versus external scale was used in a simple regression analysis to predict medication usage and pain level at the 3-month follow-up.
CHAPTER IV

RESULTS

This chapter will include results from the data analyses performed, and in addition, a descriptive analysis of the subjects in the study. The data analysis will center on results from the correlations and simple regressions performed on the self-efficacy questionnaire, the medication usage questions, the work-readiness questions, the pain index level and the internal versus external locus of control of reinforcement questionnaire.

Descriptive Analysis of Subjects:

The subjects included in this study appear to constitute a representative sample of claimants treated at the rehabilitation center. Table 1 provides a descriptive summary of the subjects in this investigation, and is found at the end of this section.

Most claimants who enter the program are males, so the percentage of males (76%) and females (24%) in this investigation appears representative of the population of rehabilitation claimants in the Pain and Stress Program. The average age of the present sample was 38 years, with the range being from 26 years of age to 59 years of age. All subjects were receiving disability-based compensation while they were in
the program. Of the 37 subjects in the study, 12 subjects were simultaneously being treated for an unrelated medical condition. These conditions included intestinal problems, ulcers, and high blood pressure.

In terms of educational-achievement, the present study included high school graduates (n=17), individuals with G.E.D.s (n=5), and individuals with special training in nursing, technical school or some college courses (n=4). The remaining subjects had completed grade 8 (n=1), grade 9 (n=2), grade 10 (n=4) or grade 11 (n=4).

A breakdown of the sample in this study reveals that there were 31 low-back injuries, and the remaining 6 subjects had either neck (n=2), shoulder (n=2), knee (n=1) or hip (n=1) injuries. This breakdown of type of injury is consistent with data published by the Industrial Commission of Ohio, Rehabilitation Division, in its Annual Report for 1983 which states that the most common injury treated at the rehabilitation center is back injury. A total of 13 subjects had had surgeries for their injuries with the number of surgeries ranging from 1 to 14 (median number=2). Only 5 subjects had not had prior rehabilitation in the form of passive physical therapy (i.e., heat/cold treatment; traction; ultrasound; ice massage) or some form of chemotherapy. While most (86%) had had some form of prior rehabilitation, only 13 (35%) had had previous training in the use of relaxation techniques to manage pain.

The 1983 Annual Report of the Industrial Commission, Rehabilitation Division states that 38% of the Division's 1983 referrals were received more than 2 years after the claimant was injured. The report does not state how long after a referral is received it takes before the claimant is accepted to participate in the rehabilitation treatment program. The
percentage cited in the report addresses how much time elapses between receiving an injury and becoming involved with the Rehabilitation Division. In the present study, the subjects had been injured an average of 47.65 months or a little under 4 years (range from 1 year to 13 years). In addition, the subjects had been unemployed (n=36) from 26.1 months or slightly over 2 years (range from 1 month to 11 years). One subject was not included in this tally since he was working and attending the center for job retention.

Twenty-four subjects (65%) came to the center taking pain medication. The medications ranged from Parafon Forte, Robaxin, Soma Compound, Flexeril, Norflex (muscle relaxants) to Darvocet N-100, Nalfon, Percocet, Talwin, Tylenol 3, Vicodin (narcotics) to Valium, Feldene, Fiorinal, Motrin, Norgesic, and Dolobid. After the 6-week program, only 8 subjects (22%) were still taking pain medications, and in all cases the medication was at a lower dosage, and being taken less frequently. Of those subjects completing the 3-month follow-up, 11 subjects (39%) reported continued medication usage, of which 2 subjects had not been taking any pain medications at either week 1 or week 6. The individuals remaining on medications at the 3-month follow-up were taking medication less frequently and at lower dosages than they had been at week 1.

In terms of whether or not subjects felt "work-ready", 21 subjects (57%) reported at week 1 that they believed they could learn to manage their pain enough to return to work. At week 6, the number of subjects expressing a belief that they could manage their pain to return to work increased to 26 (70%). Of the 28 subjects who completed the 3-month
follow-up questionnaires, 20 (71%) stated they felt able to manage their pain enough to return to work.

The rehabilitation field consultants who worked with claimants in this study, were contacted at the 3-month follow-up and asked if the person: 1) had returned to work; 2) was actively looking for work; or 3) was involved in retraining, job seeking skills group or a job club. Based on the consultants' information at the 3-month follow-up: 6 subjects (16%) had returned to work; 10 subjects (27%) were actively looking for employment; 8 subjects (22%) were enrolled in school or a retraining program; 5 subjects (14%) had tentative return to work possibilities with former employers; 3 cases were closed (i.e., the Rehabilitation Division will no longer be providing services for these individuals); 2 people were not actively looking for employment nor involved in retraining; 1 person was involved in career counseling; 1 person experienced a set-back with increased pain; and 1 individual was awaiting the results of a neuropsychological evaluation. These return-to-work figures taken at the 3-month follow-up are lower than the reported figures published by the Industrial Commission's Annual Report for 1983. The figure reported for return to work after completing the Pain and Stress Program is 45%. This figure was computed for the calendar year 1983 and reflects a longer time span than 3-months after completion of the Pain and Stress Program.

There was a total of 37 subjects involved in the study, of which 9 did not complete the follow-up questionnaires. Information was obtained, however, from their rehabilitation consultants at the 3-month data collection time and is included in the above paragraph. When this
TABLE 1

Descriptive Information on Subjects

<table>
<thead>
<tr>
<th>Category</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE:</td>
<td>Mean = 38 years (Range = 26 to 59 years)</td>
</tr>
<tr>
<td>EDUCATION:</td>
<td>High School = 17 * G.E.D. = 5 Special Training = 4 8th Grade = 1 9th Grade = 2 10th Grade = 4 11th Grade = 4</td>
</tr>
<tr>
<td>TYPE INJURIES:</td>
<td>Low Back = 31 Neck = 2 Shoulder = 2 Knee = 1 Hip = 1</td>
</tr>
<tr>
<td>SURGERIES:</td>
<td>13 subjects (35%) (Range = 1 to 14; Median = 2)</td>
</tr>
<tr>
<td>YEARS INJURED:</td>
<td>47.65 months (Range = 1 year to 13 years)</td>
</tr>
<tr>
<td>YEARS UNEMPLOYED:</td>
<td>26.1 months (Range = 1 month to 11 years)</td>
</tr>
<tr>
<td>PAIN MEDICATION:</td>
<td>24 subjects (65%) at week-one 8 subjects (22%) at week-six 11 of 28 subjects (39%) at three-months</td>
</tr>
<tr>
<td>WORK-READINESS:</td>
<td>21 subjects (57%) at week-one 26 subjects (70%) at week-six 20 of 28 subjects (71%) at three-months</td>
</tr>
<tr>
<td>FIELD REPORT:</td>
<td>Returned to work = 6 (16%) Actively looking for work = 10 (27%) Enrolled in school/retraining program = 8 (22%) Tentative return to work plans = 5 (14%) Closed cases = 3 (8%) Not looking for RTW = 2 Career counseling = 1 Set-back with pain = 1 Awaiting neuropsychological report = 1</td>
</tr>
</tbody>
</table>

Note: * frequency count
information is separated from those who completed the follow-up questionnaires, it reveals that of those 9 not returning the follow-up questionnaires: 3 were actively looking for employment or involved in job club at 3-months; 2 were involved in a retraining program; 1 had returned to work; 1 was awaiting results from a neuropsychological evaluation; 1 had a possible return to work with his former employer; and 1 case was closed. An additional analysis of those not completing the follow-up, indicates that their average self-efficacy expectation score at week 6 was 54, which is only slightly below the average obtained from the ANOVA performed on the entire group at week 6 (m = 56.86). This score indicates that those who did not complete the follow-up were not significantly different from the rest of the sample with regards to self-efficacy expectations after treatment.

**Treatment Outcomes:**

Although the treatment intervention that took place between week 1 and week 6 data collection times was not manipulated, some important changes took place which will be examined in this section. Results from the data analysis and the specific hypotheses examined will be discussed in the next section.

Given the prognosis for the chronic pain subjects whey they entered the program, it is of interest to note treatment outcomes. Since the subjects fell within categories that have been reported by other investigators (Maruta, Swanson & Swenson, 1979) to be signs of poor chances for improvement, the changes that took place can be cited as evidence that treatment was effective, although it is not possible to
attribute the cause of the changes solely to treatment interventions, nor is it possible to specify which treatment components were more related to positive outcomes. When examining the changes, one can view each subject as having been their own control subject and use week 1 as a baseline measure to examine the changes that took place at week 6 and which were maintained at the 3-month follow-up.

One major change that took place after the treatment intervention was the reported use of less medication by the subjects. A majority of the subjects took medication at week 1 (65%), but only 8 subjects (22%) were still taking medication at week 6. Also, reported pain level had decreased after treatment with the mean being 6.02 ("distressing level") at week 1 and dropping to 5.05 ("moderate discomfort") at week 6. In addition, a majority of subjects reported at week 6 that they felt able to manage their pain enough to return to work. This figure rose from 57% at week 1 to 70% of the subjects after treatment stating they felt "work-ready".

Of further interest is that these changes were maintained at 3-months, long after subjects returned to their old environments and were not in daily, regular contact with treatment staff or their rehabilitation consultants. Given that changes took place between week 1 and week 6, the next section will address how self-efficacy theory and the hypotheses under study can explain some of these treatment outcomes.

Hypothesis One:

The first hypothesis of the study dealt with the predictive ability of self-efficacy and outcome expectancies for both pain level and
medication-usage at the 3-month follow-up. That is, would self-efficacy expectations measured at the end of the treatment program be able to predict medication usage and pain level after a 3-month interval.

The result of the simple regression data analysis (shown in Table 2) demonstrates that self-efficacy expectations after completing the Pain and Stress Management Program are a significant predictor of pain level at 3-months ($r=-.60$, $p < .0008$). Stated in other words, higher self-efficacy expectations tend to indicate low pain level at 3-months.

Week 6 outcome expectations (shown in Table 3) also predict the level of pain indicated at 3-months ($r=-.58$, $p < .001$). The higher the outcome expectations at the end of the treatment program, the lower the pain level indicated at 3-months.

To test whether the correlation between self-efficacy expectations and pain level at 3-months is significantly greater than the correlation between pain level and outcome expectations, a test of the significance of the difference between these two correlations was made. The $t$-test revealed no significant difference between the correlation coefficients.

With regards to self-efficacy and medication usage, self-efficacy expectations at week 6 are a significant predictor of medication usage at the 3-month follow-up ($r=-.70$, $p < .0001$). Likewise, outcome expectations predicted medication usage at 3-months ($r=-.55$, $p < .002$). To test whether there is a significant difference between the two correlations, a $t$-test of the significance of the difference between the two dependent
<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Source:</th>
<th>F-value</th>
<th>df</th>
<th>r</th>
<th>P (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain-index</td>
<td>Self-efficacy expectations</td>
<td>14.27</td>
<td>1,26</td>
<td>-.60</td>
<td>.0008</td>
</tr>
<tr>
<td>Medication-usage</td>
<td>Self-efficacy expectations</td>
<td>25.64</td>
<td>1,26</td>
<td>-.70</td>
<td>.0001</td>
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</tbody>
</table>
### TABLE 3

Simple Regression Analysis

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>F-value</th>
<th>df</th>
<th>r</th>
<th>PR &lt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain-index</td>
<td>13.01</td>
<td>1,26</td>
<td>-.58</td>
<td>.001</td>
</tr>
<tr>
<td>Source:</td>
<td>Outcome expectations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication-usage</td>
<td>11.56</td>
<td>1,26</td>
<td>-.55</td>
<td>.002</td>
</tr>
<tr>
<td>Source:</td>
<td>Outcome expectations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(i.e. taken from the same sample) correlation coefficient was performed. The test resulted in \( t = 3.645 \) which for \( n = 325 \) df, is significant at the two-tailed .01 level. This indicates that self-efficacy expectation predicts medication usage at 3-months to a significantly greater degree than outcome expectations.

In sum, both self-efficacy and outcome expectations predicted medication usage and pain level at the 3-month follow-up as stated in Hypothesis One. However, unlike Bandura has stated elsewhere (1977; 1984), a test of the significance of difference between the correlation coefficients only revealed a significant difference between outcome and self-efficacy expectations for medication usage. Self-efficacy is not a significantly better predictor of pain level than outcome expectations.

**Hypothesis Two:**

The second hypothesis stated that a significant, positive correlation would exist between self-efficacy expectations and work-readiness. As cited in the demographic description section, a majority (71%) of the subjects stated at the 3-month follow-up that they believed they could manage their pain enough to return to work. The question addressed in this hypothesis was whether those who believed they could manage their pain to return to work, also had higher self-efficacy scores.

The results (shown in Table 4) indicate that self-efficacy is significantly correlated with work readiness at week 1 \( (r = .472, p < .003) \).
TABLE 4
Correlation of Self-Efficacy and Work-Readiness

<table>
<thead>
<tr>
<th>Variable</th>
<th>Work-Readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1*</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>.47&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note:  * N = 37  a = p < .003  
** N = 28  b = p < .004
Furthermore, self-efficacy expectations and work readiness had a significant, positive correlation at week 6 ($r = .461, p < .004$). Finally, self-efficacy expectations and work readiness were significantly correlated after the 3-month follow-up ($r = .52, p < .004$).

In summary, the results were as hypothesized and indicate that high self-efficacy expectations with regard to the use of relaxation techniques correlate with belief in ability to manage pain and return to work.

**Hypothesis Three:**

As stated in a previous section, self-efficacy expectations at week 6 predicted both pain level and medication usage at the 3-month follow-up. High self-efficacy expectations after completion of the treatment program correlated significantly with low pain level and no medication usage at 3-months. The third hypothesis compares the predictive value of self-efficacy expectations versus the internal-external locus of control scale by Nowicki and Strickland. The hypothesis predicts that self-efficacy expectations will be a more accurate predictor of both pain level and medication usage at a 3-month follow-up.

Results from the simple regression (shown in Table 5) revealed that the internal-external scale did not predict pain level at 3-months ($r = -.08, p > .68$), nor did it predict medication usage at a significant level ($r = .35, p > .07$). These results support the third hypothesis that self-efficacy expectations would be a better predictor of pain level and medication usage at 3-months.
<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Source:</th>
<th>F-value</th>
<th>df</th>
<th>r</th>
<th>PR&gt;F</th>
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<tbody>
<tr>
<td>Pain Index</td>
<td>Internal-External Scale</td>
<td>.17</td>
<td>1,26</td>
<td>-.08</td>
<td>.68</td>
</tr>
<tr>
<td>Medication-usage</td>
<td>Internal-External Scale</td>
<td>3.66</td>
<td>1,26</td>
<td>.35</td>
<td>.07</td>
</tr>
</tbody>
</table>
Hypothesis Four:

This hypothesis stated that self-efficacy expectations would be negatively correlated with medication usage and with pain level at pre, post, and the 3-month follow-up. The correlation between self-efficacy and medication-usage (shown in Table 6) is in the predicted direction at week 1 and week 6 (r = -.23 and r = -.24, respectively) however, it was not significant (p > .18 and p > .16) at either time. The correlation between medication-usage and self-efficacy is not significant until the 3-month follow-up. At that time, use of pain medication was negatively correlated with self-efficacy expectations (r = -.55), and reached significance at p < .002.

Likewise, the correlation between self-efficacy expectations and pain level was not significant at week 1 (r = -.22, p > .18). However, at week 6, higher self-efficacy expectations were significantly correlated with low pain level (r = -.54, p < .0006). In addition, self-efficacy expectations at the 3-month follow-up were significantly correlated with low pain level (r = -.80, p < .0001). Stated in other terms, the higher the person's self-efficacy expectations at 3-months, the lower the individual's expressed pain level.

In summary, self-efficacy was negatively correlated with medication usage at 3-months as predicted; however, the predicted correlations were not found at week 1 or week 6. The correlational relationship between self-efficacy and pain level was significant at week 6 as well as at follow-up, but not at week 1.
<table>
<thead>
<tr>
<th>Variable:</th>
<th>Medication-Usage</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1*</td>
<td>Week 6*</td>
<td>3-Months**</td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.23</td>
<td>-.24</td>
<td>-.55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p &gt; .18</td>
<td>p &gt; .16</td>
<td>p &lt; .002</td>
<td></td>
</tr>
<tr>
<td>Pain Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.22</td>
<td>-.54</td>
<td>-.80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p &gt; .18</td>
<td>p &lt; .0006</td>
<td>p &lt; .0001</td>
<td></td>
</tr>
</tbody>
</table>

Note:  * N = 37  ** N = 28
TABLE 7

Correlational Analysis Self-Efficacy and ANS-IE Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>ANS-IE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1*</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.42</td>
</tr>
<tr>
<td></td>
<td>p &lt; .01</td>
</tr>
</tbody>
</table>

Note: * N = 37

** N = 28

a n.s. = not significant
Hypothesis Five:

The fifth hypothesis predicted a significant, negative correlation between self-efficacy expectations and the externally-scored locus of control scale. The results of the correlational analysis (shown in Table 7) reveal that self-efficacy expectations are significantly, negatively correlated with the locus of control scale \( r = -.42, p < .01 \). The higher the self-efficacy expectations, the more internal the subject scored at week 1. After treatment, however, the correlation no longer reached a level of significance \( r = -.18, p > .29 \). Likewise, the relationship at 3-months was not significant \( r = -.16, p > .41 \).

Ancillary Findings:

As reported in Chapter 3, there was no reliability information on the self-efficacy scale prior to the present investigation. Test-retest reliability revealed a "modest" correlation coefficient between week 1 and week 6 \( r = .58 \), and a "strong" correlation coefficient between week 6 and the 3-month follow-up \( r = .81 \). One possible explanation for the "modest" test-retest correlation between week 1 and week 6 is that treatment took place during the interim. The strong correlational relationship between week 6 and the 3-month assessment is a good indication that the self-efficacy measure is reliable. Another finding that lends support to the reliability of the self-efficacy measure is repeated measures analysis of variance. The results of the ANOVA (shown in Table 8) reveals that there were no significant changes in the means over the three assessment time periods \( F = 1.81; df = 2,54; \text{n.s.} \).
### TABLE 8

**Analysis of Variance for Self-Efficacy Expectations**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>d.f.</th>
<th>F*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy Week 1</td>
<td>56.00</td>
<td>11.76</td>
<td>2.54</td>
<td>1.81 (n.s.)</td>
</tr>
<tr>
<td>Self-Efficacy Week 6</td>
<td>56.86</td>
<td>14.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy 3 Months</td>
<td>52.75</td>
<td>16.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:** S.D. = standard deviation  
* not significant at .05 level
To test whether there was a significant difference between efficacy expectations of males versus females in this investigation, t-test analyses were performed. Since the sample size was not equal for males and females, it was first determined that the variance was equal for both groups and not significantly different. The t-test analyses reveal no significant difference between males and females on their self-efficacy scores at week 1, \( t(35) = 1.18, p > .05 \); at week 6, \( t(35) = 1.11, p > .05 \); and at 3-months, \( t(26) = -.79, p > .05 \).
CHAPTER V

DISCUSSION

This chapter begins with a review of hypotheses and the data in its support along with a comparison of results from previous research. Limitations of the study and recommendations for future research will then be discussed. The objective of this investigation was to examine the relationships among self-efficacy, outcome expectations, internal-external locus of control, pain level and medication usage. In addition, the relationship between self-efficacy and work-readiness was examined. In general, the results of the study support Bandura's theory.

In Support of the Hypotheses

Bandura has stated that the level, strength and generality of self-efficacy expectations should predict follow-up maintenance of treatment gains even in the face of obstacles (Bandura, 1977). In accordance with Bandura's theory, self-efficacy expectations after treatment predicted pain level reported and medication-usage at 3-months. This finding is important because it gives credibility to the concept of self-efficacy as a predictor of future behavior. It also broadens the range of behaviors self-efficacy has been able to predict: gymnastic performance (Lee, 1982); assertiveness (Lee, 1984); and career
decision-making (Betz & Hackett, 1981). Furthermore, the results underline the role of cognitions in cognitive-behavior treatment programs and provide evidence that cognitions or beliefs can be assessed and used to predict future behavior.

Of interest, is that outcome expectations after treatment also predicted pain level and medication-usage at 3-months. Bandura has adhered to his belief that self-efficacy expectations are better predictors of future behavior than outcome expectations. Other researchers have argued that self-efficacy and outcome expectations are not distinct, separate concepts, but overlap, and have even questioned the need for the concept of self-efficacy in predicting behavior (Kazdin, 1978; Eysenck, 1978; and Wolpe, 1978). The two concepts were found to be highly correlated in the present investigation ($r = .74$ at week 1; $r = .83$ at week 2; and $r = .83$ at week 3) lending partial support to the idea that they are difficult to differentiate. However, self-efficacy expectations proved to be a better predictor of mastery behavior (i.e. managing pain without medication) than outcome expectations. This finding corroborates that of Manning & Wright (1983) in which they found self-efficacy could predict pain control at childbirth more accurately than outcome expectations or importance of a medication-free childbirth.

It also parallels findings by Lee (1984) that while efficacy expectations and outcome expectations were good predictors of behavior on a simulated assertiveness task, efficacy expectations were more accurate. Lee's findings also indicated that there was no way of taking a global measure of both or combining the two mathematically which would produce a superior predictor than efficacy alone.
With regard to the pain index at 3-months, both outcome and self-efficacy expectations predicted this measure at 3-months with no difference in degree of accuracy. This could signify that self-efficacy is a more accurate predictor of future behavior (i.e. ability to use pain management techniques, less medication usage), while both concepts can predict subjective appraisal of pain (i.e. pain level reported). Overall, findings from this study and others suggest that attention should be given to both during treatment and therapeutic programs should be designed to increase feelings of personal efficacy and alter beliefs in the effectiveness of the target behavior.

The results of the correlational analysis were as predicted. High self-efficacy expectations were correlated with low pain reports and no medication usage at 3-months. The relationship between efficacy expectations and medication usage was significant at 3-months which is when the decision to utilize or not utilize medication would be under the claimants' control. At week one, claimants come to the Center taking an assortment of medication to manage their pain and are placed on a medication reduction schedule. The medication schedule is regulated by the nurse and results in a gradual reduction of medication, particularly those within the narcotic category. While claimants may have strong beliefs about their potential ability to manage their pain without medication at week one, they have not yet reached the point where they know how to use relaxation and pain management strategies. At week six, the claimant may be completing the medication reduction schedule and
typically remains under the nurse's care. Claimants could still hold a strong belief about their ability to manage pain, but be taking medication given to them by the nurse. At 3-months, the decision to utilize pain medication is more directly under the control of the claimants.

Pain level and self-efficacy were also significantly correlated, in the direction predicted. Low reported pain correlated significantly with high self-efficacy after treatment (i.e. week six) and the relationship was maintained at 3-months. These findings are of importance and signify that positive change took place during treatment and was maintained at 3-months. However, the lack of a control group in the present study limits statements that can be made regarding the effects of the treatment program, and results can not be attributed solely to the treatment intervention.

A significant relationship was found in this study between self-efficacy and the belief one could return to work. This result provides information on the generalization of self-efficacy beliefs. Subjects in the study who expressed strong self-efficacy expectations were also more likely to believe they could manage their pain to return to work. Of note, claimants in the study had been unemployed an average of 2 years and all subjects were receiving compensation. Other researchers have found that chronic pain patients who have been unemployed for over 1½ years and are receiving compensation do not succeed as well as those patients who have worked more recently and are not receiving disability compensation (Maruta, Swanson & Swenson, 1979). This again speaks favorably for treatment, but without an adequate control group, limits the ability to make unequivocable statements regarding treatment.
Self-efficacy has been compared to other concepts that are claimed to predict behavior based on the notion that people have general traits which influence their behaviors across a wide range of situations. Self-efficacy, on the other hand, argues that people have highly specific expectations about their ability to perform highly specific behaviors, rather than global response tendencies. This investigation correlated self-efficacy with one such trait concept, locus of control of reinforcement (i.e. internal-external) and found they were negatively correlated. This relationship was as predicted and indicates that high self-efficacy was related to an internal locus of control. In comparing self-efficacy and locus of control in terms of their predictive ability, self-efficacy was the more accurate predictor of both pain level and medication usage. Locus of control did not predict either variable, which further verifies what others have found (Manning & Wright, 1983) and what Bandura has claimed, that self-efficacy is a more accurate predictor of mastery behavior than the more global, trait measures.

Limitations of the Study:

One major limitation of this study is the lack of a control group which restricts discussion of treatment effects. The study was mainly focused on the relationships among the variables, particularly with regards to the predictive ability of self-efficacy. The findings indicate that high self-efficacy correlates with less medication usage and lower pain levels after treatment but lack of a control group allows only speculation about the effects due to the treatment itself. It appears that treatment was effective, and led to positive changes that
were maintained at 3-months and which correlated with other positive
to which changes (e.g. return to work, involvement in a job club or retraining). Having a control group would have allowed an examination of the effects
de to the various treatment components and answered the question as to which changes are a result of which treatment interventions.

A second limitation of the study is the lack of a larger, broader sample which would have allowed assessment of educational, age and gender differences. Although gender differences were assessed and not found significant, a larger and more stratified sample would have provided a more ideal and complete analysis.

In addition to the need for a larger, more stratified sample, another limitation is the lack of generalizability to other chronic pain groups such as cancer, headaches or burn populations. Most of the subjects in this study had low back injuries which is representative of the Rehabilitation Division's claimant population, but does not permit generalizations to other chronic pain groups. One reason is that subjects included in the sample were receiving compensation funds for being injured which precludes generalization to other pain groups where compensation is not being received for being injured and in pain. In addition, the finding that most subjects entered the program with high self-efficacy expectations may lead one to question the type of claimants who agree to participate and enter this rehabilitation program. Despite previous research findings that individuals with long standing injuries, who are receiving compensation, and who have been on a number of pain medications do not do well in a pain and stress treatment program, this subject group entered with expectations that they could learn to manage
their pain and that relaxation techniques may be beneficial. One possible explanation for this finding is that many of the individuals had been through so many prior unsuccessful treatment programs that they viewed entering this pain and stress treatment program as their last chance to return to gainful employment and to overcome their pain. Another explanation is that unlike other state sponsored rehabilitation programs for industrially-injured workers, the Ohio Rehabilitation Division's program is voluntary. Following this line of thought, those who do not want to return to work or be treated for pain management would not be required to enter the program, and therefore, would not be involved in treatment. This makes the population of industrially-injured claimants coming to the Center a self-selected, motivated group overall which could be viewed as the fourth limitation of the study.

The use of self-report measures (i.e. pain index and self-efficacy scale) can be regarded as somewhat limiting. Subjects could have underestimated or not reported pain at the end of treatment to please the treatment staff or to please their rehabilitation consultants for sending them to the Center. However, given the research findings done by others with chronic pain patients (Hammond, Brenn & Unikel, 1978; Hammeke & Meyer, 1979; Maruta, Swanson & Swenson, 1979), some of the personality characteristics with regards to somatization and focusing readily on physical discomfort (Woodforde & Merskey, 1972), and the monetary compensation they receive for reporting pain, and inability to return to work, it does not seem likely that subjects would risk reporting less pain than they felt and report they felt ready to return to work, given the strong likelihood that they would therefore, lose their Workers'
Compensation. For most claimants, Workers' Compensation is their sole source of financial support.

The inability to find a significant change in self-efficacy and outcome expectations after treatment provides some important information about the treatment program itself. Given that it is designed to be a cognitive-behavioral treatment program where claimants are given ample opportunities to practice relaxation techniques, one would expect increases in self-efficacy and outcome expectations as a result of actual performance of these behaviors and the feedback they would receive. As Bandura's theory states, performance accomplishment is one way self-efficacy expectations are derived, and one way to increase efficacy expectations. In this study, one reason for a lack of increase in self-efficacy expectations, may be due to a "ceiling effect" because individuals came with high self-efficacy and outcome expectations that could go no higher (i.e. their score peaked on the measure at week one). Another possibility is that before claimants enter the program, they are given a tour and provided with information from both their rehabilitation consultants and the people at the Center regarding the positive aspects of the treatment program. This information along with the tour of the Center may increase claimants' expectations and hope regarding treatment prior to entering the program, and heighten their self-efficacy expectations.

**Directions for Future Research:**

Results of this study support Bandura's theory and other researchers' findings regarding the ability of self-efficacy expectations
to predict future behavior. In addition, the significant relationship
found between high efficacy expectations and follow-up maintenance of
treatment gains, demonstrates that the concept can be used to develop
assessment tools capable of predicting events distant in time from the
actual measurement of the subject's self-efficacy state. There remains a
need to assess self-efficacy expectations of other chronic pain patients
and examine the predictive ability of these expectations with pain
management.

Another area of future research is the exploration of various
aspects of treatment or interventions that increase or influence self-
efficacy. Since high self-efficacy has been found to be significantly
related to treatment gains, an emphasis on aspects of treatment which
would increase self-efficacy would be beneficial to those with lower
self-efficacy expectations.

Following this line of thought, assessing individuals' efficacy
expectations at week 1 could aid in targeting those individuals who have
lower self-efficacy and outcome expectations and may need more help in
learning and using the mastery behavior being targeted for treatment.
These individuals may hold doubts about their ability to perform the
mastery behavior or of the usefulness and benefits to be gained by its
use. Assessing week 6 efficacy expectations could help treatment team
members and consultants identify those individuals who after treatment
are more likely to be returning to work, not utilizing pain medications,
and reporting less pain 3-months in the future. The rehabilitation
consultants would have a measure (i.e. the self-efficacy measure) by
which to identify those individuals who have a good prognosis after
treatment thereby enabling the consultant to expend more time and energy in aiding these individuals maintain treatment outcomes and find gainful employment.

Self-efficacy theory contributes a promising theoretical perspective for investigating the role of cognitive variables in predicting a broad range of behaviors. The extent to which it can predict behaviors with other population groups, and with other mastery behaviors, remains unexplored.
BIBLIOGRAPHY


Self-Management Group Treatment Modules

Health Psychology Department
Rehabilitation Division
Industrial Commission of Ohio
April 1, 1983
FORWARD

The following individual modules were developed by the Health Psychology staff to provide an agreed upon psycho-educational experience to the Rehabilitation Division's claimants enrolled in the 106 North High Street, Columbus Center program. The enclosed modules have been found, via test trials, to be most efficacious when administered in sequence. Although the target population for which the modules were originally developed were Pain claimants, General Rehabilitation claimants have been assigned to the groups and similarly demonstrated improved rehabilitation behavior.

The Department will continue to monitor and modify the modules so as to guarantee the highest quality of services to the Division's claimants.

Peter J. Vicente, Ph.D.
Director, Health Psychology
April 1, 1983
INDUSTRIAL REHABILITATION PROGRAM:
| Work Center | Psychology Management Group |

1. A Personal Competency Model for the Management of Chronic Pain

OBJECTIVE: Definition and description of the problem of chronic pain and the purpose of the various multidisciplinary procedures in its management.

I. What is Pain?

A. No simple answer. Pain is a complex set of events with three parts:

1. **Physical Event** involving some kind of damage to the body;
2. **Personal Event** involving one's own reaction to the physical event:
   a.) changes in heart rate and respiration, sweating, light-headedness, etc.;
   b.) anxiety, fear of injury (or re-injury);
   c.) individual discomfort or suffering.
3. **Social Event** involving communication of one's discomfort, suffering or disability to others (family members, physician, employers):
   a.) verbal pain behavior (telling others that one hurts, groaning, crying)
   b.) non-verbal pain behavior (limping, grimacing, requesting medication, etc.).

   ![Diagram of Physical Event, Personal Event, Social Event]

B. Acute vs. Chronic Pain involves the relationship between pain and time:

1. **Acute Pain** is pain which occurs immediately following an injury and generally fades as healing occurs;
2. **Chronic Pain** is pain which lasts six months or longer after an injury heals or is generally expected to have healed. Pain which lasts this long usually causes changes in the pain sufferer's personal and social roles:
   a.) personal role changes may include loss of occupational and recreational activities, feelings of fear, anxiety, depression, anger;
b.) Social role changes may include changes in family life (spouse must go to work or work longer; sexual relationship impaired), dependency on agencies (Workers Compensation, Welfare Agencies), social isolation and feelings of uselessness, hopelessness, disability).

C. Respondent vs Operant Pain involves the understanding of factors which influence pain:

1. Respondent Pain occurs because of events which precede it. For example, a muscle strained, goes into spasm, and causes pain. This is like a reflex in that when a muscle strained, it will spasm and cause pain.

2. Operant Pain occurs because of events which follow it. For example, if each pain event is followed (reinforced) by a pleasant event (attention, rest, drugs) or by the termination of an unpleasant event (kids stop fighting, spouse stops arguing, foreman stops yelling) then pain may occur again.

D. "Real" vs "Imagined" Pain is an outdated and useless idea often confused with respondent and operant pain.

1. Pain as a personal event involving discomfort, suffering, and disability is "real" whether or not it can be related to a physical event.

2. Operant and respondent pain are equally "real", equally "painful" and equally disabling. The only difference is in how each is related to events in a person's life and how each is successfully managed.

3. Any kind of pain (including respondent pain) can become operant pain if it is reinforced consistently. In a sense, one "learns" operant pain and one can "unlearn" it. Probably everyone with chronic pain has some respondent and some operant pain.

II. What are the Objectives of Pain Treatment?

A. Because chronic pain causes so many changes in so many areas of living, no one health care professional (physician, nurse, psychologist, physical therapist, occupational therapist, dietitian, etc.) can hope to deal with it singlehandedly. All of these professions and many others must work together to help persons with chronic pain learn to manage it successfully.

B. The objectives of multidisciplinary pain treatment are to:

1. Increase activity level, both generally and in specific areas where activity is restricted (reduce functional impairment);

2. Decrease use of pain medications entirely or to absolute minimal levels;

3. Decrease "pain behavior" which impairs activity and maintains disability;
4. increase "well behavior" (improve work skills, social skills, family involvement, recreational interests);

5. decrease dependence on agencies or institutions

   a.) reduce health care use related to pain problem such as medication use, continuous diagnostic and treatment procedures;

   b.) reduce or eliminate dependence on agencies which provide financial or other assistance.
III. What does "Personal Competency" Mean?

A. Personal Competency means that the Columbus Center Program focuses on returning "power" or "competence" or "independence" to you by providing you with:

1. Information: the more you understand about your injury and its consequences, the more able you will be to make informed choices about how to deal with it.

2. Experience: the many pain-management skills you will be shown will permit you to select the ones most effective for you.

B. Principles for living with (or despite) pain. Many persons with chronic pain have been told they will have to "learn to live with it." Almost none of them are told how this is done. Dr. Richard Sternbach, one of the foremost researchers and practitioners in pain treatment has outlined seven principles for living despite pain and these will be emphasized in Self-Management Group:

1. Accept the fact of pain. If you have a chronic pain problem and have been treated for it in several different ways without success, it is likely that you are stuck with it. Rather than always searching for a "magic wand" to cure it, accept it and get on with the business of managing it.

2. Set specific goals toward which you will work, (for work, hobbies, and social activities). These will be pursued in OT, PT, Psychology and other treatment areas.

3. Get angry at your pain if it seems to be getting the best of you. Quite often depression is thought of as anger turned inwards. Also, pain often lends us to get angry at our friends, our family, or others when it's the pain that causes the problem. Get mad at the pain, not the "innocent bystanders."

4. Pace your activities (see schedule on page 5.)

5. Time your medications (see schedule on page 6.)

6. Teach your family and friends support only your "well behavior" not your invalidism.

7. Be open with your professionals. Let us know.
2. Social Influences on Pain Behavior

A Supplement to "Speaking of Pain"

OBJECTIVE: To illustrate how the social environment, specifically the family, of the person with chronic pain may influence his or her pain behavior, both positively and negatively.

1. Introduction to "Speaking of Pain"

A. Review of Pain Theory. Recall that "pain" is a complicated set of events or phenomena that can be looked at and understood from several different perspectives:

1. Acute vs Chronic Pain refers to the relationship between pain and time:
   a.) acute pain occurs when an injury occurs and generally fades as healing progresses;
   b.) chronic pain persists for six months or more after healing of the injury is expected.

2. Respondent vs Operant Pain refers to the relationship between pain and factors which influence it:
   a.) respondent pain occurs because of events which proceed it, such as muscle spasms brought on by strain or overwork;
   b.) operant pain occurs because of events which follow it such as pain which persists when it is consistently "reinforced" by a pleasant event or the termination of an unpleasant event.
   c.) "real" vs "imagined" pain is an obsolete concept which has nothing to do with respondent or operant pain.

3. "Pain Behavior" vs "Well Behavior" refers broadly to whether an individual with chronic pain is behaving in ways which communicate distress and disability or health and independence:
   a.) "Pain Behavior" is any behavior, verbal or nonverbal, which lets others know one is hurting. Limping, crying, grimacing, asking for help can all be considered "pain behaviors."
   b.) "Well Behavior" is behavior that does not communicate distress or disability. Doing things for oneself, remaining active, returning to work and reducing pain medication use are all "well behaviors."
B. Brief Lesson in Learning Theory: Many of the behaviors that we engage in on a daily basis have been taught to us. The ways in which our social environment (school, family, workplace, etc.) has responded to our actions have shaped our behavior, causing some patterns of behavior to re-occur and others to disappear.

1. How behavior is maintained. Reinforcement (reward) of a particular behavior increases the likelihood that that behavior will re-occur and can be of two kinds:
   a.) Positive Reinforcement means that a behavior is followed by a pleasant event.
   b.) Negative Reinforcement means that a behavior is followed by the termination of a negative stimulus.
   c.) Reinforcement may be tangible, such as food, money, or gifts, but can also be intangible such as approval, attention, love, etc.

2. How behavior is decreased. Nonreinforcement or punishment of behavior decreases the likelihood that such behavior will re-occur:
   a.) Nonreinforcement means that a particular behavior is not systematically followed by any event. Simply put, behavior which is ignored is less likely to re-occur;
   b.) Punishment of behavior means that behavior is followed by a negative event. In fact, punishment is not very effective in decreasing behavior as we won't spend any more time discussing it.

3. Incompatible behavior. While positive reinforcement, negative reinforcement and nonreinforcement all influence behavior, a third factor involves incompatibility of two behavior patterns. Simply put, if one wants to get rid of a behavior most effectively, initiate a new behavior that prevents you from doing the problem behavior. One example that is fairly common involves a person who has failed to quit smoking several times. This person starts jogging and finds that continuing to smoke prevents him or her from jogging as far and as long as desired. It is then easier to stop smoking because jogging is incompatible with it and is itself reinforcing.

C. What does all this have to do with families? As we noted much of our behavior is learned from our environment and a very important environment is the family. The person with chronic pain and his or her family continuously interact and "teach" each other about pain. Unfortunately, chronic pain is best handled in different ways than is acute pain and very few people, whether the person with chronic pain or the professionals trying to help him or her know how to respond to chronic pain. Behavior which is entirely
appropriate when one is burned or breaks a leg; is potentially
destructive when chronic pain is the problem. The families
of persons with chronic pain may unintentionally maintain
or contribute to pain behavior.

While the vignettes are sometimes humorous (intentionally or
unintentionally) they are not meant to ridicule or poke fun
at the problems chronic pain causes or the people who suffer
from it.

The vignettes show five people with chronic pain in particular
life situations. Then each situation is replayed to illustrate
the psychological principles we have discussed.

II. Discussion Issues for "Speaking of Pain"

A. How "pain behavior" is increased.

1. "What's for Dinner?"
   Attention and affection followed limping (positive reinforce-
ment).

2. "The Living Room"
   Attention following wincing and shifting position (positive
   reinforcement). Affection followed Ken's response to pain
   (positive reinforcement).

3. "The Card Game"
   Attention and affection followed Harri's request for medici-
   nation (positive reinforcement). Approval of friends followed
   medication taking (positive reinforcement). Conversation
   focused on "pain-talk" (positive reinforcement).

4. "Burgers Again"
   John protects Diane from children's argument (negative rein-
   forcement).

5. "Grocery Trip"
   Relief from discomfort follows stopping activity (negative
   reinforcement).

In each situation attention and approval followed pain behavior,
or pain behavior was followed by termination of a negative event.
Several times, healthy behavior was ignored.

B. How "well behavior" is decreased.

1. "What's for Dinner?"
   No attention or affection was provided when Chris was "just
   walking" (nonreinforcement).

2. "The Living Room"
   Little, if any, attention or affection is offered when Vicki does
   not communicate pain and does "normal housework." (nonreinforcement)
1. "The Card Game"

No support is given to Marge's "well behavior," gardening (nonreinforcement).

4. "Burgers Again"

John prevents Diane's attempt to fix dinner, which is "well behavior" and excludes her from the trip to the burger place. (nonreinforcement)

5. "The Grocery Trip"

Gretchen ignores Wayne's well message and takes on a job he used to do (nonreinforcement).

Something else that we have learned is to respond to behavior we don't like rather than behavior which we "naturally expect." The well-meaning attention we pay to "pain behavior" and lack of attentiveness to "normal" behavior can aggravate and increase a chronic pain problem. Also these vignettes illustrated how family members may unintentionally deprive the person with chronic pain of opportunities to share family activities and engage in roles they used to occupy.

C. How well behavior can be increased.

1. "What's for Dinner?"

Chris' limping, or pain behavior is not reinforced. Instead, Helen focused Chris' attention on a positive event and reinforced well behavior.

2. "The Living Room"

Ken did not reinforce pain behavior even though he probably noticed it. Instead, he gave approval for well behavior (polishing furniture) and shifted attention from pain to positive accomplishment.

3. "The Card Game"

Tom did not refuse to get Marge's medication but also did not interrupt the game to comply with her request.

4. "Burgers Again"

John disciplines children but without using Diane's condition as a reason for the discipline.

5. "Grocery Trip"

Gretchen has attended to Wayne's well behavior and encouraged him to share his family's experience.
It should be remembered that the principles of reinforcement that have been illustrated here work on everyone— not just the person with chronic pain. Encouraging and supporting well behavior on the part of a family member with chronic pain will assist him or her in enjoying family life more. Also, the person with chronic pain must teach family members to support healthy behavior.

D. How the person with chronic pain can take responsibility for living again.

1. "What's for Dinner?"
   Chris acknowledged his discomfort but shifted focus to a positive topic.

2. "The Living Room"
   Vicki acknowledges discomfort but is using pacing of activity to manage pain and accomplish her goals and focuses on the future.

3. "The Card Game"
   In this scene, Harriet herself breaks the "pain talk" cycle and shifts attention back to the card game.

4. "Burgers Again"
   Diane has taken action herself to discipline the children and organize the family to prepare dinner. The family is functioning as a unit again and Diane is again involved.

5. "Grocery Trip"
   Wayne is now regulating his activity level in order to achieve or to do things that are important to him and his family.

Are any of these situations familiar? Are there other ways of dealing with such situations? Are there advantages or disadvantages to the alternatives?
INDUSTRIAL REHABILITATION PROGRAM:
ibus Center
Psychology
agement Group

RELAXATION

OBJECTIVE: Introduction of the concept of relaxation and description of ways to learn relaxation techniques.

I. Why learn relaxation?

A. Stress is an unavoidable part of everyday life. Stress can be understood as a normal response to demands to change or adapt to everyday situations.
   1. Environmental sources of stress include weather, noise, crowding, interpersonal demands, pressures to perform or other threats to our sense of well-being.
   2. Physiological sources of stress include the rapid growth of youth or the process of aging, sleep disturbance, illness, accidents, poor diet, etc.
   3. Personal sources of stress include how we understand, interpret, and label our present experiences, our predictions or expectations for the future, and our thoughts and feelings about the past.

B. How do people cope with stress? We learn various ways of coping with stress as we grow up. Some of these are pretty clearly negative:
   1. eating
   2. using alcohol or other drugs
   3. smoking

All of these produce a short-term change in the unpleasant feelings stress causes but also produce long-term effects that can be worse than the stressors themselves.

C. Relaxation techniques can also be learned and produce positive short-term effects without the long-term damage that the behaviors above produce. Once learned, they are always available, are free, and are not dependent on outside materials (food, drugs, etc.) to be used.

II. How is relaxation learned?

A. Naturally, the first step in learning relaxation, or almost anything else, is to be told or shown what is to be done. Each of the relaxation techniques used in Self-Management Group will be described in detail and/or shown to you. Be sure to ask questions if you don't understand or don't feel that you are sure of what's expected.
D. The second principle of learning relaxation is to practice. Our purpose in presenting a variety of relaxation techniques is to allow everyone to find one (or more) that best suits his or her own needs, preferences and lifestyle. However, before one can really decide to use one or another technique, it is necessary to give it a fair trial. Early on, it is important to practice under conditions that are as close to ideal as possible:

1. Find a quiet environment, where you can be calm and free from sudden noisy distractions.

2. Use a mental device to free your mind from worry and thinking. Each technique will use a device of some kind such as concentrating on breathing, or the difference between tension and relaxation in the muscles, a single word or phrase repeated over and over, the voice of a hypnotist or many others.

3. Maintain a passive attitude while practicing. You will very likely find that your mind wanders while practicing, either to things on your mind, outside sounds or problems you're working on. This is normal and natural and when it happens, simply return your attention to the exercise. Don't push yourself or try to force the practice (after all, relaxation is your goal). Just let the process happen and your skill will develop naturally.

4. Find a comfortable position in which to practice. For some, sitting in a chair which supports the arms and head is suitable. For others, lying down or sitting crosslegged "Indian style" is better. Try out different ones and pick the one that's best for you.

5. Several relaxation techniques call for practicing for a specific time period. This timing needs only to be approximate and checking a watch or clock until you get a "feel" for the time period is sufficient. Don't use an alarm or buzzer since the sudden noise can reduce your success at relaxing.

C. The next principle of learning relaxation is to gradually practice in conditions similar to those where you will most need to use relaxation. Most everyone started learning to drive in empty parking lots or on country roads. Then, gradually, we moved to areas with more traffic and refined our skills. Once you've developed some skill at relaxing under ideal conditions, start practicing in other places so that your ability to relax under "real world" conditions can grow.

D. The last principle of learning relaxation is using a Relaxation Rating Scale, called an RSS for short. This involves developing your own 100 point scale with "0" indicating no tension or complete relaxation for you and "100" indicating maximum tension or anxiety for you. You may want to think of a time when you were completely relaxed and make that "0" and a time when you were as tense and anxious as you've ever been and make that "100". Then, each time you practice, try to place your level of tension somewhere on the RSS before and after practice. Each RSS scale is unique to the person using it and you don't need to worry about whether your "0" and "100" compare to those of anyone else. This can be a helpful way of monitoring your own progress and deciding about which techniques work best for you. A typical RSS scale is shown below. You may want to write in your own "0" and "100" anchor points as reminders.
The next page shows enough RSSs for three practice sessions, along with room for comments. It may help in practicing relaxation to keep track of how you're doing by using this as a kind of "practice diary". Make several copies of the page and record your experience with one or more exercises.

E. With these basic principles, you will be able to try out various relaxation techniques while in SMG, decide on which are right for you and most importantly, begin to use them in your everyday life. If you don't feel that you're making progress or none of the techniques seem best for you, talk to your psychologist about working more intensively on some or trying others.

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<td>no tension</td>
<td>very tense</td>
<td>maximum tension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>completely relaxed</td>
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Relaxation Rating Scale (RSS)

Recording level of relaxation using the RSS:

1. Decide on your level of relaxation at the start of practice and mark this on the scale with an "S".
2. When practice is finished, mark your level of relaxation on the RSS with an "F".

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<td>100</td>
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Relaxation Method
- NO TENSION
- COMPLETELY RELAXED
- VERY RELAXED
- VERY TENSE
- MAXIMUM TENSION
RELAXATION EXERCISE NUMBER 1

OBJECTIVE: This exercise is a good starting point for learning relaxation. The "mental device" involves simply paying attention to one's breathing.

After following general instructions (Section II, B.):

1. Begin exercise by establishing a breathing pattern. Inhale for a count of three, hold air in lungs for a count of three and then exhale for a count of three.
   a. inhale through nostrils
   b. exhale through mouth
   Establishing this breathing pattern aids process by focusing concentration within self.

2. Eyes should be open when exercise starts. Close eyes gradually. Eyes should be closed by end of second time through breathing cycle.

3. Sit completely still for 5 minutes. Remember that all movements are controlled by you. You can choose to not respond to stimuli. Merely observe any thoughts that go through your mind. Do not stop thoughts to observe or examine. Just let them flow through. If thoughts don't seem to flow that is perfectly acceptable. Just be as still as possible. If you are distracted through your senses, focus again on your breathing pattern.

4. After allotted time (5 minutes in this example), then focus specifically on your breathing. Visualize you are inhaling strength and energy and exhaling tiredness and tenseness. After 3 breathing cycles, gradually open eyes over next 2 cycles. Sit quietly for 30-60 seconds and absorb, reflect on and realize your gains from the experience.
RELAXATION EXERCISE NUMBER 2

OBJECTIVE: The Jacobson method of relaxation is one of the first to be developed. It is good for beginners because the effects can be felt quite quickly. The Jacobson method of relaxation uses a "mental device", to distract your thinking, the focusing of attention on the difference between tensions and relaxation. By alternating the tension in a specific body area and the relaxation in the same area as well sensing the body in the area of focus you provide your mind an activity for its attention. Providing your mind with this constant stimulus (sensing the body) will keep it from worrying and thinking.

As you practice this technique, pay attention to those areas of your body that seem particularly tense or take extra effort to relax. Eventually, you will be able to focus on these "hot spots" and relax effectively without having to use the entire sequence.

An advanced use of this method is to silently repeat a word or phrase such as "relax" and "calm" when you release tension. With practice, that word or phrase alone will provide relaxation.

Specific Directions

1. Sit or lie down in a comfortable position.
2. Close your eyes.
3. Let yourself relax.
4. Pay attention to your breathing. Just let it flow in and out through your nose. Don't try to control it, just observe the flow of air and the muscle movement in your chest, diaphragm and stomach.
5. After about a minute or so, begin tensing/relaxing different parts of your body following the sequence below. Hold each part tensed for approximately six seconds, relax the area and spend 15-30 seconds sensing the relaxation coming into the part of the body previously tensed. Do not worry if you forget part of the sequence or alter it. The important thing is to become aware of the difference between the sensation of muscle tension/relaxation and to let different parts of the body experience the pleasant, peaceful, comfortable feelings of relaxation.

6. Sequence
   a. Tense and relax the right hand by making a fist.
   b. Tense and relax the right upper arm by bending at the elbow and bring the hand up to the shoulder.
c. Tense and relax the left hand (same as "a").
d. Tense and relax the left upper arm (same as "b").
e. Tense and relax the shoulders by lifting the shoulders up toward your ears.
f. Tense and relax the right foot and calf by bending the toes down toward the heel.
g. Tense and relax the right calf by bending the big toe toward the knee.
h. Tense and relax the upper part of the right leg by lifting the leg 6" off the ground.
i. Tense and relax the left foot and calf - toes down (same as "f").
j. Tense and relax the left calf - toes toward knee (same as "g").
k. Tense and relax the left upper leg (same as "h").
l. Tense and relax the neck by pushing the head back.
m. Tense and relax the neck by bringing the chin down toward the chest.
n. Tense and relax the forehead by frowning.
o. Tense and relax the eyes by squinting.
p. Tense and relax the lips by squeezing them together tightly.
q. Tense and relax the tongue by pushing the tongue against the roof of the mouth.
r. Tense and relax the jaw by clenching the teeth together.
s. Tense and relax the chest by pushing up with the chest.
t. Tense and relax the back by arcing the back up.
u. Tense and relax the stomach by drawing in the stomach toward the backbone.
v. Tense and relax the stomach by pushing the stomach out.

7. Now gently without tensing, go through the body sequence above letting the relaxation come into each part. Take your time. Focus a little longer in areas that seem tense before moving on to the rest of your body.

8. Then just let yourself lie quietly, enjoying the relaxation, feeling calm and contented. If you lose your attention on your body, it is OK as long as you let your mind just float along. If you feel yourself starting to get involved in your thoughts, go back to focusing on your body.

9. Allow 10-20 minutes for the whole experience. Don't use an alarm clock. You can open your eyes, however, to check the time. When you finish, slowly bring your attention back to the room by listening to the sounds in the room and surrounding area. Become aware of your body and gradually move your hands and/or feet to begin to feel some movement. After a minute or so, open your eyes slowly, taking time to re-adjust them to the light and surrounding stimuli. Sit up, if lying down, and hold that position for a little time. If sitting, you can stand up, but do so without haste.

10. It is better to practice twice a day but once is sufficient. Even if you have a difficult time relaxing sometimes, don't give up, as practice is important. Gradually the distractions you experience will become less demanding.

11. Practice is best not started until a hour after a meal, so try mid-morning, mid-afternoon, shortly before supper or mid-evening.
INDUSTRIAL REHABILITATION PROGRAM:

Industrial Psychology
Management Group

RELAXATION EXERCISE NUMBER 3

OBJECTIVE: This exercise introduces the use of visual imagery to facilitate relaxation. If imagery seems particularly useful to you in relaxing, you may want to try other scenes when practicing.

After following general instructions (Section II., B.):

1. Begin exercise by initiating breathing cycle and gradually closing your eyes.

2. Visualize yourself standing at the top of three escalators all moving down at the same gentle pace. You are going to ride these escalators down into relaxation.

3. Step onto the first escalator and ride down to the bottom of it. Count from ten to one as you descend. Step off the escalator as you reach zero. Immediately focus on your breathing. Complete two breathing cycles and then continue to the top of the middle escalator.

4. Ride the middle escalator down and again count from ten to one as you descend. At the bottom, refocus on your breathing for two cycles and then continue.

5. Now ride the bottom escalator down with the same count. Focus on breathing for two cycles.

6. In your visualisation, go to a comfortable place and lie down. Be completely still for five minutes. Remember, don't try to do anything, just let relaxation happen. Focus on breathing if senses are stimulated.

7. After five minutes, begin your journey back to a conscious, alert state. Take 30 seconds to locate yourself at the bottom of the escalators.

8. Ride the bottom escalator up. Count one as you step on and step off as you count ten. Focus on breathing. Ride the middle escalator and the top escalator back up in the same fashion. Do not open your eyes as you step off the top escalator.

9. At the top, after completing two breathing cycles, count from one to five. On the count of five, inhale strength and energy, open your eyes, look around and feel good.

10. Sit quietly for 15-30 seconds.
RELAXATION EXERCISE NUMBER 4

RAPID RELAXATION

OBJECTIVE: To provide a simple and quick method of relaxation for use in dealing with unexpected stressful situations. This can be especially useful when you've learned to use a cue word, such as "calm" or "peaceful" to induce relaxation. This cue word would be used in Step 2, i.e., "Tell yourself to be calm," etc.

When confronted with STRESS . . .

1. Take a deep breath and let it go suddenly! — this forces relaxation at least for a split second
2. Tell yourself to relax!
3. Focus for a few seconds on something very pleasant.

** After completing these steps, redirect your attention to the problem situation.
*** If the anxiety recurs, repeat the three-step model.
Self-Instructional Approaches to Pain Management

OBJECTIVE: Description of techniques for pain management which involve alteration of how pain is experienced and how that experience is interpreted.

Pain redefined and pain management approaches which result from this perspective.

A. The "pain experience" has two parts:

1. Sensory input: the messages the brain receives from the body part regarding what is happening there.
2. Personal reaction: how the individual reacts to, understands, and interprets the sensory message.

B. Pain management involves learning to change or modify one or both of these parts so that messages which formerly indicated "pain" are interpreted differently.

1. Sensory input is modified in many ways:
   a. Medication may change the actual state of the body part or area (i.e., reducing inflammation or swelling) or may reduce the capacity of the brain to receive messages (i.e., pain killers dull awareness).
   b. Surgery may be used to relieve pressure on a nerve or organ; or sever the nerves which transmit the pain messages to the brain.

As we know, many medications and surgical procedures have side effects or consequences which cause problems of their own, in addition to the problems already caused by pain. Therefore, it is desirable to develop skill in modifying sensory input without the use of medication, surgery, or other medical interventions.

   c. Relaxation can be employed to modify the sensory input. Several techniques are available:

   - Tensing and relaxing the various muscles that receive the intense stimulation;
   - Slow, deep breathing, with three to five seconds holding, and five seconds exhaling;
   - Thinking of pleasant or relaxing words or pictures while exhaling. For example, the word "calm" or a picture of a feather gently floating.

Relaxation techniques can be helpful in reducing pain awareness, particularly when one's pain problem is aggravated by muscle tension or anxiety brought on by stress. Relaxation has many advantages such as no prescription is necessary for it, it's free, it can be used any time, and unlike pain pills, the more we use it, the more effective it will be.
2. Our personal reaction to pain can also be modified in several ways:

a. Knowledge and understanding frequently reduce the fear, anxiety, and depression that people feel when they hurt. Recall a time when you went to the doctor expecting that an ache or pain signalled a serious problem or illness. After the physician explained what was really going on, this knowledge probably helped you to feel better, even if the actual sensory input was little changed. In managing a chronic pain problem, it is important to gain as much knowledge and understanding of your injury and its consequences as possible. This may well involve asking questions when health care providers do not volunteer information to you. But it is important that you know where you stand so that fears and anxieties about the unknown don’t contribute to your discomfort.

b. Attention diversion can be very useful in pain management. As we know, acute pain is a signal that some damage is being done to some part of our bodies. As such, it automatically commands most of our attention so that corrective action can be taken. We also know that chronic pain is likely to occur even when there is no actual damage being done. Chronic pain has lost its value as a signal but still grabs our attention. Management of chronic pain involves learning several simple techniques for taking our attention away from the pain and focusing it on something else. This does not mean that other pain signals will be ignored, or that our attention will be taken away from activities that require all our attention in order to be performed safely. (In fact, using power tools on a woodworking project which requires care and concentration is itself an attention diversion strategy.) The ways of diverting attention from chronic pain signals are described below.

i. Attention-Diverting coping strategies.

A. You cannot focus on more than one thing fully at any one time;

B. A person can select what he will focus his attention upon and what to exclude from his attention.

C. A variety of different coping strategies are available for you to employ at various times in a stressful situation. You can switch from one strategy to another as often as you wish;

D. Types of coping strategies:

1. Focusing attention on the physical surroundings. For example, counting the ceiling tiles, studying the construction of something in the room, studying articles of clothing.

2. Focusing attention on various thoughts. For example, doing mental arithmetic, making a list of all the things you have to do over the weekend, thinking of and singing the words of various songs you recall, reciting prayers.
3. Focusing attention on the part of the body receiving intense stimulation. For example, analyzing the sensations in one part, analyzing the intense stimulation as if preparing to write a newspaper report regarding the sensations experienced, studying the sensations and physical changes and comparing them to the feelings and changes noted at other times when you have experienced intense stimulation.

4. Imaginative inattention. Ignoring the intense stimulation by engaging in a mental image, which if real, would be incompatible with the experience of pain. For example, imagining yourself enjoying a pleasant day on the beach, at a party you recently attended during which you had a lot of fun, or spending an enjoyable afternoon with your lover.

5. Imaginative transformation of pain. Interpreting the sensations you are receiving as something other than pain, or minimizing those sensations as trivial or unreal. For example, visualizing and thinking about the part of the body receiving the intense stimulation as having been filled with Novocain and feeling the numbness produced, seeing or picturing yourself as the "six million dollar man" whose limbs are mechanical and capable of great feats of strength but incapable of experiencing pain, imagining the part of the body receiving the intense stimulation as being made of rubber and thus unable to feel pain, and considering all the implications of what it would be like to have a rubber limb.

6. Imaginative transformation of context. Picturing an image or mental scene in which the intense stimulation received is different from the actual situation that you are really in. That is, you are aware of the sensations but you picture them arising in a different context. For example, picturing yourself as James Bond having been shot in a limb, driving a stick-shift car while being chased by enemy agents, picturing yourself receiving an injury in a hockey or football game but continuing to play despite the injury, visualizing yourself receiving an injury while on a date and not wanting to let your date know that you are hurt.

E. Coping strategies that employ visual images are like mental pictures which can be related to a wide variety of situations. The greater the degree of involvement, absorption and vividness of the image the more effective such strategies are in effectively coping with a stress.

III. Self-Instructional training. Self-instructional training involves breaking a stressful situation down into three phases with self-reflection throughout the situation. The phases are:

A. Preparing for the intense stimulation before it becomes too strong (self-instructions and statements which can be made at this phase include):

1. What is it I have to do? (viewing the situation as a problem which you can do something about).

2. I can develop a plan to deal with it (preparing oneself by making a plan or mental outline of how you will deal with the sensations when they arise).
3. Just think about what I have to do (focusing on what the situation requires).
4. Think of the things that I can use to help cope (review all the strategies which you know of and which may be helpful).
5. Don't worry; worrying won't help anything (use any anxiety or worry as a cue to remind you to focus on what you have to do).
6. Remember, I can shift my attention to anything I want to (reassure yourself about your ability to employ various coping strategies).
7. When I use mental imagery, I'll see how vivid I can make the scene (review various aspects of the different images and strategies which can be used).

D. Confronting and handling the intense stimulation (self-instructions and statements that can be made at this phase include):
1. I can meet this challenge (view the situation as a challenge which you deal with).
2. One step at a time, I can handle the situation (don't do everything at once and don't be overwhelmed; rather, use each of the skills you have learned).
3. Just relax, breathe deeply and use one of the strategies (review and use any of the strategies that you have outlined in your plan for coping).
4. I won't think about any pain, just about what I have to do (focus your attention on the task at hand and what you can do right now to help yourself cope).
5. I'm feeling tense; that can be an ally, a cue to switch strategies and to take some slow deep breaths (expect to feel tense at times; that's not unusual, but use your tenseness as a cue to relax and to review which strategy to employ next).
6. Remember, I can switch back to some strategies that I used before but switched from (there is no reason why you can't return to some strategies already used).

C. Coping with thoughts and feelings that arise at critical moments (when you notice that the intensity of the sensations seems to be increasing or you think you can't go on anymore). Self-instructions or statements that can be made at this phase include:
1. When I feel any pain, just pause, keep focusing on what I have to do (keep in mind the task at hand and what you have to do).
2. Don't try to eliminate the pain totally, just keep it manageable (remember, you expected to detect some intense stimulation, but don't over-react and make things worse).
3. I knew the sensations would rise; just keep them under control (don't magnify the intensity of the sensations you experience).

4. Remember, there are a lot of things I can do; I can keep things under control (you have been taught a number of different strategies that will help you keep the intense stimulation under control).

5. Things are going pretty bad; I can't take any more — just pause; don't make things worse. I'll review my plan of strategies to see what I can switch to (sometimes you may have unpleasant thoughts or feelings; use those as cues to review the strategies available for you to use).

6. My back feels terrible; things are falling apart; I better stop — relax. I can focus my attention on something else; keep things under control (if you find yourself focusing on unpleasant sensations or thoughts, remember you can choose what you will focus your attention upon).

D. Self-reflection and positive self-statements. Throughout the three phases outlined above you might evaluate your performance. For example, how am I doing, that worked pretty well, etc. Remember, people frequently criticize themselves but rarely praise their behavior. Throughout a stressful situation evaluate how you are doing. If you think you should be doing better you can use that as a cue to try different strategies. If you are doing well you should give yourself a "pat on the back." Self-reflective statements which might be used throughout a stressful situation:

1. That's it. I've outlined what I have to do, what strategies I can use and which ones I will switch to.

2. I'm doing pretty well; it's not as hard as I thought.

3. I'm doing better at this all the time.

4. I won't let negative thoughts interfere with using my plan.

5. Wait 'till I tell the trainer which things worked best.

6. I knew I could handle it; I'm doing pretty well.

7. I'm doing better than I expected; wait 'till I tell my mother.

E. The attention-diverting coping strategies and the self-instructional training can help you deal with the reactive component of the "pain experience". Thus, by also using relaxation to deal with the sensory input, along with the coping strategies and self-instructional training, you will be able to enhance your pain tolerance and alter your perception of intense stimulation.
OBJECTIVE: Description and discussion of assertiveness. Self-assessment of assertiveness. Exercises and practice at becoming a more assertive communicator.

Why is Assertiveness Important?

A. Interactions with others (family members, friends, co-workers, etc.) can be a source of good feelings and good times. Interactions can also be a source of frustration, disappointment and stress.

1. Many people feel as though no one ever listens to them or even pays attention when they try to interact.

2. Many people feel that working with others always involves a struggle or battle to get what they want;

3. Others may feel that they are always asked to give of themselves but never can get their own needs met or even ask for something from those around them.

B. When relationships with other people are not satisfying, there is a tendency to blame ourselves. The real problem often lies in how we express our own wants and needs to others and respond when faced with others' wants and needs. In other words, how we communicate with the people around us.

Self-Assessment of Assertiveness in Common Situations.

A. Before further discussion of what assertive communication is about, read each of the following items and write down how you would typically respond:

1. You buy your favorite beverage in the market, and after you walk out you discover that the change is a dollar short.

   I would _______________________________________________

2. You order a steak rare and it arrives medium-well.

   I would _______________________________________________
3. You're giving a friend a lift to a meeting. The friend keeps puttering around for half an hour so that you will arrive late.

I would ______________________________________________________

4. You ask for $5 worth of gas at a service station. The attendant fills up your tank and asks you for $9.50.

I would ______________________________________________________

5. You are relaxing with the paper after a long day. Your spouse pops in, list in hand, and says, "I thought you'd never get here. Quick, pick these up from the store."

I would ______________________________________________________

6. While you wait for the clerk to finish with the customer ahead of you, another customer comes in and the clerk waits on him before you.

I would ______________________________________________________

B. Each of these situations involved a problem in communicating your needs or wants to another person. Besides focusing on the situation, it can be helpful to focus on the people involved. Using the scale below, rate how difficult it is for you to express your needs and desires to:

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<td>Not at all Difficult</td>
<td>-</td>
<td>Extremely Difficult</td>
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</table>

1. Parents
   1 2 3 4 5
2. Spouse or boyfriend/girlfriend
   1 2 3 4 5
3. Children
   1 2 3 4 5
4. A friend or someone you like
   1 2 3 4 5
C. Finally, let's help understand why it is difficult to be assertive. When you are afraid to express your needs and wants, read the following list of consequences and check the ones that you anticipate and want to avoid.

1. Being physically assaulted
2. Being yelled at
3. Being given a dirty look
4. Having the person refuse to talk to you
5. Being rejected in other ways

II. What is Assertiveness?

A. Put most simply, assertiveness is "the expression of personal rights and feelings in such a way that others' rights are not violated." In looking over your responses to the Self-Assessment, you may notice that you don't have problems in expressing your rights and feelings in some situations or some people, but other people or situations are very difficult or stressful for you. This is true of most people. Assertiveness is not a trait that we either have or don't have, but rather a skill that can be learned, developed, and applied to many situations in everyday life.

II. In most interpersonal situations, behavior can be described in one of three ways:

1. An assertive style involves standing up for oneself, expressing one's true feelings, not allowing oneself to be manipulated, and respecting others' rights and feelings. Assertive behavior includes listening to others, making direct eye contact, maintaining relaxed posture and voice.

2. A non-assertive or passive style involves not standing up for oneself, holding back one's feelings, and letting others push one around. Non-assertive people often want to please others and avoid conflict at all costs, but end up feeling angry, depressed or frustrated with themselves and resentful of others. Non-assertive behavior includes avoiding eye contact, hesitating to speak up, being apologetic or at a loss for words, etc.
3. An aggressive style involves protecting one's own rights and expressing one's feelings without regard for others' rights or feelings. Aggressive behavior includes fighting, accusing and threatening. Aggressive people tend to hurt, humiliate and dominate others. They often get what they want, but also are avoided and disliked by those around them.

C. Assertive behavior "pays off" when the assertive person gets what he or she wants without making others mad and without having to feel guilty about it. The meekness and withdrawal of the non-assertive style and the attack and blame which characterize the aggressive style really create more problems than they solve and do not get us what we want. The chart on the next page summarizes verbal and nonverbal behaviors associated with each style of interaction.
### Verbal and Non-verbal Components of Behavior

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<th>Non-Assertive</th>
<th>Assertive</th>
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<td>Veiled meanings. Hedging;</td>
<td>Honest statements of feelings.</td>
<td>Descriptive, subjective terms.</td>
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<td>mean&quot; &quot;You know&quot;</td>
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| **Non-verbal**        |                           |                            |                            |
|                       |                           |                            |                            |
| **General**           | Actions instead of words. | Attentive listening behavior.| Exaggerated show of strength.|
|                       | Hoping someone will guess| General assured manner.      | Flippant, sarcastic style.  |
|                       | what you want. Looking   | communicating caring and    | Air of superiority.        |
|                       | as if you don't mean what you say. | strength.                |                            |

| **Specific**          |                           |                            |                            |
| **Voice**             | Weak, hesitant, soft     | Firm, warm, well-modulated | Tense, shrill, loud, shaky, cold, |
| **Eyes**              | Averted, downcast, tear, | Open, frank, direct.       | Expressionless, narrowed, cold, staring, not really "seeing" you. |
|                       | pleading.                |                            |                            |
| **Stance/Posture**    | Lean for support, stooped.| Well-balanced, straight-on,| Hands on hips, feet apart.  |
|                       | excessive head nodding.  | erect, relaxed.            | Stilt and rigid, rude, imperious. |
| **Hands**             | Flattery, fidgety, clammy.| Relaxed motions.            | Clenched, abrupt gestures, finger-pointing, fist pounding. |
D. Naturally, there may be life-threatening situations in which an aggressive response or passive compliance are appropriate. In our everyday life, however, assertiveness can be used to increase the satisfaction we derive from relationships and reduce stress.

E. Much of our non-assertive behavior is based on traditional assumptions about how people ought to behave. We are taught these ideas as children and many adults still carry them around and allow them to interfere with their relationships. In response to this obsolete way of thinking, Dr. Manual Smith has written a "Bill of Assertive Rights". This and the beliefs others use to manipulate us are as follows:

1. You are the ultimate judge of your thinking, feeling and behavior and responsible for the initiation and consequences of those acts.
   (Manipulative belief - You are responsible to systems and authority wiser than yourself.)

2. You don't have to justify your behavior.
   (Manipulative belief - You are responsible to others to give reasons for your own behavior.)

3. You have the right to make errors.
   (Manipulative belief - You must atone for errors.)

4. You are the judge of your responsibility for other people's problems.
   (Manipulative belief - The system's problems are your problems.)

5. You have the right not to know.
   (Manipulative belief - You must know the contingencies of all your actions.)

6. You have the right not to understand everything/everyone; "I don't understand."
   (Manipulative belief - You need other's good will to survive.)

7. You have the right to be illogical.
   (Manipulative belief - Logic makes better sense - make decisions based upon logic.)

8. You have the right to change your mind.
   (Manipulative belief - In order to change your mind, you must show a faulty commitment to the original decision or to your self worth.)

9. You have the right not to care about everything/everyone; "I don't care."
   (Manipulative belief - You should be or want to be perfect, strive to improve.)
F. All "rights" naturally carry with them responsibilities. The responsibilities of
assertive people are as follows:

You have the responsibility of discovering all the components of an
agreement.

2. You have the responsibility of either
   a) sticking to an agreement, or
   b) openly renegotiating it.

3. You have the responsibility to respect other people's feelings.

4. You have the responsibility to listen to the other person's feelings.

5. You have the responsibility to gather accurate information upon which you
   will base a decision.

IV. Learning to be Assertive

A. You now have a basic idea of what assertiveness is all about. It may be helpful
to look back at the Self-Assessment.

1. How would you describe your basic style?

2. Do you tend to use different styles in different situations or with different
   people?

3. Are there situations or people which present particular problems for you?

4. Are there situations or people that you would like to deal with in different
   ways? How?

B. One of the keys to being assertive is to communicate honestly and clearly. The
   following is a review of assertive communication.

1. I Want Statements refer to statements in which you say, "I want to do this"
or "I want you to do this", where this refers to a specific behavior. Also
   included in this category are "I'd like you to do this", "Would you do this",
   "How about doing this", "I'd appreciate it if you'd do this". Examples:
   I'd like you to get your phone covered by someone else
   when you have to leave your desk.
   Excuse me, I'd like to finish what I was saying.
   I want you to let me work by myself on this project, and
   then I'll get together with you and report to you on it.

2. Mixed Feeling Statements take the form of naming more than one feeling
   and explaining where each is coming from. Example:
   The way you corrected me ..., your tone of voice and your
   use of "you shoulds" ... makes me feel put down and con-
   descended to. But you've given me some very helpful
   information and I'm grateful for that.
3. **Empathic Assertion** conveys your sensitivity to the other person and recognition of the other's feelings, wants, and/or beliefs. It is followed by another statement in which you stand up for yourself.

There are two parts to the Empathic Assertion: Part One states your recognition of the other person, recognizing one or more of the following:

- his situation (i.e., pressures, troubles, lack of information)
- his wants (i.e., to do a good job, to do things his way)
- his beliefs (i.e., that he's been unfairly treated)
- his feelings (i.e., that he's irritated, upset, had a bad day)

Recognition does not mean sympathy or agreement. A recognition statement simply shows that you see, hear, acknowledge, realize the other person's situation or objections.

Part Two states your I Want Statement.

Examples:

I realize that you really want to get off work for the holidays and be with your family, and yet I'm running short handed and I need you here.

I guess you're feeling under pressure and would rather not talk about how you feel and yet I'd appreciate it if you would.

I know you're in a hurry and anxious for those reports, but I won't be able to start them until I finish Mr. Jones' letters. That should take about half an hour.

4. **Confrontive Assertion** is useful when there are differences between what the person is saying and doing, a difference between what work the person is capable of doing and what he/she is actually doing, and other types of differences between words and deeds.

The Confrontive Assertion has three parts. The first part describes what the person said they'd do; the second part describes what actually happened; and the third part states what you want. Examples:

Last week you did a great job of keeping a steady routine with your work. The last two days you stopped doing that. What seems to be the problem?

You said you were going to stop being short with customers and yet you were short twice today. I don't want to get on your back but I can't allow that to continue.

You said you'd write up a new report form last month and it's not written yet. I want a rough draft in two days.
I Language Assertion is particularly powerful since it describes concrete, tangible effects. It's a useful way of expressing irritation. It involves a four-part statement:

When (objectively describe the other person's behavior or the situation)

the effects are (describe how the person's behavior or the situation concretely effects you, the company, others, for example, in terms of additional time, effort, money)

I feel (describe your own feelings)

I'd like (describe what you want, for example, to explain their behavior, change what they're doing, offer ideas for solving the conflict, react to what you've said)

Examples:

You are behind schedule again with half of the reports. That's interfering with my ability to do my own work and it's taking extra time to remind you when you are late. Frankly I'm getting irritated about that. When can I count on getting those reports?

You're probably not aware of this, but when you turn in reports for me to type that have been written in light pencil, it takes me twice as long to complete them. I'd really appreciate it if you'd write them in something dark.

Escalating Assertion. Sometimes you may start with a "minimal" assertive response, but the other person doesn't respond and continues to violate your rights. You may then gradually escalate your assertion and become increasingly firm. You may move from a request to a demand, from a preference to an outright refusal, or from an empathetic assertion to a simple, firm "I want" statement.

a) I'd prefer not to say how much money I earn.

b) I realize that other people may not mind saying what they earn but I don't want to say how much money I make.

c) I must insist that we drop the subject.

Repeated Assertion. Frequently it is effective to simply restate your assertion. This can be used when the other person over-reacts to your statement or when he ignores it in some way. To prevent sounding like a broken record, it is important to respond to a legitimate point made by the other person and to avoid a "sing-song" or monotonous tone of voice.
Assertiveness is a skill and can be learned by nearly everyone. The steps in learning to be more assertive are as follows:

1. Appraise the situation
   a. Determine what you believe the rights and responsibilities are of the various parties in the situation.
   b. Determine the various short-term and long-term consequences of various courses of action.

2. Experiment with new behaviors and attitudes in practice situations.
   a. Try out new behaviors in practice with others; role play or write out and discuss new behaviors you wish to try.
   b. Write out the specific situations you want to try and look at the reasons why you find those situations difficult for you.
   c. Challenge your counterproductive beliefs and attitudes; replace them with more accurate beliefs and attitudes.

   - How would you feel in the other person's position?
   - How "true" is the belief which stops you from acting?
   - How do you feel? How do you want to feel?
   - How can you stand up for your rights without infringing on the rights of others in this situation?
   - What are the positive and negative consequences?

3. Evaluate your behavior.
   a. Determine your level of anxiety in the situation, including non-verbal behaviors.
      - Eye contact?
      - Body posture?
      - Nervous hands?
      - Excessive or unrelated movements of hand, head, body?
   b. Evaluate the verbal content.
      - Are you saying what you really want to say?
      - Are your comments concise, to the point, direct?
      - Did you avoid long explanations, apologies, excuses?
      - Did you use "I" statements rather than "you" messages?
   c. Evaluate how you delivered your message.
      - Did you reply immediately after the other person spoke?
      - Were you hesitant? Did you stammer? Laugh nervously?
      - Were your volume, tone, and inflection appropriate?
      - Was there whining, pleading, or sarcasm in your voice?
   d. Decide whether you were pleased with your over-all performance in the situation.
4. Implement New Behavior in Everyday Interactions

   a) Assert yourself in a real-life situation. Practice the situation in advance of trying it out.

   b) Begin to assert yourself in little, less important situations. Be careful not to jump in over your head or before you are ready.

D. Learning to be assertive will be somewhat different from other things you'll learn in the Center. Relaxation, for example, is learned more or less privately and only you really know how well you're doing. Assertiveness is an interpersonal skill and as such is much more public and possibly anxiety provoking. Here are some tips to keep in mind as you work:

1. Begin your own development of greater assertiveness with small, achievable steps. You will start slowly, but your foundation will be solid and long-lasting, and you'll have greater ongoing success.

2. Being assertive doesn't always work (nothing always works!), but don't let setbacks stop you from trying. You will fail sometimes (everyone does), but return again and again, starting with those small important steps.

3. Remember to pat yourself on the back when you succeed in even the smallest goal ... and remember that you DO deserve the credit when you're the one who makes something happen.

4. You are an individual ... cultural and ethnic backgrounds make a difference in what is considered assertive. Sex, education, and occupation all make a difference. Whatever the differences, you have a CHOICE and you can be in charge in your own life. Assertiveness training cannot be all things to all people. It is one tool to help you become the kind of person you want to be.

5. Keep in mind that any significant change comes with time and practice. Be patient with yourself. Give yourself a chance!

6. Assertiveness is more than standing up for yourself, or expressing your anger, or expressing your affection, or practicing scripts of what to say in certain situations. It is your pattern of behavior and your feelings about yourself. Do it. You'll like yourself better for it.

E. You may have noticed that assertiveness is a "hot topic" these days and that there are many books on assertiveness in the stores. If you are interested in reading more about assertiveness, the books on the following page are available in paperback or from your library;
Your Perfect Right

Asserting Your Self.

Don't Say Yes When You Want to Say No.

The Assertive Woman.

When I Say No, I Feel Guilty.
OBJECTIVES: To introduce the Quieting Response Technique of stress management and provide a program for developing skill in its use.

I. Review of the Concept of Stress
   A. Stress can be viewed as a normal response to change, whether that change is viewed by the individual as negative or positive.
   B. Stress is an unavoidable part of living and some stress is necessary for healthy functioning.
   C. Stress can be caused by a variety of events or substances:
      1. Chemical stressors: sugar, caffeine, nicotine, alcohol, salt, smog, DDT, etc;
      2. Physical stressors: fatigue or inactivity, trauma, infections;
      3. Emotional stressors: guilt, fear, anxiety, anger, sadness or elation;
      4. Environmental stressors: death or illness of family members, marriage or divorce, loss of job or starting new job, financial problems, retirement, weather.

II. The Emergency Response
   A. The Emergency Response is a normal physiologic reaction to threat or pain. When we experience pain or perceive some threat in our environment, the following events occur in about six seconds:
      1. Vigilance, orienting response (searching the environment for the source of the threat).
      2. Tensing of muscles, especially the face.
      3. Change in breathing pattern (catching or holding breath, or shallow rapid breathing).
      4. Reduction of blood flow to arms, hands, legs and feet.
      5. Clenching of jaws.
   B. The Emergency Response prepares us for "fight or flight," for defending ourselves from the dangerous situation.
C. The problem is many stressors in our daily lives are not life-threatening, even though they are annoying, frustrating or upsetting. Chronic pain is also a stressor that is likely to evoke or cause emergency responses.

D. Many of the negative physiological effects of stress (heart disease, high blood pressure, etc.) are directly or indirectly related to the Emergency Response.

III. The Quietin Response (QR)

A. The Quietin Response was developed by Dr. Charles F. Stroebel, Ph.D., M.D., one of the pioneers in the study and treatment of stress.

B. The Quietin Response consists of five parts, each of which counteracts or nullifies the effects of the Emergency Response.

C. It is important to keep in mind that learning the Quietin Response Technique will not prevent it from happening when the situation does not require "fight or flight."

IV. Learning QR

A. Just as one doesn't learn overnight to play a sport, operate a machine or develop any other skill, QR takes time and practice. For many people, particularly persons with chronic pain, the time spent in learning the technique will be well spent.

B. When and how do you experience stress? It can be helpful to keep a self-monitoring diary for a month or so while learning QR. This diary similar to the one many of you completed before entering the Columbia Center program will assist you in identifying factors in your own life and environment that contribute to stress.

C. What do I do? The key to using QR effectively is to know when you are emitting or experiencing an emergency response. Many techniques have been tried. The most useful one involves identifying your own cue for frustration, annoyance, irritation. For many this is signalled by swearing to oneself or statements such as "Not again," "What now?" "Oh no!" etc. Whatever cue you use the steps in QR seem as follows:

1. Cue: feeling tense, annoyed, anxious, etc.

2. Reverse muscles of mouth and eyes (Smile).

3. Self-suggestion ("I am calm, alert, amused, etc.").

4. Take an easy, deep breath (try to "breathe" all the way down to your toes).
5. While exhaling breath, feel heaviness and warmth flowing to hands and feet, let jaws, tongue and shoulders go limp.

6. Then resume your normal activity.

D. The QR takes about six seconds, the same amount of time as the Emergency Response. It is simple and brief enough that it does not interfere with most activities.

E. The Quieting Reflex. With practice, the Quieting Response becomes an automatic part of one's normal activity and will occur when needed. Again, it will not prevent the Emergency Response from happening in true life-threatening situations.

F. QR has many advantages:

1. It can be learned and used in most situations and does not interfere with most activities;

2. It is self-reinforcing, that is, the beneficial effects automatically reward you for using it;

3. It becomes automatic with practice;

4. It is entirely natural and internal — once you learn it, it's free and always available.

(This material is adapted from the work of Charles F. Stroehl. Interested persons can obtain his books through any library.)
4STRIAL REHABILITATION PROGRAM:
Center
Psychology
Support Group

Working with Health Care Professionals

OBJECTIVE: Description of some of the problems people with chronic pain encounter in working with health care providers and suggestions for developing a positive and cooperative relationship with them.

I. The Problem: Traditional Approaches to Pain

A. Many health care professionals don't know how to help people deal with chronic pain. Apart from the fact that chronic pain is a relatively recent and little-known area of health care, opportunities for training in this area are few and far between.

1. Physicians are trained in the treatment of acute pain and view it as a symptom of an underlying disease process. As we know, the usual treatments of acute pain are often not helpful and may even be damaging to people with chronic pain.
   a.) surgery: not effective on a long-term basis for many chronic pain problems;
   b.) pain killers: often can be dangerous, addicting, etc.;
   c.) tranquilizers: may help if one is also anxious – but also dull the mind and increase depression.

2. Psychologists are usually trained to view chronic pain as a symptom of some other underlying emotional problem. While this is sometimes the case in the traditional populations with which psychologists work, this conventional view is not often useful with persons with chronic pain. There is nothing "hidden" or "underlying" about the depression, anxiety, family problems and feelings of anger, uselessness, helplessness that people with chronic pain face.
   a.) long-term psychotherapy geared toward uncovering the problems presumably responsible for the chronic pain has not been found to be helpful to persons with chronic pain.

II. What's Left? Pain Management

A. You and your physician. An ongoing relationship between you and a physician will probably be necessary. What should you expect?

1. Medication. One of the goals of this program is to help the person with chronic pain reduce or eliminate the use of prescription drugs to control or manage pain. To be independent of medication is certainly most desirable. To be able to manage pain with an over-the-counter analgesic such as aspirin or non-prescription Tylenol is also good.
However, if you do require a prescription drug, you should be able to receive this from your physician without being made to feel like a "dope addict." On the other hand, if you use any medication to manage pain, you have the responsibility to take it only as prescribed or according to a schedule (see the section on Timing Medications). Before increasing or decreasing dosage or timing of medication, you should discuss this with your physician.

2. Evaluations. In the future, periodic re-evaluations may be required by the Commission or the Bureau. There's not much that can be done about these. However, you are entitled to regular re-evaluations of your pain problem by your physician or specialist without being made to feel like a hypochondriac. The timing of these re-evaluations should be discussed with your physician. These regular meetings can be used to find out whether any changes have occurred in your condition and whether any new treatments have been developed that could be helpful to you. Such regular evaluations (often once or twice a year) should eliminate the need for emergency phone calls or visits to the emergency room - chronic pain is never an emergency.

3. You and your psychologist. You may have seen a psychologist or psychiatrist before coming to the Columbus Center or may be referred to one for follow-up treatment after this program is completed. If you are referred to one, you will be informed as to the reason for this and should be sure you understand the reason. Many times, continuing particular treatments undertaken while here will increase their effectiveness and your pain management skills. It is also possible that a particular treatment that is not available here can be provided by the professional to whom you are referred.

1. Evaluation. When you are evaluated by a mental health professional, ask for "feedback" about the results, either when the evaluation is complete or more often after the results have been interpreted. Most psychologists and psychiatrists are willing to talk to you about the evaluation results if they know you are interested.

2. Treatment. If chronic pain has caused emotional or family problems for you, it's likely that working with a therapist can help, in addition to the effects of feeling better and getting back to work. You may also want to refine your skills in several areas in pain management such as self-hypnosis, self-instructional training, assertiveness and others, let the professional know what your needs and goals are, and work together on a plan of action.
III. General Principles

A. Don't demand that health care providers remove or eliminate your pain. As we have seen, this probably would have been done by now if it were possible. Management of pain is a more useful and more attainable goal.

B. Take responsibility for your own life. This goal was stated earlier as restoring independence and competence to you as a person and reducing your dependence on health care systems and other agencies. It also means becoming a consumer of health care service, rather than a passive recipient of it, as most of us are.

C. Communicate openly, frankly and rationally with your health care providers, whether physicians, psychologists, social workers, etc. The basis for sound treatment is knowledge of what the patient, claimant, or client is experiencing.

D. Be fair with health care providers. Don't make unreasonable demands and don't accept unreasonable demands from them.

This material is adapted from Richard A. Sternbach, Ph.D. How Can I Learn to Live with Pain When It Hurts So Much? Scripps Clinic Medical Institutions, La Jolla, California, 1977.
COPING WITH FEELINGS

ANGER

ANXIETY

Preparing for the Confrontation

What is it I have to do?
This is going to upset me, but I know how to deal with it.

There won’t be any need for an argument.

Try not to take this too seriously.

Time for a few deep breaths of relaxation. Feel comfortable, relaxed and at ease.

Easy does it. Remember to keep your sense of humor.

What is it I have to do?
This is going to upset me, but I know how to deal with it.

Just think about what you have to say. That’s better than getting anxious.

No negative self-statements; just think rationally.

Time for a few deep breaths of relaxation. Feel comfortable, relaxed and at ease.

Stop worrying; you can do it.

Coping when Feelings Start to Build

My muscles are starting to feel tight. Time to relax and slow down.

My anger is a signal of what I need to do. Time to instruct myself.

Let’s take the issue point by point.

Let’s try a cooperative approach. Maybe we are both right.

Negatives lead to more negatives. Work constructively.

He’d probably like me to get really angry. Well, I’m going to disappoint him.

My muscles are starting to feel tight. Time to relax.

My anxiety is a signal of what I need to do. Time to instruct myself.

You can meet this challenge.

One step at a time; you can handle the situation.

Don’t think about fear; just think about what you have to do. Stay relevant.

Relax; you’re in control. Take a slow, deep breath.
Self-Efficacy and Outcome Expectations Rating Scale

Directions: Using the scale scores below, answer each question by circling the number which describes "How confident" you feel.

Scale Scores: 1 = "no confidence"  
2 = "very little confidence"  
3 = "some confidence"  
4 = "moderate confidence"  
5 = "much confidence"  
6 = "total confidence"

1. How confident are you that you can tolerate your pain without the use of medication?

    1 2 3 4 5 6

2. How confident are you that you can decrease your pain without the use of medication?

    1 2 3 4 5 6

3. How confident are you that relaxation exercises can be used to manage pain?

    1 2 3 4 5 6

4. How confident are you that relaxation exercises can be used to decrease pain?

    1 2 3 4 5 6

5. How confident are you that you can decrease the degree of pain you are experiencing even when you are more physically active?

    1 2 3 4 5 6

6. How confident are you that you can manage the degree of pain you are experiencing even when you are more physically active?

    1 2 3 4 5 6

7. How confident are you that you can be taught to relax?

    1 2 3 4 5 6
8. How confident are you that you can use relaxation techniques?

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9. How confident are you that you can decrease your medication usage?

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10. How confident are you that you can return to work after completing this program?

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11. How confident are you that the rehabilitation program can help you manage your pain?

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12. How confident are you that the rehabilitation program can help you decrease your pain?

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13. How confident are you that the rehabilitation program can help you?

|   | 1 | 2 | 3 | 4 | 5 | 6 |
APPENDIX C
PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

Appendix C, pages 139-141 (Nowicki and Strickland Questionnaire)

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