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Coping styles of chronic pain patients for both acute and chronic pain experiences

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COPING STYLES OF CHRONIC PAIN PATIENTS
FOR BOTH
ACUTE AND CHRONIC PAIN EXPERIENCES

by

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Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

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COPING STYLES OF CHRONIC PAIN PATIENTS TO BOTH ACUTE AND CHRONIC PAIN EXPERIENCES

Abstract

by

JENNIFER ROSE MARKHAM

Chronic pain differs from acute pain in a number of ways. A prominent difference between the two lies in the most beneficial method of treatment. The most effective means of coping with acute pain are passive approaches, based on traditional medical models. The most effective means of coping with chronic pain, when examined in isolation from acute pain, are active approaches in which the individual in pain plays a more aggressive role in the management. Previous research has not addressed the issue of the most effective use of coping style for chronic pain populations, who are faced with managing episodes of both acute and chronic pain. The present study was designed to investigate the coping styles (active vs. passive) which a chronic pain population uses to manage both acute and chronic pain episodes, and to examine the relationship of these coping styles to depression and anxiety. Subjects with chronic pain
completed two versions of the Pain Management Inventory (Brown & Nicassio, 1987), one in regard to their chronic pain and the other in regard to acute pain which they experience, indicating the frequency with which they used various active and passive coping strategies. Depression and anxiety were assessed using the Center for Epidemiological Studies Depression Scale (Radloff, 1977) and the trait anxiety scale of the State Trait Personality Inventory (Spielberger et al., 1979). Results indicate that chronic pain patients use a mixture of both passive and active strategies, and that they use similar strategies for both acute and chronic pain experiences. The most important predictor of depression and trait anxiety, however, is the use of passive coping in response to chronic pain. Using the current methodology, it was impossible to identify adequately sized groups of subjects who selectively used different coping styles for the two types of pain in order to determine if this selective use of coping styles is beneficial in this population. These results are discussed in terms of their implications for further research in this area.
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INTRODUCTION

The study described herein was designed to investigate the coping strategies which chronic pain patients utilize in their efforts to manage both acute and chronic pain episodes. Previous research, using separate populations of people with either chronic or acute pain, has shown that the best coping strategies for chronic pain are different from the best coping strategies for acute pain. Avoidant coping responses lead to greater relief in patients suffering only from acute pain, whereas more confrontational or active coping responses lead to the better management of chronic pain in patients who are experiencing only chronic pain. This study was aimed at addressing the issue of whether individuals with chronic pain cope differently with acute pain episodes than they do with chronic pain, and whether the use of different coping strategies for these two kinds of pain is indicated when both are assessed in the same population.

Acute vs. Chronic Pain

Pain has been defined as "an unpleasant sensory and emotional experience associated with actual or potential
tissue damage, or described in terms of such damage" (International Association for the Study of Pain, 1986, p. S217). Chronic pain is clinically defined as pain which persists for longer than six months; acute pain lasts for less than six months. Whereas acute pain serves the function of a protective warning signal (Fields, 1987), chronic pain no longer serves any such useful function and often persists for unknown and/or multiply-determined reasons. Whereas the sensory component of pain may range from mild to severe for both the acute and chronic forms of pain, the affective or emotional component is generally much larger in chronic than acute pain. State anxiety is often elevated in both acute and chronic pain populations, but there is also an increased incidence of mild depression in chronic pain populations (Ackerman & Stevens, 1989). Acute and chronic pain also differ with regard to the most effective methods of treatment.

The most effective approach to treating acute pain is a conservative one. It is generally accepted that rest and/or narcotic analgesics are the recommended treatments in order to alleviate the pain while allowing any tissue damage or injury to heal. Researchers have
found that avoidant coping strategies, such as rest and medication, lead to better adjustment to acute pain (Holmes & Stevenson, 1990), and that "rejection" strategies such as ignoring or avoiding a stressor and/or one's reaction to it lead to better short-term physical adaptation (Mullen & Suls, 1982). Somatic treatments are generally the most appropriate for acute pain, but not for non-malignant chronic pain (Schmidt & Brands, 1986).

A more comprehensive, aggressive treatment approach is required to successfully manage chronic pain (e.g. Kriegler & Ashenberg, 1987). Such an approach should be based on activity, non-addictive medications, and self-management; bed-rest and narcotic analgesics are contraindicated. The management of chronic pain relies largely on the active involvement of the individual in pain. This is not unlike the management of other chronic diseases, such as diabetes or hypertension, for which there is no cure but which require lifestyle adjustments on the part of the individual involved.

**Coping Strategies**

The literature on coping is quite extensive, and it is not practical to give a complete review of this
literature here. An attempt will be made, however, to focus on those aspects of coping which are relevant to pain.

**Classification and Measurement.** Many attempts have been made to classify strategies employed to cope with pain and other life stresses (e.g. Rosenstiel & Keefe, 1983; Fernandez, 1986; Brown & Nicassio, 1987). Rosenstiel and Keefe (1983) developed the Coping Strategies Questionnaire (CSQ) to identify coping responses in patients with chronic low back pain. The CSQ contains 44 items, each rated on a Likert-type scale. There are three factors into which the strategies are classified: (1) cognitive coping and suppression, (2) helplessness, and (3) diverting attention and praying. Examples of the first factor include reinterpreting painful sensations, ignoring painful sensations, and coping self-statements. The helplessness factor includes examples of catastrophizing, inactivity and inability to decrease pain. The diverting attention and praying factor is self-explanatory. The CSQ items have also been classified into several subscales: (1) cognitive coping strategies, (2) behavioral coping strategies (e.g. increased activity level, increased pain behaviors), and
(3) effectiveness ratings (in which patients rate the effectiveness of their coping strategies in reducing their pain).

The CSQ has been widely used in the chronic pain literature (e.g. Turner & Clancy, 1986; Keefe, Caldwell, Martinez, Nunley, Beckham & Williams, 1991; Main & Waddell, 1991; Williams & Keefe, 1991), and the coping styles identified in the CSQ have been shown to be related to both pain level and disability. For instance, an increased tendency to catastrophize has been significantly associated with higher levels of depression in chronic pain patients (Turner & Clancy, 1986). Additionally, increased frequency of diverting attention away from chronic pain is significantly positively associated with greater pain intensity (Turner & Clancy, 1986). The use of various coping strategies is related to psychological adjustment (as measured by anxiety and depression) in chronic pain patients and, more specifically, the high frequency of some coping styles such as helplessness and catastrophizing is related to poorer adjustment (Rosenstiel & Keefe, 1983).

Billings and Moos (1981) have suggested another way of measuring and categorizing coping responses. They
measured coping responses to stressful life events with 19 yes/no items and grouped the responses according to both method and focus of response. The response methods included either active cognitive coping responses, active behavioral coping responses, or avoidance. The focus of the coping responses was classified as either problem-focused (aimed at the stressful problem itself) or emotion-focused (aimed at the emotional consequences of the stressful life event). Although originally developed to assess coping responses to a variety of stressful life events, the Billings and Moos questionnaire has been used in the context of studying pain coping strategies (e.g. Kaloupek, White & Wong, 1984; Crook, Tunks, Kalaher & Roberts, 1988; Holmes & Stevenson, 1990). Holmes and Stevenson (1990) used this questionnaire with a Likert-type scale for each item, classifying both chronic and acute pain patients as primarily attentional (e.g. seeking information, drawing on past experience) or primarily avoidant (e.g. eating more) based on the type of strategy they used most often to cope with their pain.

Brown and Nicassio (1987) developed another coping measure based on a dichotomous classification of pain coping strategies. Their Pain Management Inventory (PMI)
is an 18-item measure which was designed to assess the use of active vs. passive coping responses in chronic pain patients. When the PMI was administered to rheumatoid arthritis patients, more frequent use of active coping strategies was found to be related to decreased depression and helplessness, as well as to decreased levels of pain and functional impairment; passive coping was related to higher levels of depression, helplessness, pain and functional impairment (Brown & Nicassio, 1987). Moreover, high levels of passive coping in the face of chronic pain was found to be related to higher levels of depression (Brown, Nicassio & Wallston, 1989).

The systems of classification and measurement thus far mentioned have included a variety of coping modes, including both cognitive and behavioral. Cognitive coping strategies alone, however, have received a great deal of attention in the literature. There is a high degree of heterogeneity in the cognitive responses exhibited by individuals who are experiencing pain (Philips, 1989).

Fernandez (1986) has proposed a classification system of cognitive pain coping strategies which he views
as part of a trimodal pain management system consisting also of behavioral manipulations (e.g. modeling, hypnosis, biofeedback), and physical interventions (e.g. physical therapy, surgery, medications). This classification system separates cognitive strategies into 3 major categories which are further divided into 10 subcategories. The major categories, with a few examples of the subcategories, are as follows: (1) imagery (e.g. incompatible sensory imagery, transformation of the context of the painful experience), (2) self-statements (e.g. coping self-statements, rationalization, denial), and (3) attention-diversion (e.g. passive distraction, active attention-diversion).

Fernandez and Turk (1989) conducted a meta-analysis on the utility of cognitive coping strategies for altering the perception of both chronic and acute pain. As a result of their analysis, they categorized these coping strategies into 6 broad categories: (1) external focus of attention, (2) neutral imaginings, (3) pleasant imaginings, (4) dramatized coping, (5) rhythmic cognitive activity, and (6) pain acknowledging.

**Role of Coping.** Individuals are generally flexible with regard to their ability to cognitively cope with acute
pain situations (Stevens, Pfost & Rapp, 1987), but many of the cognitive responses to chronic pain play a role in the perpetuation or exacerbation of that pain (Philips, 1989). For instance, while imagery may be the most effective cognitive strategy for coping with all kinds of pain taken as a whole (Fernandez & Turk, 1989), imagery was not found to produce long-lasting pain relief in chronic pain patients (Raft, Smith & Warren, 1986).

Mullen and Suls (1982) examined the short- and long-term effectiveness of two different coping styles for managing exposure to stress: (1) attention (focusing one's attention on the stressor itself or on one's reaction to it), and (2) rejection (focusing one's attention away from the stressor or one's reaction to it). They suggested that the attentional style may be helpful in providing the information needed to choose and perform adaptive actions, whereas the rejectional style may provide respite from the stressor. Rejectional styles were found to lead to better short-term physical adaptation (i.e. when symptoms or physiological responses were measured in temporal proximity to the occurrence of the stressor), and attentional styles were found to lead to better long-term physical adaptation (i.e. when
symptoms or physiological responses were measured long after the occurrence of the stressor). Corroborating evidence from clinical observations of cancer patients, general medical patients, and even long-distance runners supports the hypothesis that rejectional styles are preferable in the short-term and attentional styles are preferable in the long-run. By analogy, this would seem to be a useful framework in which to examine coping with pain.

Indeed, Holmes and Stevenson (1990) tested the hypothesis that acute pain patients would be better adjusted using avoidant rather than attentional coping strategies and that chronic pain patients would be better adjusted using attentional rather than avoidance strategies. Using the Billings and Moos (1981) Coping Scale along with a variety of outcome measures, they found support for their hypothesis. Individuals with acute pain who used avoidant strategies experienced less anxiety and depression than those who used attentional strategies. The opposite was true for individuals with chronic pain; those who used attentional coping strategies experienced less anxiety and depression.
Thus, acute and chronic pain differ with respect to the most effective coping strategies. Avoidant or passive strategies are the most appropriate for acute pain. There is, however, "little evidence that avoidance behavior promotes the reduction of chronic pain either on a short- or long-term basis" (Philips, 1987, p. 274.). A more confrontational, active approach is required for the effective management of chronic pain.

**Avoidance**

In spite of evidence that avoidance is contraindicated for the management of chronic pain, this type of behavior is quite prominent in chronic pain syndromes and the importance of avoidance learning is often highlighted in the literature on chronic pain (e.g. Dolce, Crocker, Moletteire & Doleys, 1986). Avoidance behavior is quite prevalent among chronic pain populations (Philips, 1987; Lacroix & Barbaree, 1990). Such behavior includes avoiding any activity which the individual knows or believes will result in further pain.

Avoidance is a common response to fear, although the exact relationship between fear and avoidance is varied. Avoidance may co-vary with fear, vary inversely, or vary
independently (Rachman & Hodgson, 1974). When changes in fear and avoidance vary together they are said to be synchronous, and when they vary inversely or independently they are said to be desynchronous (Rachman & Hodgson, 1974).

Lethem, Slade, Troup and Bentley (1983) have described a fear-avoidance model of pain perception. This model was originally proposed "to explain why and how some patients with acute pain develop a substantial psychological overlay while others do not" (Lethem et al., 1983, p. 403). It is important here to keep in mind that all chronic pain patients must, by definition, go through an acute phase before they develop chronic pain (recall the definition of chronic pain as being pain which lasts for longer than 6 months). In keeping with Rachman and Hodgson’s description of fear and avoidance, Lethem et al. (1983) suggest four courses that low back pain may take:

(1) natural remission - the organic basis resolves and both the sensory and emotional components of the pain decrease; or

(2) the organic basis worsens and the sensory and emotional components of the pain increase; or
(3) the organic and sensory components reach a plateau, and the emotional component increases; or

(4) the organic and sensory components begin to mend or heal, and the emotional component increases.

The latter two courses are examples of exaggerated pain perception in which the sensory and emotional components of pain are desynchronous.

Given that pain often serves as a warning signal for actual or impending damage, it is understandable that a degree of fear develops in response to pain. The response to fear, however, may be either one of confrontation or of avoidance, and avoidance has two components: (1) a cognitive component in which the experience of pain is avoided, and (2) a behavioral component in which painful activities are avoided (Lethem et al., 1983). The avoidance results in both physical and psychological consequences. The former (which include muscle atrophy and decrements in strength) ensure that pain, if experienced, will be more severe. Further avoidance is thus reinforced as a result of these adverse physical consequences. The psychological consequences of avoidance lead to fewer opportunities to calibrate painful sensations against the experience of pain. In
the fear-avoidance model of exaggerated pain perception it is proposed that previous experience with low back pain, and the number and severity of previous episodes will influence the intensity of the consequent fear and the nature of the coping strategies that are used (confrontational or avoidant).

A significant relationship was found between back pain and other features of personal pain history in a normal population (Slade, Troup, Lethem & Bentley, 1983). More specifically, there was an association between a decrease in severity of back pain between episodes and the adoption of more active coping strategies for internally-produced pain. Slade et al. concluded that these results lent support for the relevance of the fear-avoidance model to chronic pain.

A number of authors have demonstrated the relationship between avoidance behavior and chronic pain. A recent study of chronic headache patients (Philips & Jahanshahi, 1986) revealed 13 independent factors of pain behavior. Among these 13 factors were 6 avoidance factors, which accounted for 42.6% of the total variance. The strongest of these avoidance factors was social avoidance. Those with high avoidance scores tended to
have higher depression scores and a longer history of suffering. The authors suggested that avoidance may be a reaction to pain which becomes more and more influenced by the individual's beliefs about the pain-producing power of certain stimuli. In other words, individuals may develop an anticipatory set about the nociceptive qualities of certain stimuli and come to avoid those stimuli.

An anticipatory set such as this is evidenced by the fact that low activity levels are not consistently associated with significant physical limitations. Individuals learn to anticipate painful consequences from certain physical activities, and this leads to avoidance, which reinforces the anticipatory set and sets up a vicious circle. Exercise quota systems can reverse these patterns of inactivity and the faulty beliefs which accompany them. Anticipated pain and fear of injury can be decreased by exposing individuals to exercise tasks which are small enough to be mastered (Dolce, Crocker, Moletteire & Doleys, 1986).

Further evidence for the deleterious effect of avoidance on chronic pain is provided by Philips (1987). He notes that the avoidance of stimulation may strengthen
expectations that pain will increase upon exposure, and furthermore that it is likely to decrease the individual's feelings of self-efficacy. Since self-efficacy beliefs have been found to be positively associated with satisfaction, positive affect and self-esteem, and negatively associated with reported symptoms of depression (Blalock, DeVellis & DeVellis, 1989), decreased feelings of self-efficacy lead to further deleterious effects.

The pattern of the long-term beneficial effects of active coping responses is also apparent in other chronic conditions. Ruminative or passive responses are deleterious for depressed individuals, whereas active or distracting responses are beneficial for providing relief from depressed mood (Morrow & Nolen-Hoeksema, 1990). Pure distraction may not be beneficial for chronic pain, however, as there is a significant positive relationship between diverting attention and pain intensity in chronic pain patients (Turner & Clancy, 1986). One possible explanation for this may lie in the finding of a rebound effect after thought suppression, in which there is a seemingly paradoxical increase in the frequency of thoughts which are consciously suppressed (e.g. Wegner,
1989). An attempt to "suppress" chronic pain through diverting attention or distraction may be deleterious in a similar fashion.

Statement of the Problem

The economic costs of chronic pain are substantial. Recently, the First National Health and Nutrition Examination Survey found that 14.4% of the U.S. population between the ages of 25-74 experienced definite chronic pain related to joints or the musculoskeletal system (Magni, Caldieron, Rigatti-Luchini & Merskey, 1990). Eighty-three percent of this sample had sought treatment for their pain. Chronic pain is the leading cause of disability in the U.S., and over 10 million Americans are disabled by chronic low back pain alone (Chen, 1978). More than 25 million work days are lost per year due to chronic low back pain, and the annual cost to these patients is in excess of $12 billion (Chen, 1978). The cost for all chronic pain exceeds $40 billion per year in the U.S. (National Institute of Neurological Communication Disorders and Stroke, 1979). For these reasons, it is important to identify and provide effective treatments or methods of management for individuals with chronic pain.
Due in part to the affective nature of chronic pain and the frequent desynchronization between pain sensation and pain experience, and in part to the exasperation of physicians at the failure of traditional medical and surgical treatments to relieve chronic pain, psychologists have begun to play an important role in the management of chronic pain syndromes. Individuals with chronic pain can benefit from training in a variety of psychological coping strategies such as operant, cognitive-behavioral, and cognitive strategies (Keefe & Gil, 1986). The aim of psychological treatment is to increase the individual’s available effective strategies for self-managing chronic pain and stress, and to add to or increase the individual’s coping responses for the concomitant emotional distress. Coping responses can be effective in decreasing the emotional distress associated with relatively enduring social strains (Pearlin & Schooler, 1978).

Most studies of chronic pain consider it in isolation from other kinds of pain. Yet chronic pain patients have the task of coping not only with their ongoing or recurrent pain, but also with occasional acute pain episodes such as those resulting from surgery, a
trip to the dentist, an occasional headache, or a sprained ankle. When evaluated independently, acute pain and/or short-term stresses respond better to avoidant coping strategies, whereas chronic pain and/or long-term stresses respond better to attentional or confrontational coping strategies (Mullen & Suls, 1982; Holmes & Stevenson, 1990). Several questions remain unanswered, however. How should chronic pain patients best handle concurrent acute pain situations? Do they employ different strategies for the two kinds of pain? Do individuals adopting separate strategies for acute and chronic pain tend to demonstrate better adjustment than those who use the same strategies for both types of pain?

Schmidt and Brands (1986) reported that at least one aspect of chronic low back pain—poor persistence behavior—was present in an experimental (acute) pain situation. The chronic low back pain subjects in their study showed poorer persistence, and lower tolerance, in the experimental cold-pressor task than did controls. Those authors suggested that their evidence provided support for the applicability of stimulus generalization theory to pain. Stimulus generalization theory is based on the notion that a response first linked to one
specific stimulus generalizes to other stimuli which resemble the original one (Fordyce, 1983).

On the other hand, support has also been found for the applicability of adaptation level theory (Helson, 1964) to pain. Adaptation level theory postulates that an individual evaluates a stimulus not only on the basis of its physical characteristics, but also on the basis of previous experience with that stimulus, or similar stimuli. Thus, this theory would predict that previous experience with intense pain would increase one’s threshold for pain, and that a lack of experience with intense pain would lead to a decreased pain threshold. A group of chronic low back pain patients demonstrated higher experimental heat pain and tone discomfort thresholds than did a control group, suggesting that the pain patients’ prior experience with pain made them better able to adapt to new painful or uncomfortable situations (Cohen, Naliboff, Schandler & Heinrich, 1983). This experiment and the one conducted by Schmidt and Brands, however, deal with the responses of chronic pain patients in experimental rather than clinical acute pain situations. Although the experimental acute pain may be severe, subjects are generally well aware that they will
not incur any injuries and that the duration of the pain will be very brief. Furthermore, these two studies do not address the specific coping strategies employed by the individuals, although they do suggest that the ultimate responses to the acute and chronic pain stimuli are similar (poor persistence in the one study and greater tolerance in the other).

The present study is, in some ways, an extension of both the Holmes and Stevenson (1990) study and the Brown, Nicassio and Wallston study (1989). The former study demonstrated that chronic pain patients evidenced better adaptation when using attentional coping strategies to manage their pain, and acute pain patients evidenced better adaptation when using avoidant coping strategies to manage their pain. Brown, Nicassio and Wallston (1989) showed that frequent use of passive coping strategies with high levels of chronic pain was positively associated with high levels of depression, and that passive coping was positively associated with increases in depression over time. Neither of these two studies, however, took into account that chronic pain patients must also handle occasional concurrent acute pain episodes just as individuals without chronic pain
must do. The current study aimed to examine the differential use of passive/avoidant and active/confrontational coping responses for both acute and chronic pain occurring in a chronic pain population.

From my own clinical experience, I have noticed that most individuals with chronic pain do not know the difference between acute and chronic pain. Part of treatment involves educating the patients about why they are better off handling their chronic pain in a manner which may seem counter-intuitive and contrary to the manner in which they were likely to have been told to manage much of the pain which they had previously experienced in their lives. Some patients will describe treating their chronic pain with rest, inactivity and narcotic analgesics, fearing that the pain means that an injury has not healed or that increases in pain indicate that further injury is occurring. Other patients will confront, or sometimes try to ignore, their chronic pain, pushing on with their usual activities until the pain becomes so severe that they can no longer continue. Do chronic pain patients utilize different coping styles in order to manage the two different kinds of pain (even though they may not be explicitly aware of the
differences between them)? To the extent that the coping styles are differentially effective in the management of acute and chronic pain, do chronic pain patients exhibit greater adjustment when using separate styles of coping for the two kinds of pain?

Continued examination of the effectiveness of these coping styles for acute and chronic pain can potentially provide information which is of both theoretical and practical use. On a theoretical level, it can provide a better understanding of how individuals manage acute stresses in the face of long-term stresses, and of the interaction between the two. It is rare that any individual with a chronic pain syndrome would have only their long-term pain to cope with. They are also likely to be faced with acute pain episodes such as sprained ankles, headaches, dental pain, or minor cuts and burns, as well as with acute flare-ups, as is the case with diseases such as rheumatoid arthritis. It is interesting that Holmes and Stevenson (1990), Brown et al. (1989) and other researchers have not factored this into their investigations, particularly since Brown et al. were working with a rheumatoid arthritis population. Many investigators who do examine acute pain in the presence
of chronic pain (e.g. Cohen, et al., 1983; Schmidt & Brands, 1986) have generally dealt with experimental rather than clinical acute pain, and they have not examined the coping strategies involved.

On a more practical level, further examination of the effectiveness of active and passive coping styles for acute and chronic pain can have important treatment implications. Although the current study can not speak to the direction of causality between coping styles and adjustment, it may provide direction for further research which could speak to this issue. It may also suggest appropriate coping strategies for patients experiencing both acute and chronic pain, or point to a need for educating pain patients about the contrasts between acute and chronic pain.

From the onset of this study it was expected that the majority of chronic pain patients would use similar coping styles (either active or passive) with similar frequencies for managing both acute and chronic pain episodes. This is what one would expect based on either the stimulus generalization theory or the adaptation level theory. It was further expected, however, that there would be some patients who would use separate
styles of coping for the two types of pain, or who would use the active and passive coping strategies with different frequencies for the two types of pain. For those patients who used separate coping responses or frequencies for the two kinds of pain, it was predicted that those who used high levels of active strategies with chronic pain and high levels of passive or avoidant strategies for acute pain episodes would demonstrate the best adjustment (i.e. lower levels of anxiety and depression).
METHOD

Subjects

Data were collected from a total of 58 clinical subjects and 29 comparison subjects. All subjects participated voluntarily. The clinical sample consisted of 17 males and 41 females with chronic pain who were undergoing evaluation for treatment at the University Pain Center pain management program. Criteria for inclusion in the study included pain of at least 6 months duration, and the absence of a thought disorder which may have interfered with the individual’s ability to reality-test or which may have suggested that the individual’s pain was delusional. The participation rate was approximately 93% of those who were approached for involvement in the study. The clinical subjects ranged in age from 25-72 years ($M = 44.12$, $SD = 9.95$) and the duration of their chronic pain ranged from 6-541 months ($Mdn = 34.00$, $M = 61.41$, $SD = 91.44$). Sixty-two percent of the clinical sample were married or cohabiting, 17% were single, 16% were divorced or separated, 3% were widowed, and 2% did not report data on their marital status. Eighty-five percent were Caucasian, 10% were African-American, 2% were Hispanic, and 3% did not
provide information on their ethnic background. Twenty-seven percent were employed full-time, 7% were employed part-time, 40% were temporarily unemployed due to disability, 7% were retired due to disability, 14% were homemakers, 3% were retired due to age or choice, and 2% were unemployed for reasons other than disability. Ten percent did not complete high school, 38% completed high school, 3% had vocational/technical training, 33% attended some college, 7% were college graduates, 7% attended some graduate/professional school, and 2% indicated "other" for their educational level.

The comparison sample consisted of 14 male and 15 female undergraduate introductory psychology students who received class credit for participating in the study.\(^1\) None of these subjects had chronic pain themselves. Data from an additional 7 subjects who did have chronic pain were excluded from the analyses. The comparison subjects ranged in age from 18-35 years (Mdn = 19.00, M = 19.48, 

\(^1\)The initial plan for this study included a second comparison group more closely matched in age to the clinical sample, and exposed to, but not experiencing, chronic pain. This group was to have consisted of spouses of clinical subjects. This second comparison group proved impossible to obtain, however, due to refusal to participate.
SD = 3.09). Eighty-three percent were Caucasian, 14% were African-American, and 3% were Asian.

**Measures**

Coping style was assessed by the Pain Management Inventory (PMI; Brown & Nicassio, 1987). The PMI was originally developed with a population of individuals who have rheumatoid arthritis, a disease which is characterized by both chronic joint pain and acute pain flare-ups. The instrument contains 18 items to which individuals respond on a 5-point Likert-type scale, indicating the frequency with which they use various strategies to cope with experiences of pain. The questionnaire contains two scales, Active Coping and Passive Coping, which were found to be internally consistent (coefficient alpha = .71 and .82, respectively) and negatively correlated with one another (r = -.29; Brown & Nicassio, 1987). Adequate evidence has also been demonstrated for their concurrent and predictive validity (Brown & Nicassio, 1987).

Adjustment was measured in the clinical sample by assessing levels of anxiety and depression. Chronic pain patients often experience symptoms of both anxiety and
depression, and the presence of anxiety is more common in those individuals with associated depression (Krishnan, France, Pelton, McCann, Davidson & Urban, 1985). Depression was assessed using the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). The CES-D is a widely used 20-item scale which assesses the frequency of occurrence of a number of depressive symptoms during the past week. It has high internal consistency (coefficient alpha approximately .85) and acceptable test-retest stability (.45 < r < .70 for time intervals ranging between 2-8 weeks) in the general population, as well as strong evidence for construct and concurrent validity (Radloff, 1977). The reliability and validity results were confirmed across a number of different demographic subgroups of the population (i.e. age, gender, race, and level of education; Radloff, 1977). In addition to a total depression score, the CES-D also has scores for 4 subscales: somatic complaints (SC), depressed affect (DA), interpersonal concerns (IC), and absence of positive affect (RPA).

Anxiety was assessed using the State-Trait Personality Inventory (STPI; Spielberger et al., 1979),
a 60-item questionnaire which measures both the state and trait forms of anger, anxiety and curiosity. Trait anxiety has been shown to be higher in individuals with chronic pain than in those without chronic pain (e.g. Mendelson, 1984; Dworkin, Hartstein, Rosner, Walther, Sweeney & Brand, 1992) and thus the STPI trait anxiety scale was chosen to be used with the clinical subjects in this study. The STPI trait anxiety scale has good internal consistency, with coefficient alpha ranging between .82 for a male college sample and .85 for a female college sample and between .88 and .92 for various subgroups of a working adult sample (Spielberger, 1979). The scale has moderate test-retest reliability ($r = .66$ for males, and $r = .81$ for females; Jacobs, Latham & Brown, 1988), and the scores are consistent across different age groups (Stoner & Spencer, 1986).

**Procedure**

Potential clinical subjects were approached in person at the time they underwent evaluation for possible treatment at the Pain Center. If they indicated a willingness to complete several questionnaires regarding the frequency with which they use a variety of strategies for coping with their pain, they were handed the
questionnaire packet and asked to return it along with a packet of assessment measures which were being used for clinical purposes by the treatment team at the Pain Center.

The questionnaire packet for this study contained a cover sheet (see Appendix A) explaining the nature and objectives of the study, assuring the subjects of confidentiality, and informing clinical subjects that their decision to participate in the study would not in any way influence whether or not they would be able to receive treatment from the Pain Center. Next in the packet was a demographic information sheet (see Appendix B). The questionnaire packet for the clinical sample contained two versions of the PMI, one in which subjects were asked to indicate the frequency of their use of the coping strategies with their chronic pain (PMI-C), and one in which they were asked to indicate the frequency of their use of the coping strategies with episodes of acute pain which they experience (PMI-A). See Appendixes C and D for copies of the PMI-A and PMI-C. A brief description of the differences between acute and chronic pain was provided, and the order in which the two versions of the PMI were presented was randomized. Additionally, these
packets also included a sheet with two vignettes describing specific acute pain situations in which subjects were asked to recommend appropriate methods for coping with those situations (see Appendix E). Subjects were given several active and passive coping strategies (taken from the PMI) to choose from and were also allowed to add strategies of their own. Passive coping scores and active coping scores were obtained by summing the total number of passive and active coping strategies, respectively, across the two vignettes. These vignettes were designed to provide a more standardized schema for acute pain and immediately preceded the PMI-A in the packets.

The CES-D and the STPI trait anxiety scale were included in the clinical assessment packet. To avoid having individuals complete these instruments twice, these measures were not included in the questionnaire packet for this study and the data were obtained from the clinical assessment packet. Copies of the CES-D and STPI trait anxiety scale, respectively, can be found in Appendixes F and G.

Comparison subjects received credit for partial fulfillment of introductory psychology course
requirements for participating in this study. Those individuals who agreed to participate were given a brief explanation of the nature and purpose of the study, and received a questionnaire packet similar to the one which the clinical subjects received. The packet contained a cover sheet, an information sheet for the purpose of collecting demographic information, the acute pain vignettes, and a copy of the PMI-A. These subjects were also screened, on the demographic sheets, for chronic pain, current acute pain, and a history of chronic pain in immediate family members. Any individual who had experienced chronic pain him/herself was not included in the study.

After completion of all questionnaires, subjects' participation in the study was complete. There was no need for any debriefing as a straightforward explanation of the purpose and procedure was provided to each subject on the cover sheet attached to the questionnaire packet.
RESULTS

Vignette Validity

There was a low, significant correlation ($r = .29$, $p < .01$) between passive coping scores on the acute pain vignettes and passive coping scores on the PMI-A. Active coping scores on the acute pain vignettes and active coping scores on the PMI-A were also significantly correlated ($r = .49$, $p < .001$). Other correlations between coping scores on the acute pain vignettes and coping scores on the PMI-A and PMI-C were non-significant and ranged between -.11 and .25 (see Table 1 for summary). These results show evidence for the validity of the acute pain vignettes and suggest that one can interpret results based on acute pain vignette coping scores similarly to those based on PMI-A coping scores.

Table 1: Correlations of Vignettes with PMI-A and PMI-C

<table>
<thead>
<tr>
<th>Vignettes</th>
<th>PMI-A Passive</th>
<th>PMI-A Active</th>
<th>PMI-C Passive</th>
<th>PMI-C Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>.29*</td>
<td>.07</td>
<td>.24</td>
<td>.25</td>
</tr>
<tr>
<td>Active</td>
<td>-.11</td>
<td>.49**</td>
<td>.17</td>
<td>.17</td>
</tr>
</tbody>
</table>

* $p < .01$  ** $p < .001$
Comparison Sample

On the PMI-A, comparison subjects scored significantly higher on the passive coping scale ($M = 29.03$) than on the active coping scale ($M = 22.17$), $t(28) = 4.64$, $p < .001$. There were no significant gender differences in the comparison sample with respect to frequency of use of either active or passive coping on the PMI-A. Similarly, there were no significant differences, in the comparison sample, between PMI-A active and passive coping scores based on age, the presence or absence of current pain, or family history of chronic pain.

Comparison vs. Clinical Sample

Means and standard deviations of coping scores for both samples can be found in Table 2. A MANOVA revealed significant differences in acute pain coping scores between the comparison and clinical samples, $F(1,85) = 4.89$, $p < .01$. Univariate F-tests revealed significant differences between the two groups on passive coping scores on the PMI-A ($F(1,85) = 13.22$, $p < .001$), and on active coping scores on the acute pain vignettes ($F(1,85) = 6.55$, $p < .05$). Examination of the group means shows that clinical subjects ($M = 35.10$) had a higher frequency
of use of passive coping on the PMI-A than did comparison subjects (M = 29.03), and that comparison subjects (M = 2.72) endorsed a greater number of active coping methods on the acute pain vignettes than the clinical subjects (M = 1.66).

Table 2: Means and Standard Deviations of Coping Scores for Both Samples

<table>
<thead>
<tr>
<th></th>
<th>Comparison Mean (SD)</th>
<th>Clinical Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI-A Passive</td>
<td>29.03 (6.82)</td>
<td>35.10 (7.58)</td>
</tr>
<tr>
<td>PMI-A Active</td>
<td>22.17 (4.99)</td>
<td>21.26 (5.13)</td>
</tr>
<tr>
<td>PMI-C Passive</td>
<td>--</td>
<td>35.44 (6.82)</td>
</tr>
<tr>
<td>PMI-C Active</td>
<td>--</td>
<td>20.98 (5.31)</td>
</tr>
<tr>
<td>Vignettes Passive</td>
<td>2.38 (1.08)</td>
<td>2.81 (1.21)</td>
</tr>
<tr>
<td>Vignettes Active</td>
<td>2.72 (1.65)</td>
<td>1.66 (1.92)</td>
</tr>
</tbody>
</table>

Clinical Sample

Passive coping scores on the PMI-A and PMI-C were significantly correlated with one another (r = .55, p < .001), as were active coping scores on the PMI-A and PMI-C (r = .46, p < .001). Passive coping scores on the PMI-C were significantly correlated with scores on all
measures of adjustment, suggesting that passive coping may interfere with adjustment for chronic pain patients. These latter correlations ranged from .30 to .53 and are shown in Table 3.

Table 3: Correlations of PMI-C Scores with Depression and Anxiety Measures

<table>
<thead>
<tr>
<th>PMI-C</th>
<th>CES-D SC</th>
<th>CES-D DA</th>
<th>CES-D IC</th>
<th>CES-D RPA</th>
<th>CES-D Total</th>
<th>STPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>.42**</td>
<td>.30*</td>
<td>.46***</td>
<td>.30*</td>
<td>.53***</td>
<td>.41**</td>
</tr>
<tr>
<td>Active</td>
<td>-.19</td>
<td>-.02</td>
<td>-.29*</td>
<td>-.17</td>
<td>-.28*</td>
<td>-.09</td>
</tr>
</tbody>
</table>

* p < .05  ** p < .01  *** p < .001
SC = somatic complaints
DA = depressed affect
IC = interpersonal concerns
RPA = recoded positive affect
STPI = State-Trait Personality Inventory trait anxiety

Active coping scores on the PMI-C were significantly negatively correlated with the total depression score on the CES-D (r = -.28, p < .05) and with the interpersonal concerns subscale of the CES-D (r = -.29, p < .05), indicating an association between active coping with chronic pain and better adjustment. Other correlations between active coping scores on the PMI-C and adjustment measures were non-significant and ranged from -.19 to -.02. These results are summarized in Table 3.
Correlations between coping scores on the PMI-A and measures of depression and trait anxiety were all non-significant (see Appendix H).

In the clinical sample, subjects scored significantly higher on passive coping (\( \bar{M} = 35.10 \)) on the PMI-A than on active coping (\( \bar{M} = 21.25 \)), \( t(57) = 10.81, p < .001 \). Subjects also scored significantly higher on passive coping (\( \bar{M} = 35.45 \)) on the PMI-C than on active coping (\( \bar{M} = 20.98 \)), \( t(57) = 12.56, p < .001 \). Finally, in the clinical sample subjects endorsed a significantly greater number of passive coping responses (\( \bar{M} = 2.81 \)) than active coping responses (\( \bar{M} = 1.65 \)) on the acute pain vignettes, \( t(57) = 3.79, p < .001 \). These results indicate a tendency for chronic pain patients to use passive coping strategies more frequently than active strategies in both acute and chronic pain situations.

The results of a MANOVA revealed significant gender differences, for the clinical sample, on some of the coping style variables, \( F(8,42) = 2.59, p < .05 \). Univariate F-tests revealed significant gender differences only with respect to active coping on the PMI-C and passive coping on the acute pain vignettes. Compared to males, females were more active with chronic
pain and more passive in acute pain situations. See Table 4 for a summary of these results.

Table 4: Univariate F-Tests to Evaluate Gender Effects for Coping Measures

<table>
<thead>
<tr>
<th>Coping Measure</th>
<th>Mean Males</th>
<th>Mean Females</th>
<th>F-Ratio (1,56)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI-A Passive</td>
<td>33.41</td>
<td>35.81</td>
<td>1.20</td>
<td>.278</td>
</tr>
<tr>
<td>PMI-A Active</td>
<td>19.23</td>
<td>22.10</td>
<td>3.94</td>
<td>.052</td>
</tr>
<tr>
<td>PMI-C Passive</td>
<td>34.35</td>
<td>35.90</td>
<td>0.62</td>
<td>.436</td>
</tr>
<tr>
<td>PMI-C Active</td>
<td>17.65</td>
<td>22.37</td>
<td>11.20</td>
<td>.001</td>
</tr>
<tr>
<td>Vignette Passive</td>
<td>2.18</td>
<td>3.07</td>
<td>7.39</td>
<td>.009</td>
</tr>
<tr>
<td>Vignette Active</td>
<td>1.06</td>
<td>1.90</td>
<td>2.36</td>
<td>.130</td>
</tr>
</tbody>
</table>

In the clinical sample there were no significant correlations between age and any of the coping scores. Only one of the adjustment scores, the somatic complaints subscale of the CES-D, showed a significant correlation with age ($r = -.27$, $p < .05$). The results of a MANOVA, however, failed to show significant age differences on any of the coping scores or the adjustment scores.

There were no significant correlations between current pain level and any of the coping scores in the clinical sample. There were, however, several significant correlations between pain rating variables and measures of depression and anxiety (see Table 5).
Table 5: Correlations Between Pain Ratings and Measures of Depression and Anxiety

<table>
<thead>
<tr>
<th></th>
<th>CURRENT</th>
<th>AVERAGE</th>
<th>LOW</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES-D Total</td>
<td>.29*</td>
<td>.19</td>
<td>.34*</td>
<td>.12</td>
</tr>
<tr>
<td>CES-D SC</td>
<td>.29*</td>
<td>.29*</td>
<td>.39**</td>
<td>.23</td>
</tr>
<tr>
<td>CES-D DA</td>
<td>.12</td>
<td>.13</td>
<td>.18</td>
<td>.10</td>
</tr>
<tr>
<td>CES-D IC</td>
<td>.31*</td>
<td>.42**</td>
<td>.38**</td>
<td>.28*</td>
</tr>
<tr>
<td>CES-D RPA</td>
<td>.21</td>
<td>.02</td>
<td>.17</td>
<td>-.08</td>
</tr>
<tr>
<td>STPI</td>
<td>.02</td>
<td>-.02</td>
<td>.01</td>
<td>-.06</td>
</tr>
</tbody>
</table>

* p < .05    ** p < .01
SC = somatic complaints  
IC = interpersonal concerns  
DA = depressed affect  
RPA = recoded positive affect  
STPI = State Trait Personality Inventory trait anxiety

Ratings of current pain level and minimum pain level in the past week showed significant positive correlations with the total depression score on the CES-D, the somatic complaints subscale score, and the interpersonal concerns subscale score. These were low to moderate correlations which ranged between .29 to .39. This suggests positive relationships between pain levels and various manifestations of depression. Correlations of these two pain rating variables with the other CES-D subscale...
scores and with trait anxiety scores were not significant. Ratings of average pain within the past week were significantly correlated with the somatic complaints ($r = .29, p < .05$) and the interpersonal concerns ($r = .42, p < .01$) CES-D subscale scores, but not with any of the other adjustment scores. This demonstrates a positive relationship between average pain level and somatic and interpersonal difficulties. Ratings of the highest pain level in the past week were significantly correlated only with the interpersonal concerns subscale score ($r = .28, p < .05$).

An attempt was made to identify groups of clinical subjects who selectively used different coping styles for acute and chronic pain. $SE_{diff}$ scores (see Anastasi, 1982, p. 129) were calculated for the PMI ($SE_{diff} = 0.47$). Passive coping scores were then subtracted from active coping scores for both acute and chronic pain. Values less than $-0.47$ were considered high passive and values greater than $0.47$ were considered high active. Using this approach, 14 subjects were identified as high passive copers for both acute and chronic pain, and 4 subjects were identified as high active copers for both acute and chronic pain. Only 5 subjects were identified
as high passive for acute pain and high active for chronic pain, and only 2 subjects were identified as high active for acute pain and high passive for chronic pain. The remaining subjects could not be differentiated using this technique. As most subjects used the same coping style for both acute and chronic pain, there were not enough subjects who used different coping styles for acute and chronic pain to perform a MANOVA.

Using median splits to identify subjects as either high-active or high-passive for the two types of pain, 14 subjects were identified who were high-passive for acute pain and high-active for chronic pain. Of these 14 subjects, however, 10 endorsed high levels of both passive and active coping strategies for both acute and chronic pain (i.e. they tended to endorse a lot of coping strategies, regardless of the type of pain).

Given the inability to identify the selective coping style groups, two stepwise multiple regression analyses were conducted on these data to determine the effect of the coping variables, as well as age and the pain variables, on both the CES-D total score and the trait anxiety score. The independent variables entered into these equations were passive coping on the PMI-A, active
coping on the PMI-A, passive coping on the PMI-C, active
coping on the PMI-C, passive coping on the acute pain
vignettes, active coping on the acute pain vignettes,
age, pain levels (current, and average, low and high
during the preceding week), and pain duration. For both
analyses, the probability of F-to-enter was .05 and the
probability of F-to-remove was .10.

Table 6: Stepwise Multiple Regression of Depression

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Step</th>
<th>( R^2 )</th>
<th>F</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI-C Passive</td>
<td>1</td>
<td>.31</td>
<td>21.71*</td>
<td>1,49</td>
</tr>
<tr>
<td>Age</td>
<td>2</td>
<td>.38</td>
<td>14.84*</td>
<td>2,48</td>
</tr>
<tr>
<td>PMI-A Passive</td>
<td>3</td>
<td>.44</td>
<td>12.32*</td>
<td>3,47</td>
</tr>
</tbody>
</table>

* \( p < .0001 \)

As can be seen in Table 6, passive coping on the
PMI-C accounted for 31% of the variance in depression.
Age accounted for an additional 7% of the variance, and
passive coping on the PMI-A accounted for yet an
additional 6% of the variance in depression.

Table 7 summarizes the multiple regression of trait
anxiety. Passive coping on the PMI-C accounted for 20%
of the variance. Average pain level accounted for an
additional 8% of the variance, and age accounted for yet
an additional 6% of the variance in trait anxiety.
Table 7: Stepwise Multiple Regression of Trait Anxiety

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Step</th>
<th>( R^2 )</th>
<th>F</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI-C Passive</td>
<td>1</td>
<td>.20</td>
<td>12.50*</td>
<td>1,49</td>
</tr>
<tr>
<td>Average Pain</td>
<td>2</td>
<td>.28</td>
<td>9.26**</td>
<td>2,48</td>
</tr>
<tr>
<td>Age</td>
<td>3</td>
<td>.34</td>
<td>7.98**</td>
<td>3,47</td>
</tr>
</tbody>
</table>

* \( p < .001 \)    ** \( p < .0005 \)
DISCUSSION

High levels of passive coping with chronic pain are associated with greater levels of trait anxiety, and with greater levels of a variety of manifestations of depression. Active coping with chronic pain is associated with lower total depression scores and interpersonal concerns, indicating that individuals who are more aggressive in the management of their chronic pain are less depressed, in general, and have fewer interpersonal concerns than those who are less aggressive. Other associations between active coping with chronic pain and subscores of depression and trait anxiety, though not significant, were also negative, suggesting that active coping is generally associated with better adjustment. This is consistent with previous findings that active coping with chronic pain is associated with better adaptation (e.g., Holmes & Stevenson, 1990; Brown & Nicassio, 1987; and Kriegler & Ashenberg, 1987).

Passive coping has been found to be the most effective means of managing acute pain (e.g., Holmes & Stevenson, 1990). Subjects in the normal sample endorsed passive coping strategies significantly more often than
active coping strategies for acute pain. The fact that the presence or absence of current pain did not affect this relationship suggests that the decision to use a more passive style with acute pain is independent of whether or not the individual is currently experiencing any pain. However, the clinical subjects, all of whom were experiencing pain, were significantly more passive and significantly less active with acute pain situations than the normal subjects. Thus, the tendency of normal subjects to be more passive (and less active) with acute pain seems to be exaggerated in people who have chronic pain.

The chronic pain group scored significantly higher on passive coping than on active coping on all three coping measures--the PMI-A, PMI-C, and the acute pain vignettes. This demonstrates that individuals with chronic pain are not only passive in their approach to acute pain (which is appropriate), but also in their approach to the chronic pain they experience. Females were found to be more active than males with chronic pain and more passive than males with the acute pain vignettes. It is unclear why this should be the case, although examination of mean scores for males and females
in Table 4 reveals that females had a tendency to score higher than males on all coping measures. This suggests a tendency of females to utilize a greater number of coping strategies than males, which may account for the above findings.

In the clinical sample, measures of pain were positively associated with both depression and trait anxiety. Examination of Table 5 shows that the interpersonal concerns subscale of the CES-D was related to all pain rating measures. Although one can not determine the direction of causation from correlational data, one possible explanation for these results is that higher levels of pain may interfere with an individual’s ability to accurately interpret social interactions or to engage in positive interactions with other people (e.g. perhaps they are more irritable or short-tempered). This may lead to social isolation or interpersonal conflicts. This explanation is consistent with the finding (Philips & Jahanshahi, 1986) that avoidance and depression are positively associated and that one of the strongest avoidance responses to pain is social avoidance.

The somatic complaints subscale scores of the CES-D were significantly higher in those individuals who gave
higher ratings on their current pain, average pain level in the past week, and minimum pain level in the past week. This makes sense given that pain itself is a somatic complaint. The total CES-D depression score was associated with higher current pain and a higher minimum level of pain within the past week. One possible explanation for the association between depression and higher minimum pain level is that periodic levels of low pain intensity may provide an individual with some relief which may assist in alleviating depressed mood.

It was not possible to identify large enough groups of subjects who used primarily different coping styles with the two types of pain and examine the subsequent effects on depression and anxiety. What was found was that people tend to endorse the same types of coping strategies for chronic pain as they do for acute pain. A number of people endorse many coping strategies, both active and passive, regardless of the nature of their pain. What appears to be the most important factor in determining the level of depression or trait anxiety in someone with chronic pain, however, is the extent to which the individual uses a passive coping style with their chronic pain. The greater the use of passive
coping strategies with chronic pain, regardless of the use of active coping strategies, the greater also is the depression or trait anxiety score.

The finding, in the multiple regression analysis, that passive coping with acute pain is highly predictive of depression is noteworthy. One possible explanation is that chronic pain sufferers show better psychological adjustment if they utilize similar pain coping strategies for acute pain episodes as they do for chronic pain, even if these coping strategies may not be optimal for acute pain in the absence of chronic pain. Although one has little or no control over such factors as age or average pain level, one does have control over coping behaviors, and it appears that the adoption of consistent passive coping behaviors across types of pain may be ill-advised, from a psychological standpoint, for chronic pain sufferers.

For people with chronic pain, the most important determinant of poor adjustment is a passive response to the chronic pain. Adjustment also tends to be poorer with increasing age, a passive response to acute pain, and an increased average pain level. It was not possible, in this study, to determine if the usage of
different styles of coping for acute and chronic pain is beneficial, as subjects in this study tended to use the same coping styles. It seems equally plausible that other researchers have had difficulty examining this same question.

The effect of different coping styles for acute and chronic pain has not been studied before in a chronic pain population. This issue has not even been addressed in studies conducted on samples of rheumatoid arthritis patients (e.g. Brown, Nicassio & Wallston, 1989), who experience chronic joint pain with periodic acute flare-ups. In the current study, people managed both types of pain similarly and they used a mixture of both passive and active strategies. If this is typical of the chronic pain population, then it may not be possible, using the current methodology, to determine if using different coping strategies for acute and chronic pain is beneficial for this population.

Treatment studies may be better suited to addressing this issue in future research. This research could be conducted on several populations experiencing concurrent acute and chronic pain (e.g. rheumatoid arthritis populations, populations of people with chronic back pain
who are also experiencing acute dental pain, or populations of people with chronic back pain who are also experiencing acute postoperative pain). The design of such a study might include four treatment groups in which patients were either trained to cope actively with chronic pain and passively with acute pain, trained to cope actively with chronic pain and not trained in acute pain coping strategies, trained to cope passively with acute pain and not trained in chronic pain coping strategies, or not trained in either acute or chronic pain coping strategies. Groups which did not receive treatment for one or both types of pain initially could then be treated after research data were collected. These treatment groups could be compared on outcome measures such as those used in the current study, as well as on other measures such as functional capacities, visits to physicians, or return to work.

On the other hand, the current methodology may be a feasible one for examining the issue of whether using different coping strategies for acute and chronic pain is beneficial in a chronic pain population. Schachter (1982) has noted that, in populations of smokers and obese individuals, the people who seek treatment are
often the ones whose problems are most difficult to treat and are often those who have failed to accomplish the smoking cessation or weight loss on their own. Similarly, individuals who seek treatment of their chronic pain from a comprehensive pain management program have been unable to manage their pain independently or via other treatment methods. It is conceivable that one may be able to find people who use different coping styles for chronic and acute pain in samples of the chronic pain population other than those which are seeking treatment in a comprehensive, multidisciplinary pain management program. Thus, one other avenue for future research would be to use a methodology similar to the one presented in the current study, but to select samples of pain patients who are receiving no treatment or single modes of treatment (e.g. medication only, physical therapy only).

Based on the findings of the current study and previous studies, however, it seems apparent that a naturalistic methodology conducted on people seeking comprehensive pain treatment is not suited to addressing the question of optimum coping style combinations in populations experiencing both acute and chronic pain. In
the future, more information may be obtained by conducting treatment studies or by studying more representative samples of the chronic pain population.
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Appendix A:

Subject Information Sheets
INFORMATION SHEET

STUDY ON PAIN COPING STYLES
IN INDIVIDUALS WITH CHRONIC PAIN

There are many things that people do in order to handle pain that they experience. I am interested in the kinds of strategies that people with chronic pain use in order to cope with their pain. You are being asked to fill out a short questionnaire dealing with the frequency with which you use several strategies to cope with your pain. The information you provide will be most valuable and it may help us to find better ways of helping people learn how to manage their chronic pain problems.

It will probably take you 15 minutes or less to complete this questionnaire. The information you provide here will be kept confidential; after collecting the questionnaire from you your name will be removed and you will be assigned an anonymous identification number.

Dr. Kriegler (Pain Center Director) and Dr. Ashenberg (Pain Center Associate Director) have given me permission to contact you to ask you to participate. Your decision to fill out this questionnaire is, of course, voluntary and it will in no way affect your eligibility for treatment at the Pain Center.

If you have any questions, please feel free to contact me or Dr. Ashenberg at the Pain Center (844-1475).

Thank you for your participation.

Jennifer R. Markham, M.A.
Psychology Assistant
INFORMATION SHEET

STUDY ON PAIN COPING STYLES

There are many things that people do in order to handle pain that they experience. I am interested in the kinds of strategies that people use in order to cope with acute pain that they experience. By acute pain, I mean pain that may be either mild or severe, but that is generally brief and time-limited and perhaps resulting from a recent injury or illness (for example, headaches, sprained ankles, etc).

You are being asked to fill out several short questionnaires dealing with the frequency with which you use several strategies to cope with your pain. It will probably take you 15 minutes or less to complete these questionnaires, but the information you provide will be extremely valuable. It will be compared with similar information provided by individuals who experience chronic pain on a daily basis, and it may help us find better ways of helping people learn how to manage their pain.

Your participation is, of course, voluntary but the information you provide will be extremely useful. The information you provide here will be kept confidential; after collecting the questionnaires from you your name will be removed from them and you will be assigned an anonymous identification number.

If you agree to participate, please sign below where indicated. If you have any questions for me about this short study, please feel free to contact me at the University Pain Center at (216) 844-1476.

Thank you for your participation.

Jennifer R. Markham, M.A.
Psychology Assistant

I agree to participate in the study of pain coping styles. I understand that participation in this study involves no risks beyond those of normal daily living, that it will involve less than 15 minutes of my time, and that the information I provide will be kept confidential. I further understand that my participation in this study is voluntary.

Name:_____________________________ Date:__________________
Appendix B:

Demographic Information Sheets

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NAME: ______________________

PAIN COPING STYLES STUDY
BASIC INFORMATION SHEET

TODAY’S DATE: _____/_____/_____

SEX: ___ M  F ___ (circle one)

DATE OF BIRTH: _____/_____/_____

AGE: ______

ETHNIC ORIGIN: 1. Caucasian (circle one)
                 2. Afro-American
                 3. Hispanic
                 4. Asian
                 5. Other ______________________

MARITAL STATUS: 1. Single (circle one)
                 2. Married/Consp.
                 3. Divorced/Sep.
                 4. Widowed

EDUCATIONAL STATUS: 1. Less than High School
                      2. High School Graduate
                      3. Vocational/Technical School
                      4. Attended Some College
                      5. College Graduate
                      6. Graduate or Professional School
                      7. Other: ______________________

YOUR OCCUPATION: ______________________

EMPLOYMENT STATUS: 1. Full-time employment
                      2. Part-time employment
                      3. Homemaker
                      4. Temp. unemployed due to disability
                      5. Retired due to disability
                      6. Retired by age or choice
                      7. Unemployed
                      8. Student
                      9. Other ______________________

WHAT IS THE LOCATION OF YOUR PAIN? ______________________

WHEN DID YOUR PAIN BEGIN? _____/_____
              mo. yr.

FOR THE FOLLOWING 4 ITEMS, USE A 0 - 10 SCALE WHERE "0" = "NO PAIN"
AND "10" = "WORST PAIN IMAGINABLE":

CURRENT PAIN LEVEL: _____

AVERAGE PAIN IN LAST WEEK: _____

LOWEST PAIN IN LAST WEEK: _____

HIGHEST PAIN IN LAST WEEK: _____
PAIN COPING STYLES STUDY
BASIC INFORMATION QUESTIONNAIRE

NAME: ___________________________ DATE: ___/___/____

DATE OF BIRTH: ___/___/____ AGE: _____

SEX:  M  F
(circle one) (circle one)

ETHNIC ORIGIN: 1. Caucasian
(circle one) 2. Afro-American
(circle one) 3. Hispanic
(circle one) 4. Asian
(circle one) 5. Other ____________

MARITAL STATUS:
(circle one) 1. Single
(circle one) 2. Married/Cohabiting
(circle one) 3. Divorced/Separated
(circle one) 4. Widowed

EDUCATIONAL STATUS:
(circle one) 1. Freshman
(circle one) 2. Sophomore
(circle one) 3. Junior
(circle one) 4. Senior
(circle one) 5. Other ____________

ARE YOU CURRENTLY EXPERIENCING ANY PAIN? YES/NO

IF YES, WHERE? __________________________________________

IF YES, INDICATE THE SEVERITY OF YOUR PAIN USING A 0-10 SCALE
IN WHICH "0" = NO PAIN AND "10" = WORST PAIN POSSIBLE. ______

HAVE YOU EVER EXPERIENCED A CHRONIC PAIN PROBLEM
(I.E. PAIN WHICH LASTS 6 MONTHS OR LONGER)? YES/NO

HAVE YOUR PARENTS OR IMMEDIATE FAMILY MEMBERS
EVER EXPERIENCED A CHRONIC PAIN PROBLEM? YES/NO

  Relationship  Type of Pain
  ____________________  ____________________
Appendix C:

Pain Management Inventory - Acute Pain Version

(PMI-A)
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Appendix D:

Pain Management Inventory - Chronic Pain Version

(PMI-C)
Appendix E:

Acute Pain Vignettes
Directions: Please read the following short stories and indicate, by check marks, the way(s) that you think that the individual in the story should respond to or handle his/her pain.

1. X was helping a friend carry some packages from the car into the friend’s house. As X was getting the last package out of the car, the friend thought that X had cleared away and accidentally slammed the car door shut on X’s fingers. X yelled out in pain.

How do you think that X might respond to his/her pain?

___ Depend on others for help with daily tasks
___ Call a doctor or nurse
___ Thinking one cannot do anything to cope with the pain
___ Take medication for purposes of immediate pain relief
___ Ignore the pain
___ Stay busy or active
___ Participate in leisure activities
___ Distract attention from the pain
___ Other: __________________________

2. Y came home from work. He/she had to sit in an aggravating traffic jam on the way home and developed a splitting headache by the time he/she finally got home. The pressure in Y’s head was intense.

How do you think that Y might respond to his/her pain?

___ Depend on others for help with daily tasks
___ Call a doctor or nurse
___ Thinking one cannot do anything to cope with the pain
___ Take medication for purposes of immediate pain relief
___ Ignore the pain
___ Stay busy or active
___ Participate in leisure activities
___ Distract attention from the pain
___ Other: __________________________
Appendix F:

Center for Epidemiological Studies – Depression Scale

(CES-D)
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Appendix G:

State Trait Personality Inventory (STPI)

Trait Anxiety Scale
Appendix H:

Correlations of PMI-A Scores with Depression and Anxiety Measures
<table>
<thead>
<tr>
<th>PMI-A</th>
<th>CES-D SC</th>
<th>CES-D DA</th>
<th>CES-D IC</th>
<th>CES-D RPA</th>
<th>CES-D Total</th>
<th>STPI</th>
</tr>
</thead>
<tbody>
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<td>Passive</td>
<td>.22</td>
<td>.01</td>
<td>.21</td>
<td>-.07</td>
<td>.06</td>
<td>.21</td>
</tr>
<tr>
<td>Active</td>
<td>.15</td>
<td>.18</td>
<td>-.06</td>
<td>.05</td>
<td>.12</td>
<td>.05</td>
</tr>
</tbody>
</table>

SC = somatic complaints  
DA = depressed affect  
IC = interpersonal concerns  
RPA = recoded positive affect  
STPI = State Trait Personality Inventory trait anxiety