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An Examination of Chronic Pain Coping Strategies and Health Locus of Control Among Prison Inmates

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AN EXAMINATION OF CHRONIC PAIN COPING STRATEGIES AND
HEALTH LOCUS OF CONTROL AMONG PRISON INMATES

A Dissertation

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ABSTRACT

The present study evaluated the types of coping strategies for chronic pain implemented by 88 inmates, and the degree to which these inmates possessed an internal versus external locus of control. Based on the findings of previous research, it was expected that inmates would report utilizing passive coping strategies more often than active coping strategies, and that passive strategies would be associated with poorer adjustment to pain in terms of depression, pain intensity, and pain interference with daily activities. It was also expected that inmates would report higher levels of external locus of control beliefs than internal locus of control beliefs, and that an external locus of control beliefs would be associated with the use of passive coping strategies. Lastly, it was hypothesized that external locus of control beliefs would be associated with poorer adjustment to pain in terms of depression, pain intensity, and pain interference with daily activities. Contrary to hypotheses, inmates in this sample utilized active pain coping strategies significantly more often than passive pain coping strategies, and reported a significantly higher level of internal locus of control beliefs than external locus of control beliefs. As expected, passive pain coping strategies and external locus of control beliefs were significantly associated with depression, higher rated pain intensity, and increased interference with daily activities. Finally, ratings of use of passive pain coping strategies were significantly related to external locus of control beliefs.

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TABLE OF CONTENTS

COMMITTEE MEMBERS	ii
ABSTRACT.....	iii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	vii
Introduction.....	1
Overview	1
The Problem of Chronic Pain	4
Prevalence of Health Problems Among Offenders	5
Coping with Pain.....	9
Active versus Passive Coping Strategies	14
General Coping and Adjustment Among Inmates	21
The Impact of Locus of Control Beliefs on Coping	25
Locus of Control Beliefs Among Inmates	30
Rationale for the Present Study.....	33
Hypotheses	34
Methodology	35
Design of the Study.....	35

Participants.....	36
Measures	37
Procedures.....	41
Modifications to Procedures	43
Results.....	46
Demographic Variables	50
Regression Analyses	53
Discussion	56
Limitations	63
Implications.....	65
Future Directions	67
References.....	69
APPENDIX A: QUESTIONS TO ENSURE COMPREHENSION OF ENGLISH	79
APPENDIX B: STUDY ADVERTISEMENT	80
APPENDIX C: INFORMED CONSENT.....	81
APPENDIX D: PAIN LOCUS OF CONTROL SCALE.....	83
APPENDIX E: WEST-HAVEN YALE MULTIDIMENSIONAL PAIN INVENTORY	87
APPENDIX F: BECK DEPRESSION INVENTORY (BDI).....	91
APPENDIX G: COPING STRATEGIES QUESTIONNAIRE.....	95

LIST OF TABLES

Table 1 <i>Means and Standard Deviation for Primary Variables</i>	46
Table 2 <i>Correlations Between Age and Coping Strategies</i>	51
Table 3 <i>Frequency of Coping by Ethnicity</i>	52
Table 4 <i>Locus of Control (PLOC) Means by Ethnic Classification</i>	52
Table 5 <i>Regression Analyses with Pain Severity as the Criterion Variable</i>	54
Table 6 <i>Regression Analyses with Pain Interference as the Criterion Variable</i>	54
Table 7 <i>Regression Analyses with Depression as the Criterion Variable</i>	55

CHAPTER 1

Introduction

Overview

Research on the health status of prison inmates has revealed a number of alarming findings that indicate inmates are generally in poorer health compared to the general population. Previous studies have found that prisoners have a higher rate of injuries, stomach ulcers, digestive conditions, HIV, STDs, TB, asthma, diabetes, and hypertension than the general population (Baillargeon, Black, Pulvino, & Dunn, 2000; Jones, 1976). Prior research has also demonstrated that a significant number of inmates experience chronic pain. Studies investigating chronic pain among inmates have estimated that approximately 5 – 40% experience chronic pain (Baillargeon et al., 2000; Ingram-Fogel, 1991). In addition, another study reported that over 60% of all medical requests made by inmates were made due to chronic pain (Young, 1998). Although prison inmates have been found to be in poorer health compared to the general population, relatively little research has been conducted on the physical health of offenders, and even fewer studies have addressed how inmates cope with pain and illness.

Investigation of the manner inmates cope with chronic pain is an important undertaking, especially when considering the prevalence of chronic pain in prison and the negative ramifications of poor coping. First, a study found that over 70% of inmates' visits to the infirmary were due to some type of chronic pain (Ingram-Fogel, 1991). Consequently, helping

inmates to develop more adaptive coping strategies may assist them in developing the ability to effectively manage pain that would result in a reduction of their use of the infirmary for pain management. This is supported by Young (1998) who noted that inmate's use of medical services is strongly related to their inability to handle pain. Thus, facilitating inmates' ability to adaptively cope with their pain might lower the overall number of visits to the infirmary, thereby decreasing this financial burden on the prison. In addition, working with inmates on improving their repertoire of coping strategies is necessary for their well-being, as previous research has consistently shown that individuals' utilization of maladaptive coping strategies is associated with poorer psychological and physical functioning (Brown & Nicassio, 1987; Mercado, Cote, Carroll, & Cassidy, 2000; Rosenstiel & Keefe, 1983; Snow-Turek, Norris, & Tan, 1996,).

In contrast to the limited information on the manner in which inmates cope with chronic pain, a considerable amount of research on chronic pain coping strategies has been conducted with the general population. Many researchers categorize coping strategies as either active or passive in nature. Moreover, a number of researchers have asserted that active coping strategies tend to be adaptive, whereas passive coping strategies tend to be maladaptive (Brown & Nicassio, 1987; Rosenstiel & Keefe, 1983; Snow-Turek et al., 1996). Active coping strategies are those which involve attempts to control pain or to function in spite of pain. Conversely, passive pain coping strategies are those relinquishing control of the pain to others, or allowing the pain to negatively affect other aspects of life. In general, previous investigations have shown that active coping strategies are often associated with better psychological adjustment, higher levels of daily functioning, and lower levels of pain intensity, whereas passive coping strategies tend to be correlated with increased pain, lower levels of activity, and poorer psychological

adjustment (Brown & Nicassio, 1987; Mercado, Cote, Carroll, & Cassidy, 2000; Rosenstiel & Keefe, 1983; Snow-Turek et al., 1996).

In reviewing chronic pain coping strategies, it is also important to consider individuals' locus of control orientation, as previous research indicates that one's control orientation will influence the manner in which they cope with their pain. Patients possessing an internal locus of control believe that their behavior will positively affect the outcomes they experience. In contrast, individuals possessing an external locus of control frequently view outcomes as being controlled by powerful others or chance (Crisson & Keefe, 1988). A number of studies have demonstrated that patients who have an internal locus of control are more likely to use active coping strategies, whereas those having an external locus of control more frequently use passive coping strategies (Jensen, Turner, & Romano, 1991). Consequently, it is necessary to examine locus of control orientation along with coping strategies in order to fully understand individuals' attempts to manage chronic pain.

Since the current study examined chronic pain coping strategies and locus of control orientation among inmates, it was also important to consider the unique characteristics of inmates and prisons. For example, health care is often inadequate in correctional settings due to a lack of medical staff. In addition, it is sometimes difficult for inmates to attain over-the-counter medications, such as pain relievers, which further limits their ability to control their pain. Moreover, a number of studies suggest that the stressful surroundings of prison may contribute to inmates' inability to cope effectively (Zehner-Moore, McDermott, & Cox, 1988). As a result of the aforementioned factors, Zehner-Moore et al. (1988) noted that inmates report feeling lower internal control of their health. Previous studies have also indicated that inmates tend to utilize

coping strategies during imprisonment that are similar to pre-prison coping attempts, and that these strategies are often maladaptive (Zamble & Porporino, 1988; Zamble & Quinsey, 1997).

This paper first reviews the literature regarding the health status and medical needs of prison inmates. More specifically, previous research findings demonstrating that inmates are generally in poorer health compared to the general population and often experience chronic pain is discussed. In addition, this paper reviews the current state of research regarding specific pain coping strategies, as well as literature examining coping strategies as active versus passive. Next, research regarding the impact of locus of control beliefs on pain coping is provided, and research with offenders is emphasized. Then the specific hypotheses and methodology of the proposed study are discussed. Finally, results are presented as well as a discussion of implications, limitations, and directions for future research.

The Problem of Chronic Pain

In recent years, research has brought increased recognition to the problem of chronic pain and furthered our understanding of the manner in which it impacts individuals. Originally, chronic pain was defined as pain lasting for a period of 6 months or more. However, in current literature, chronic pain is often defined as any time pain does not subside as anticipated or pain lasting more than 3 months (Breen, 2004; Gatchel, Peng, Peters, Fuchs, & Turk, 2007).

There are a number of tangible and intangible costs associated with chronic pain. In terms of intangible costs, those individuals living with chronic pain often suffer considerable disruptions to their family life and social activities, and experience poorer psychological functioning (Breen, 2004). For instance, Gatchel et al. (2007) noted that chronic pain is frequently associated with comorbid major psychiatric disorders and emotional suffering. With regard to tangible costs associated with chronic pain, Cousins (1995) stated that treating chronic

pain sufferers may be more expensive than providing health care to individuals with coronary artery disease, cancer, and AIDS. The National Institutes of Health (1998) reported that the total annual cost to treat chronic pain is approximately \$100 billion annually. Chronic pain is also very costly in terms of disability compensation, lost productivity, legal fees, and lost tax revenue (Turk & Burwinkle, 2005).

Harstall (2003) reported that the prevalence of chronic pain exceeds 35% of the general population, which equals roughly 105 million people. In addition, a study conducted by Gureje (1998) found that over 17% of individuals treated in primary care settings in the United States reported experiencing chronic pain. Taking the above findings into consideration, it is easy to understand why the U.S. Congress designated 2001-2010 the Decade of Pain Control and Research (Gatchel et al., 2007).

Prevalence of Health Problems Among Offenders

In the United States there are nearly 1.8 million individuals who are currently incarcerated in state and federal correctional facilities (Cooke, 2002). Research has demonstrated that prison inmates are a population with considerable medical needs (Wallace, Klein-Saffran, Gaes, & Moritsugu, 1991). According to Young (1992), prisoners are generally in poorer health compared to the general population. For instance, Jones (1976) conducted a study comparing the rate of medical conditions found among prisoners to the general population and determined that prisoners have a higher rate of injuries, chronic digestive conditions, stomach ulcers, abdominal herniae, chronic ulcerative colitis, and gastrointestinal disorders. More recently, in 2004 the National Commission on Correctional Health Care (NCCHC) estimated prevalence rates of health problems in offenders who were going to be released in the near future. This was an important undertaking, as there is currently little data on prevalence

rates of health problems in offenders. This study was consistent with the findings of previous research, as it was reported that a considerable number of inmates face serious health issues. For example, estimates of communicable diseases by the NCCHC indicated that inmates are infected with HIV, STDs, and TB at a much higher rate than the general population. In addition, the NCCHC study noted that there is a high prevalence of asthma, diabetes, and hypertension among inmates.

The most recent and comprehensive study seeking to create a disease profile of the United States prison population was conducted by Baillargeon, Black, Pulvino, and Dunn (2000). In order to elucidate the prevalence of major diseases, both infectious and chronic, the authors of this study examined 170,215 prison inmates in Texas, which houses one of the nation's largest prison populations. Each inmate entering the Texas prison system is required to complete a medical and mental examination, which entails obtaining a detailed medical and mental health history, a thorough physical examination, several diagnostic procedures (e.g., TB screening), and other tests as necessitated. All diagnoses of medical conditions are made by physicians or mid-level practitioners following this initial evaluation, and then entered into an institution-wide medical information system. Baillargeon et al.'s (2000) examination of this database indicated that sixty percent of inmates experienced at least one medical condition during the one-year study period, and of the fifteen most prevalent conditions, ten were chronic conditions. The most prevalent health conditions were infectious diseases (29.6%), diseases of the musculoskeletal system and connective tissue (15.3%), and diseases of the circulatory system (14.0%). Other major disease categories appearing at a considerably high rate included mental disorders (10.0%), diseases of the respiratory system (6.3%), diseases of the digestive system (5.9%), and diseases of the nervous system and sensory organs (4.2%). An additional finding of the study by

Baillargeon et al. (2000) was that both male and female inmates over the age of fifty were twice as likely to experience hypertension, diabetes, or arthritis as the general population. Thus, this study is consistent with previous research that has found prisoners are generally in poorer health compared to the general population.

A particular finding that consistently emerges from the research on prison health is that a significant number of inmates experience chronic pain. For instance, Baillargeon et al. (2000) reported that 5.1% of the Texas prison population experienced chronic low back pain, and another 3.5% experienced chronic arthritis-related pain at the time of their study. Other studies have indicated that these estimates may underestimate the prevalence of chronic pain among prison populations. A study conducted by Ingram-Fogel (1991) examined data collected through structured interviews with 135 women entering a major correctional facility, and a subsample of 55 women who were reinterviewed after being incarcerated for six months. Ingram-Fogel (1991) reported that 39.6% of inmates indicated having a history of frequent and severe headaches, and 27.4% indicated experiencing back problems. It was also determined that inmates averaged nearly 9 visits to the infirmary for medical attention in a six month period, and a review of inmate's charts revealed that 72.7% of these visits were due to some type of pain. Similar findings were reported by Young (1998), who reviewed the medical records of 129 inmates incarcerated in a women's prison in the state of Washington. Young (1998) found that 19.0% of the inmates reported experiencing recurrent back pain, 38.0% indicated experiencing chronic headaches, and chronic pelvic pain was also commonly reported. In addition, the results showed that 60.5% of all medical requests were made due to continued pain. Young (1998) also noted that inmates' use of services was strongly related to their inability to handle pain. However, no studies were found that address how inmates cope with pain.

Therefore, it is evident that prison inmates often have considerable medical needs, as research has found that they are generally in poorer health compared to the general population. However, overall, the issue of inmates' physical health has received little attention by researchers in correctional settings. For example, Young (1992) noted that only four of the correctional psychology textbooks published between 1980 and 1990 mentioned the subject of prison health and medical treatment. Moreover, the NCCHC study found that out of 41 state correctional systems responding to a survey, only 24 indicated having protocols for the treatment of diabetes, 25 for hypertension, and 26 for asthma. In response to these findings, the NCCHC made several recommendations in order to improve the health status of inmates. These recommendations included conducting additional research to identify relevant health differences between inmate and non-inmate populations, and to focus on developing effective health education and risk reduction strategies for inmates. Considering the NCCHC recommendations, the aim of this study is to examine how prisoners cope with chronic pain, as information on how prisoners cope with chronic pain more effective health education classes for inmates may be developed.

It is important to further our understanding of how inmates cope with chronic pain in order to develop treatment programs that assist inmates to effectively cope with their pain. First, as noted earlier, one study found that over 70% of inmates' visits to the infirmary were due to some type of recurrent pain. Thus, facilitating inmates' ability to adaptively cope with their pain might lower the overall number of visits to the infirmary, thereby decreasing this financial burden on the prison. Second, examining how offenders cope with chronic pain is also important because of the unique environment in which offenders are confined. For instance, inmates often have limited access to medical care, over-the-counter medications, and exercise. As a result,

their ability to employ chronic pain coping strategies, common in the general population, is restricted. Lastly, working with inmates on improving their repertoire of coping strategies is necessary for their well-being, as previous research has consistently shown that individuals' utilization of maladaptive pain coping strategies is associated with poorer psychological and physical functioning.

Coping with Pain

In order to better understand the general manner in which individuals cope with stress, Lazarus and Folkman's (1984) transactional model of stress and coping will be reviewed. According to Lazarus and Folkman (1987), there are a number of personal (e.g., personality, values, self-esteem, sense of control, and existential beliefs) and environmental variables (e.g., demands, social support, and constraints) that interact to influence how individuals will cope with stress. In addition, the transactional model holds that people continually make appraisals concerning demands and constraints in ongoing transactions with the environment, as well as their options and resources for managing them (Coyne, Aldwin, & Lazarus, 1981). Specifically, Lazarus and Folkman (1984) discussed primary appraisals, which are judgments regarding whether something is germane to one's well-being, and secondary appraisals, which are beliefs regarding coping options and their potential effectiveness. Coyne et al. (1981) noted that in response to stressors, people generally engage in problem-focused coping or emotion-focused coping. Problem-focused coping refers to efforts to cope with the sources of stress by changing one's own problem-maintaining behavior or environmental conditions, whereas emotion-focused coping refers to efforts aimed at altering one's thoughts and feelings about the stressor. In considering how this model relates to coping with pain, Boothby, Thorn, Stroud, and Jensen (1999) pointed out that pain may be viewed as a stressor if a person believes that their pain taxes

or exceeds their ability to cope with it. Thus, individuals experiencing chronic pain may implement problem- and emotion-focused coping strategies in order to deal with their daily pain and other sources of stress.

A number of previous studies have identified specific coping strategies that are commonly implemented by individuals experiencing chronic pain and examined the impact of these strategies with regard to mental and physical well-being. A review of this literature reveals the importance of the coping strategies that individuals employ when attempting to manage their pain, as previous research suggests that some strategies, such as catastrophizing or praying and hoping, contribute to increased levels of reported pain, disability, and psychological distress (Geisser, Robinson, & Henson, 1994; Harkapaa, 1991; Hill, 1993; Hill et al., 1995; and Jensen et al., 1992). In contrast, previous research suggests that other strategies, such as reinterpreting pain, positive coping self-statements, and engaging in distracting activities, tend to be associated with lower levels of reported pain, disability, and psychological distress (Geisser et al., 1994; Harkapaa, 1991; Hill, 1993; Hill et al., 1995; and Jensen et al., 1992; Robinson et al., 1997; Schmitz et al., 1996; ter Kuile, Spinhoven, Linssen, van Houwelingen, 1995). Thus, it is evident that one's selection of coping strategies is an important determining factor in overall mental and physical well-being and those strategies that are active in nature are more adaptive than those that are passive.

The following is a review of specific coping strategies commonly assessed in the pain literature. As researchers began conceptualizing coping strategies as being either active or passive in nature, they generally examined specific coping strategies such as the ones reviewed below. These coping strategies are also measured by the Coping Strategies Questionnaire (CSQ;

Rosenstiel & Keefe, 1983), and the specific examples of coping statements cited below are taken from the CSQ.

Catastrophizing. A number of specific coping strategies have been identified and they have received considerable attention in the chronic pain literature. One of these strategies is catastrophizing, which is frequently defined as the use of excessive and exaggerated negative self-statements while experiencing pain (Boothby et al., 1999). Catastrophizing is characterized by statements such as, “I worry all the time about whether it will end,” and “I feel like I can’t go on.” A study conducted by Geisser, Robinson, Keefe, and Weiner (1994) specifically examined the relationship between catastrophizing, depression, and the evaluative, affective, and sensory aspects of pain among 95 participants from a pain management clinic. Geisser et al. (1994) reported that individuals who catastrophize about pain experience greater psychological distress and frequently report higher pain ratings. A number of other studies have reported similar findings indicating that catastrophizing is associated with increased psychological distress (Geisser, Robinson, & Hensen, 1994; Harkapaa, 1991; Hill, 1993; Jensen, Turner, & Romano, 1992; Robinson et al., 1997; Ulmer, 1997), increased ratings of pain (Geisser et al., 1994; Harkapaa, 1991; Hill, 1993; Hill, Niven, & Knussen, 1995; Jensen et al., 1992; Robinson et al., 1997; Ulmer, 1997; Wilkie & Keefe, 1991), increased disability (Hill et al., 1995; Martin et al., 1996; Robinson et al., 1997), and higher rates of psychosocial dysfunction (Hill et al., 1995; Jensen et al., 1992).

Praying and hoping. Praying and hoping is a coping strategy for chronic pain found to be associated with maladjustment to chronic pain. The statement, “I know someday someone will be there to help me and it will go away for awhile,” is a response on the Coping Strategies Questionnaire (CSQ) reflecting utilization of hoping as a coping strategy. An example of a

praying coping response on the CSQ is “I pray to God it won’t last long.” A study by Ashby and Lenhart (1994) investigated the impact of such coping strategies on individuals’ adaptation to chronic pain. The study consisted of 105 subjects who completed measures assessing coping strategies and various dimensions of pain. Results indicated that employing praying and hoping as a coping strategy was associated with increased disability and higher pain ratings. In addition, several studies have found that praying and hoping is correlated with greater affective distress (Geisser et al., 1994; Hill, 1993). However, this association is less clear, as some studies have found praying and hoping to be unrelated to affective distress (Dozois, Dobson, Wong, Hughes, & Long, 1996; Harkapaa, 1991; Jensen et al., 1992). Overall, studies finding a strong relationship between praying and hoping and adaptation to chronic pain have found that praying and hoping is positively associated with dysfunction (Boothby et al., 1999).

Reinterpreting pain. The statements, “I don’t think of it as pain, but rather as a dull or warm feeling,” and “I just think of it as some other sensation, such as numbness” exemplify responses characteristic of reinterpreting pain coping strategies. Research examining the role of reinterpreting pain in adjustment to chronic pain has yielded mixed results. For example, ter Kuile, Spinhoven, and Linssen (1995), examined the efficacy of autogenic training and cognitive self-hypnosis training. They found that increased use of reinterpreting pain sensations was associated with lower pain levels. In contrast, Dozois et al. (1996) found that chronic pain patients who frequently used reinterpreting pain as a coping strategy were less likely to obtain employment. In general, reinterpreting pain sensations tends to be unrelated to most measures of adaptation to chronic pain, such as affective distress (Geisser et al., 1994; Hill, 1993), physical disability (Hill et al., 1995; Jensen et al., 1992), psychosocial dysfunction (Jensen et al., 1992), and pain severity (Geisser et al., 1994; Hill, 1993; Hill et al., 1995).

Ignoring pain. The coping strategy of ignoring pain is often evidenced by responses such as, “I pretend the pain is not there,” and “I just go on as if nothing happened.” Research examining the effectiveness of ignoring pain in adapting to chronic pain has produced varying results. One study by Robinson et al. (1997) evaluated the association between coping strategies measured on the CSQ and adaptation to chronic pain, and concluded that ignoring pain was associated with higher levels of general activity. Furthermore, a number of studies have found that ignoring pain is associated with lower ratings of pain (Geisser et al., 1994; Hill, 1993). However, most of the research has consistently found that ignoring pain is unrelated to pain severity (Hill et al., 1995; Robinson et al., 1997), psychological functioning (Dozois et al., 1996; Geisser et al., 1994; Hill, 1993), physical disability (Dozois et al., 1996; Hill et al., 1995), and psychosocial functioning (Hill et al., 1995).

Distracting/diverting attention. The coping strategy of distracting/diverting attention is characterized by statements such as, “I try to think of something pleasant,” and “I do something I enjoy, such as watching TV or listening to music.” As with a number of other coping strategies, distraction has yielded mixed results with regard to its role in facilitating patient’s adaptation to chronic pain. While some studies have found that distraction is associated with less perceived disability (Schmitz, Saile, & Nilges, 1996), others have obtained results that suggest distraction is associated with greater pain severity (Hill, 1993) and interference with daily activities (Robinson et al., 1997). However, a majority of the research on distraction has found that it is unrelated to disability (Hill et al., 1995; Jensen et al., 1992), depression (Geisser et al., 1994; Harkapaa, 1991), psychosocial dysfunction (Hill et al., 1995; Jensen et al., 1992), and pain severity (Geisser et al., 1994; Harkapaa, 1991; Hill et al., 1995).

Positive coping self-statements. The statements, “I tell myself that I can overcome the pain,” and “I tell myself to be brave and carry on despite the pain” are illustrations of positive coping self-statements. A number of studies have found positive self-statements to be predictive of adaptive functioning in chronic pain patients. For example, in a study assessing coping strategy use among patients suffering from phantom limb pain, it was reported that positive self-statements were associated with lower levels of pain severity and less psychological distress (Hill, 1993). Another study carried out by Robinson et al. (1997) found that positive self-statements were associated with higher levels of general activity. Thus, although some studies have indicated that positive self-statements are not associated with disability (Jensen et al., 1992), affective distress (Geisser et al., 1994; Harkapaa, 1991), or pain severity (Geisser et al., 1994; Harkapaa, 1991; Hill et al., 1995), the majority of studies finding significant associations have concluded use of positive coping self-statements is adaptive.

Engaging in distracting activities. Engaging in distracting activities includes such behaviors as going to the movies, going shopping, or running errands. Most of the research examining the role of distracting activities in adapting to chronic pain suggests that such behavior rarely predicts adjustment to chronic pain. Jensen et al. (1992) evaluated the effects of coping strategies in adaptation to chronic pain and found that engaging in distracting activities was not associated with disability, depression, or psychosocial dysfunction. Moreover, other studies have reported that engaging in distracting activities is unrelated to pain severity (Geisser et al., 1994; Hill et al., 1995).

Active versus Passive Coping Strategies

Rather than examine specific coping strategies, a number of researchers have shifted conceptualizing coping strategies as either active or passive in nature. Brown and Nicassio

(1987) have asserted that coping strategies tend to be either adaptive or maladaptive based on their association with measures of pain and psychosocial functioning. A number of studies have sought to classify coping strategies in terms of active or adaptive versus passive or maladaptive coping behaviors (Brown & Nicassio, 1987; Rosenstiel & Keefe, 1983; Snow-Turek, Norris, & Tan, 1996). Brown and Nicassio (1987) contended that active coping strategies are adaptive and involve attempts to control pain or to function in spite of pain, whereas passive coping strategies are maladaptive and entail relinquishing control of the pain to others or allowing the pain to negatively affect other aspects of life. Previous investigations have shown that active coping strategies are often associated with more positive affect, better psychological adjustment, and decreased depression, whereas passive strategies tend to be correlated with increased pain and depression (Brown & Nicassio, 1987; Mercado, Cote, Carroll, & Cassidy, 2000; Rosenstiel & Keefe, 1983; Snow-Turek et al., 1996).

One of the first studies to examine how the different types of coping strategies for chronic pain are related to each other was conducted by Rosenstiel and Keefe (1983). These authors assessed coping strategies used by 61 chronic low back pain patients. As part of the initial evaluation, all patients completed the Coping Strategy Questionnaire (CSQ) that assesses six cognitive coping strategies (diverting attention, reinterpreting pain, coping self-statements, ignoring pain sensations, praying and hoping, and catastrophizing) and two behavioral coping strategies (increasing activity level and increasing pain behavior). In addition to the CSQ, subjects completed measures to assess pain level, current functioning, and depression.

Rosenstiel and Keefe (1983) found distinct relationships among the strategies, and three factors containing several coping strategies were identified. The factor which accounted for the largest portion of variance in questionnaire responses was labeled Cognitive Coping and

Suppression. This factor included three coping strategies, including reinterpreting pain sensations, coping self-statements, and ignoring pain sensations. Rosenstiel and Keefe posited that each of these strategies is characterized by an active approach to coping with pain. The next largest proportion of variance was accounted for by the factor labeled Helplessness, and included strategies that tended to be passive in nature. For instance, the Helplessness factor was positively associated with catastrophizing and negatively associated with increasing activity level. The third factor identified by Rosenstiel and Keefe was labeled Diverting Attention or Praying, and included the strategies of diverting attention, praying, and hoping. The primary characteristic of these strategies is a focus on external things.

Brown and Nicassio (1987) sought to identify active and passive dimensions of pain coping, and to examine relationships among groups of active and passive pain coping strategies and measures of adjustment. Subjects for this study were recruited from eight rheumatology clinics in the Midwest and Northeast. Three hundred and sixty-one patients agreed to participate in the first wave of data collection and completed the battery of questionnaires. Six months later, patients were mailed another packet of questionnaires, and 338 out of the original 361 returned usable questionnaires. The measures included the Vanderbilt Pain Management Inventory (VPMI) and other measures assessing pain, functional impairment, depression, helplessness, locus of control, and self-efficacy. The VPMI includes twenty-seven items representing a range of cognitive and behavioral coping strategies, both adaptive and maladaptive.

Brown and Nicassio (1987) reported that factor analysis of the VPMI items yielded two composite scales, Active Coping and Passive Coping, which are representative of the coping strategies that chronic pain patients employ to deal with pain. The Active Coping scale assesses strategies that involve distracting oneself from the pain, or attempts to function despite the pain.

In contrast, the Passive Coping scale measures individual's propensity to rely on others for assistance with pain control. Furthermore, Brown and Nicassio (1987) determined that the more patients utilize active coping, the higher their ratings of internal locus of control and general self-efficacy and the lower their depression, helplessness, pain, and functional impairment. However, an opposite pattern emerged in relation to the Passive Coping scale and passive coping was consistently associated with poorer adjustment. Patients employing passive coping strategies reported greater levels of depression, helplessness, pain, and functional impairment.

Brown and Nicassio (1987) asserted that their findings may arise because patients tend to cope passively with chronic pain when they feel helpless. The authors found that Passive Coping scores were associated with greater helplessness and Active Coping scores were negatively correlated with indices of helplessness. Another interesting finding was that less educated and unemployed patients employed passive coping strategies more often than well-educated patients. In summary, the use of strategies that are active was associated with better adjustment, while the use of passive coping strategies tended to result in poorer adjustment.

Nicassio, Schoenfeld-Smith, Radojevic, and Schuman (1995) sought to further elucidate the relationship between coping strategies and adjustment. The authors noted that previous research identified two principal factors which comprised the CSQ, Coping Attempts (CA) and Pain Control and Rational Thinking (PCRT). The CA factor is characterized by actively engaging in pain coping strategies, whereas the PCRT factor assesses patients' perceived ability to control pain and not catastrophize when dealing with pain. Nicassio et al. (1995) further examined the factor structure of the CSQ and evaluated the relative predictive effects of the CSQ factors on concurrent measures of pain, depression, quality of well being, and pain behavior. The authors recruited 122 fibromyalgia patients from rheumatology clinics and support groups to

participate in a clinical trial examining interventions for fibromyalgia. Subjects completed a number of self-report questionnaires including the CSQ, Pain Management Inventory (PMI), McGill Pain Questionnaire (MPQ), The Center for Epidemiological Studies Depression Scale (CES-D), The Quality of Well Being (QWB) Scale, and the Pain Behavior Check List (PBCL).

Nicassio et al. (1995) obtained findings consistent with previous research. Thus, factor analysis of the CSQ revealed the existence of the two coping factors labeled CA and PCRT. The authors reported a positive relationship between the CA factor on the CSQ and the active coping scale on the PMI, both of which assess cognitive and behavioral strategies to reduce pain directly. The PCRT factor was found to measure catastrophizing and the ability to control or regulate pain. Overall, results indicated that pain coping mechanisms contributed to both subjective pain and other measures of psychological and behavioral adjustment. More specifically, higher PCRT scores were associated with higher QWB scores and lower PCRT scores were associated with higher reports of pain, depression, and pain behavior. Thus, results suggest that patients who have difficulty appraising pain realistically and perceive themselves as being unable to control their pain are more likely to experience poor adjustment. However, results from this study did not find active coping to be related to better adjustment. The authors hypothesized that this was because active coping may be maladaptive if patients ignore appropriate limits to their behavior, especially when there is a high degree of pain as with fibromyalgia. Nevertheless, these results clearly show that the manner in which patients cope with pain has significant implications for psychological and behavioral outcomes.

In order to further clarify how coping strategies are associated with psychological adjustment and to examine the validity of active and passive coping dimensions, Snow-Turek, Norris, and Tan (1996) evaluated an active and passive scoring system for the CSQ. The

authors' study included 76 patients (62 men and 12 women) from a pain management clinic at a veteran's hospital. The subjects included in the study endorsed a wide range of pain conditions. Each participant completed an assessment battery which included the CSQ, Multidimensional Pain Inventory, CES-D, and Hopkins Symptom Checklist 21 prior to their first individual assessment session at the clinic. The authors hypothesized that active and passive dimensions of the CSQ would be validated, meaning that coping strategies can be categorized as active or passive in nature and that passive coping would explain more variance in the dependent variables than active coping.

Overall, results from the Snow-Turek et al. (1996) study support the validity and clinical utility of active and passive coping dimensions. In terms of convergent validity, Snow-Turek et al. (1996) reported that Active and Passive Scale scores were consistent across the CSQ and PMI, thereby demonstrating that the active and passive dimensions are not tied to a particular measure. It appears that the classification of coping strategies as active or passive is an effective system for identifying strategies employed by chronic pain patients. Composite scores are beneficial because they can further our ability to understand the findings of analyses when individual scores are highly correlated, and composite scores may be used to identify key dimensions of coping that may influence treatment outcomes. Moreover, findings from the study suggest that active and passive coping are separate constructs, because correlations between the two dimensions were nonsignificant for both the PMI and CSQ. In addition, passive coping explained more variance in the dependent variables than active coping. Findings revealed that passive coping strategies, that involve helplessness or reliance on others to control pain, were associated with greater physical and psychological dysfunction. In contrast, patients

implementing active strategies characterized by self-reliance and control showed less maladaptive psychological functioning and more physical activity.

A more recent study examining active and passive pain coping strategies was conducted by Mercado, Carroll, Cassidy, and Côté (2000). An aim of this study was to assess the psychometric properties of the PMI with individuals in the general population. The other goal of the study was to describe the characteristics of individuals who use passive or active coping strategies and determine the association between pain severity and passive and active coping. Data from the Saskatchewan Health and Back Pain Survey, which is a longitudinal study evaluating the prevalence, incidence, and determinants of neck and back pain, was used in this study. The sample consisted of 655 individuals reporting neck or low back pain who completed the short-form of the PMI. In addition to the PMI, subjects also completed measures assessing severity of pain, depressive symptoms, subjective health status, and comorbid medical conditions (Mercado et al., 2000).

Findings from Mercado et al. (2000) are consistent with previous research in that a two-factor structure of the PMI emerged. As in previous studies, one factor was comprised of passive coping strategies while the other was comprised of active strategies. A number of interesting findings were reported regarding the characteristics of individuals who predominantly use passive or active coping strategies. For example, results showed that individuals of different ages scored similarly on measures of active and passive coping. However, findings demonstrated that women tend to implement passive coping strategies more often than do men. Furthermore, married individuals reported more passive coping than non-married individuals which may arise because they have someone else to take control when they are in pain. Results also indicated that individuals who utilized passive coping strategies were more likely to be in

poor general health compared to individuals who employ active coping strategies. Finally, the authors found that individuals who primarily use passive coping strategies reported higher levels of depression and greater pain severity than individuals who adopt active coping strategies.

In summary, research has shown that chronic pain coping strategies may accurately be conceptualized as either active or passive in nature. Moreover, the literature provides evidence that suggests active strategies tend to be more adaptive, and passive coping strategies tend to be more maladaptive. In general, active coping strategies are often associated with better psychological adjustment, decreased levels of reported pain, and less pain interference with daily functioning. However, there are no studies that have examined the use of active and passive pain coping strategies among inmates. Thus, it remains unclear if inmates' use of active and passive coping will yield similar results.

General Coping and Adjustment Among Inmates

Research findings indicate that inmates tend to employ coping strategies during imprisonment that are similar to those used prior to incarceration (Zamble & Porporino, 1988). Furthermore, a number of studies have shown that inmates tend to possess poor coping skills. For example, Zamble and Quinsey (1997) asked inmates how they would respond to several stressful situations. Findings indicated that most repeat offenders employed coping strategies that would worsen a situation. This is a significant finding in light of Bureau of Justice statistics showing that 67.5% of inmates re-offend (Bureau of Justice, 2004). Consequently, it appears that inmates' implementation of ineffective coping strategies is relatively stable across settings.

One of the seminal studies investigating inmates coping behavior was conducted by Zamble and Porporino (1988). The authors assessed coping strategies through a structured interview and 133 inmates were asked to report how they would deal with specific stressful

situations. The sample for the study was comprised of long-term inmates serving time in the Canadian correctional system. Zamble and Porporino (1988) found that coping strategies considered to be adaptive were associated with lower rates of disciplinary problems as well as decreased use of medical services. Although the authors did not evaluate the association between specific coping strategies and measures of adjustment, they did ascertain which coping strategies inmates tend to use. The most frequently employed coping strategy was labeled Reactive Problem-oriented (reported by 96% of inmates) and involved poorly planned and disorganized attempts to handle stressful situations. Escape (utilized by 61% of inmates) and Avoidance (utilized by 50% of inmates) strategies were also commonly reported by inmates. These strategies entail distancing oneself from a problematic situation or avoiding circumstances that create problems and are viewed as passive coping strategies. Zamble and Porporino (1988) reported that inmates used more effective adaptive strategies less frequently. Thus, they tended to use strategies such as Reinterpretive Self-control (utilized by 32% of inmates), Reinterpretive Re-evaluation (utilized by 23% of inmates), and Anticipatory Problem-oriented (utilized by 16% of inmates). Reinterpretive Self-control involves employing self-control techniques to reduce or change emotional responses and Reinterpreting Re-evaluation refers to altering the way one thinks. Lastly, Anticipatory Problem-oriented coping entails careful problem solving. These strategies, which were found to be more adaptive, are considered active coping strategies.

Another study that addressed coping strategies employed by inmates was conducted by Sappington (1996). In order to assess coping among inmates, Sappington (1996) recruited 48 subjects who completed a questionnaire designed for the study. The measure evaluated six different coping styles, including Problem solving, Blaming others, Dwelling on problems, Self-blame, Distraction, and Pollyanna (propensity to see the positive aspect of things). In addition,

inmates completed the Brief Affect Adjective Checklist and the Brief Novaco Anger Scale in order to assess emotional difficulties. The purpose of Sappington's study was to examine the associations between particular coping strategies and behavioral and emotional difficulties.

Sappington (1996) reported that results showed individual coping strategies were correlated with both emotional dysfunction and disciplinary infractions. More specifically, the tendency to blame others was consistently associated with poor adjustment. Thus, as inmates reported greater use of this strategy they also had higher rates of disciplinary infractions, depression, anger, and anxiety. In addition, inmates engaging in self-blame showed higher levels of anger and anxiety. It was also noted that a tendency to dwell on one's problems was associated with higher levels of anger. However, those implementing a problem-solving approach reported lower levels of depression. In other words, those inmates utilizing more active coping strategies, such as problem-solving, were generally found to be functioning better than those inmates implementing more passive coping strategies, such as dwelling on one's problems or catastrophizing. Of particular interest is the finding that time served in prison showed a negative relationship with utilization of problem-solving coping strategies and inmates were less likely to use this strategy as time passes.

Negy, Woods, and Carlson (1997) investigated coping strategies associated with prison adjustment. Toward this end, the authors used the COPE to assess coping strategies in a sample of 153 female inmates. The COPE assesses 15 different coping strategies including Active coping (taking action to solve a problem), Planning (devising a response), Restraint (implementing an appropriate response at the opportune time), Seeking social support for instrumental reasons (searching for information), Suppression of competing activities (focusing on the task at hand), Seeking social support for emotional purposes (attaining encouragement or

sympathy), Positive reinterpretation and growth (handling emotional distress associated with a stressor), Acceptance (learning to live with it), Denial (denying the presence of a stressor), Religion, Mental disengagement (diverting attention), Behavioral disengagement (decreasing attempts to cope with the stressor), Focusing on and expressing emotions, Substance use and Humor. The State-Trait Anxiety Inventory (STAI) and Beck Depression Inventory (BDI) were used to evaluate emotional adjustment, and the Rosenberg Self-Esteem scale was used to assess self-esteem. Lastly, disciplinary infractions were also considered as a measure of behavioral maladjustment.

According to Negy et al. (1997), higher self-esteem, decreased depression, and decreased anxiety were reported by those inmates utilizing Active Coping, Planning, Restraint Coping, Positive Reinterpretation and Growth, Acceptance, and Religion as strategies. In contrast, those inmates who employed Denial and Behavioral Disengagement strategies showed lower self-esteem and higher depression and anxiety. In addition, the authors reported that inmates who utilized more types of coping strategies demonstrated better adjustment. However, coping attempts were not found to be associated with disciplinary problems. Thus, these results suggest that inmates' psychological well-being is related to the types of coping strategies they utilize, but coping strategies do not have a significant influence on the effectiveness of their behavior.

Cooper and Livingston (1991) examined inmates' coping strategies in order to assess the association between coping and depression. The authors administered the Ways of Coping scale to 32 male prisoners to assess coping strategies. The Ways of Coping scale measures eight coping strategies including Confrontative Coping (directly addressing one's circumstances), Distancing (moving away from a problematic situation), Self-control (attempts to keep emotional responses to one's self), Seeking Social Support, Accepting Responsibility, Escape-avoidance,

Planful Problem-Solving, and Positive Reappraisal (reconsidering the positive aspects of one's circumstances). The authors reported that only Self-control was associated with emotional distress, as inmates utilizing this strategy scored higher on measures of depression. Interestingly, Cooper and Livingston (1991) also found that the more coping strategies inmates used the higher their levels of depression. Thus, it is evident that the research on inmates coping strategies is somewhat mixed as Negy et al. (1997) reported that a larger coping repertoire was associated with better adjustment. Moreover, while some studies have found that active coping attempts by inmates are ineffective (Cooper & Livingston, 1991), other studies suggest that use of active strategies are related to positive outcomes (Negy et al., 1997; Sappington, 1996; Zamble & Porporino, 1988). Given the mixed results seen in previous research, the current study was designed to examine the influence of pain coping strategies on inmates' physical and psychological well-being.

The Impact of Locus of Control Beliefs on Coping

Patients possessing an internal locus of control believe that their behavior will positively affect the outcomes they experience. In contrast, individuals possessing an external locus of control frequently view outcomes as being controlled by powerful others or chance. Whether an individual possesses an internal or external locus of control is of importance because research has shown that it influences the manner in which individuals attempt to cope with their pain (Crisson & Keefe, 1988). Previous studies have noted that patients who have an internal locus of control are more likely to use active coping strategies, while those having an external locus of control more frequently use passive coping strategies (Jensen et al., 1991). In addition, locus of control has been shown to have a considerable impact on a number of health related outcomes.

Crisson and Keefe (1988) investigated the role of control beliefs. The goal of their study was to examine the association between health locus of control and measures of coping and psychological dysfunction in individuals experiencing chronic pain. In order to accomplish this goal, the authors recruited 62 chronic pain patients receiving treatment at a pain management clinic. Each participant completed a packet of questionnaires assessing psychological distress, pain coping strategies, and locus of control within the first three days of being admitted to the hospital.

Crisson and Keefe (1988) obtained findings that indicated one's health locus of control orientation is significantly associated with pain coping strategies and psychological distress. Specifically, patients perceiving outcomes to be controlled by powerful others or chance tended to score higher on the CSQ Helplessness factor. These patients also more frequently indicated that their coping strategies were ineffective in controlling and decreasing pain. Moreover, patients indicating external health locus of control beliefs demonstrated greater use of passive coping strategies, such as catastrophizing, decreasing activity, diverting attention, and praying and hoping. Consequently, individuals scoring high on the external health locus of control factor also indicated having more pain, functional impairment, and overall psychological distress. These findings were even apparent after controlling for the effects of demographic variables, medical status variables, duration of pain, and pain intensity. However, no significant relationships were found between internal health locus of control orientation and pain coping strategies. The authors hypothesize that this may be due to the chronicity of pain experienced by these subjects. In other words, their perceptions specifically regarding their efficacy of self-control over pain may erode over time. In this sample, the mean duration of pain since onset was approximately seven years, which does seem to be a slightly higher mean duration of pain than

generally reported in chronic pain studies. However, given that the mean duration of pain reported for the sample in this study is not significantly greater than other chronic pain studies, conclusions noted above regarding the effects of chronicity of pain experienced by participants should be considered with caution.

In order to further elucidate the influence of control appraisals on coping, Jensen and Karoly (1991) carried out a study that evaluated the impact of control beliefs, coping efforts, and perceived pain severity on adjustment to chronic pain. The authors noted that previous research has demonstrated a positive relationship between control appraisals and activity level, coping efforts, and adaptive psychological functioning. Jensen and Karoly (1991) extended this research to examine the influence of perceived pain intensity on coping efforts and adjustment. The study included 118 patients who had participated in an inpatient multidisciplinary pain program. Each patient was interviewed using questionnaires and rating scales designed to assess pain severity, control appraisals, pain coping strategies, and adjustment.

Jensen and Karoly (1991) reported that patients' internal locus of control beliefs and the coping strategies they implemented were associated with their well-being and activity level. Specifically, the authors found that patients with an internal locus of control engaged in characteristically active coping strategies more often than individuals with an external orientation and subsequently tended to show better psychological and physical adjustment. However, the authors noted that a considerable decrease in the association between control appraisals and psychological functioning occurred when coping strategies were controlled. Jensen and Karoly (1991) asserted that this finding is likely due to the fact that strong control beliefs lead people to initiate and persist in using adaptive coping strategies, which is consistent with social learning theory. With regard to the influence on pain severity, control appraisals

were shown to be associated with activity levels among patients reporting lower levels of pain, but not among those reporting severe pain. Moreover, results from the study suggest that active coping strategies, such as utilization of positive coping self-statements and increasing activities when in pain, are likely beneficial to psychological functioning among patients reporting lower levels of pain, but they may be less important to functioning among those reporting severe pain.

The role of control beliefs was also investigated in a study conducted by Jensen, Turner, and Romano (1991), that used social learning theory as its basis. The authors contended that individuals may only employ coping strategies that they believe they are capable of performing and that they also think will result in positive outcomes. Moreover, it was asserted that the degree to which beliefs pertain to immediate or long-term outcomes will influence how beliefs about consequences affect coping. For instance, individuals may perceive that a particular strategy will temporarily increase pain but prove beneficial to functioning over time. If individuals place more importance on long-term outcomes, they will be more likely to implement the strategy. Thus, the purpose of this study was to examine the independent contributions of self-efficacy beliefs and outcome expectancies to the prediction of coping strategies, as well as how their interaction contributes to the prediction of coping behaviors. In addition, the study also sought to evaluate the association between the use of coping strategies and functional disability. To answer these research questions, the authors recruited a sample of 114 chronic pain patients who completed measures assessing outcome expectancies, self-efficacy expectancies, coping strategies, pain severity, and adjustment.

The findings indicated that subjects' beliefs regarding their abilities were significantly associated with coping efforts and thus support social learning theory (Jensen et al., 1991). Conversely, results suggest that patients' beliefs about the outcomes of coping efforts are

unrelated to coping. As a result, the authors hypothesized that pain patients' beliefs regarding their capabilities may better predict actual utilization of coping strategies than beliefs about how effective these strategies will be in decreasing pain. Finally, results were consistent with previous research, as it was found that patients' utilization of passive coping was associated with poorer physical and psychosocial functioning.

A study by Spinhoven, ter Kuile, Linssen, and Gazendam (1989) found that pain patients scoring high on the CSQ factor Helplessness reported greater levels of pain, functional impairment, anxiety, depression, and psychoneuroticism, whereas patients scoring high on the CSQ factor Perceived Control showed the opposite pattern. In addition, a study conducted by Ulmer (1997) showed that perceived control over pain was negatively correlated with depressed mood. Thus, it is clear that furthering understanding of the influence that control beliefs exert in determining one's approach to coping is essential.

After evaluating the above studies, it becomes evident that the results from studies investigating the relationship between locus of control beliefs and coping strategies have been somewhat mixed. For instance, Brown and Nicassio (1987) reported that arthritis patients who used more active coping strategies also demonstrated higher internal locus of control beliefs and less psychological impairment, whereas those utilizing passive coping strategies reported stronger external locus of control beliefs and poorer adjustment. However, as previously noted, Crisson and Keefe (1988) found no association between internal health locus of control beliefs and utilization of active coping strategies in chronic pain patients. In order to clarify these mixed findings, Härkäpää (1991) examined the relationship between health locus of control beliefs and coping strategies. The author hypothesized that stronger internal health locus of control beliefs would result in greater use of active coping strategies, and that psychological distress and

external health locus of control beliefs would be associated with poorer adjustment. To test these hypotheses, Härkäpää (1991) recruited 476 patients experiencing chronic low back pain. Each subject completed measures assessing severity of low-back pain, health locus of control beliefs, psychological distress, and coping strategies.

According to Härkäpää (1991), subjects experiencing more severe back pain reported higher levels of psychological distress, lower beliefs in internal health locus of control, and relatively stronger beliefs in external health locus of control. Moreover, patients with severe back pain tended to implement passive coping strategies more frequently. However, no association between pain severity and utilization of active coping strategies was found. Therefore, results of this study suggest that factors other than pain severity may influence the selection of active coping strategies among chronic pain patients. In terms of the relationship between internal health locus of control and active coping strategies, findings indicate that possessing an internal health locus of control is often associated with increased use of active coping strategies. Furthermore, results showed that more general beliefs in internal health locus of control were related to individuals' use of cognitive strategies to deal with pain. Lastly, stronger external health locus of control beliefs were related to greater use of passive coping strategies, such as catastrophizing and praying and hoping. Thus, these findings in conjunction with previous research appear to support the notion that stronger internal health locus of control beliefs are associated with greater use of active coping strategies, while possessing more external health locus of control beliefs often leads to greater use of passive coping strategies.

Locus of Control Beliefs Among Inmates

Although previous research examining the influence of control beliefs on coping behavior furthers our understanding of the association between these two factors, it is necessary

to consider studies specifically evaluating control beliefs among inmates given their unique living environment. One such study was conducted by Reitzel and Harju (2000), who examined the degree to which general locus of control beliefs and type of incarceration setting affected depression. The authors noted that offenders are differentially affected by incarceration, which suggest that certain factors may modify the impact of imprisonment. Reitzel and Harju (2000) suggested that personal locus of control beliefs are one factor that may determine whether people adjust their coping strategy when it is ineffective. The authors hypothesized that depressive severity and adjustment would be related to locus of control orientation. In addition, previous studies have found that the distribution of internal and external orientations in prison is about the same as proportions found among non-incarcerated populations (Groh & Goldenburg, 1976; Mackenzie & Goodstein, 1986).

Reitzel and Harju (2000) evaluated 325 male inmates serving time in the North Carolina state prison system. Each subject completed the Beck Depression Inventory (BDI) upon entry into prison, and then completed the BDI and Prison Locus of Control Scale (PLOC) after serving for a period of two years. In addition, subjects included in the study were serving time in one of three custody levels, including minimum custody, medium custody, and close-custody.

Reitzel and Harju (2000) reported that severity of depression did not vary in the different levels of confinement, as a function of locus of control. The authors reasoned that control orientation is a trait characteristic. Therefore, it tends to remain constant across custody levels. With regard to the effect of control orientation on depression, inmates with an internal locus of control reported significantly fewer depressive symptoms. The authors postulated that inmates with an internal locus of control report less depression because they are more apt to realistically appraise the prison setting and its controllability and adapt their coping to fit the environment. In

contrast, those reporting a higher external locus of control endorsed significantly more depressive symptoms. Reitzel and Harju (2000) suggested that externally oriented inmates appear to display more helplessness in the prison setting, which seems to contribute to an increase in depressive symptoms. Therefore, the findings of Reitzel and Harju's (2000) study support previous research which suggests that externally oriented individuals may be cognitively less adaptive in dealing with stress. Moreover, as Reitzel and Harju (2000) noted, this is significant given studies which suggest that externally oriented individuals tend to maintain ineffective coping responses regardless of situational change thereby exacerbating psychological dysfunction (Parkes, 1984; Rohde, Lewinsohn, Tilson, & Seeley, 1990).

Locus of control beliefs among inmates may have an effect on coping behaviors and psychological well-being. It is also important to consider studies examining health locus of control among inmates because different patterns of coping may emerge due to a number of prison-specific factors. First, health care is sometimes inadequate in correctional settings, as medical staff is lacking and access to treatment tends to be slow and/or inadequate (Zehner-Moore, McDermott, & Cox, 1988). Next, there is added difficulty in attaining over-the-counter medications, such as aspirin, which further limits inmates' ability to control their pain and symptoms. In addition, previous research suggests that the stressful surroundings of prison may contribute to inmates' inability to control pain. Moreover, perceived lack of control over prison circumstances can contribute to experienced stress and the onset or exacerbation of health problems. While no studies have examined health locus of control among male inmates, one study conducted by Zehner-Moore et al. (1988) examined perceived health locus of control among female inmates.

Zehner-Moore et al. (1998) administered the Multidimensional Health Locus of Control Scale (MHLC; Wallston & Wallston, 1978) and the Health Problem Inventory (HPI; Zehner, 1987) to female inmates. However, the researchers did not report on the health status of the 161 female inmates who completed the two measures. According to Zehner-Moore et al. (1988), the findings demonstrated that female inmates reported lower internal control of their health compared to existing subscale healthy adult norms. Thus, the authors contended that health locus of control is affected by the prison environment, although there might be other variables that explain differences in control orientation. The authors hypothesized that encouraged dependence on staff for health needs, as well as dissatisfaction with available health staff and facilities, contribute to lower perceived internal control over health. Clearly, further research is needed to clarify inmates' perceptions of health locus of control, particularly as it relates to the coping strategies they utilize.

Rationale for the Present Study

Previous research examining the physical health of inmates has consistently shown that this population tends to be in poorer health compared to the general population (Baillargeon et al., 2000; Young, 1992). Most of the studies investigating the physical health of inmates have sought to describe the predominant health issues among inmates and establish prevalence rates for these diseases. Based on these studies it is evident that a significant number of inmates experience chronic pain. For example, one study conducted by Ingram-Fogel (1991) found that over 70% of inmates visited the infirmary due to recurrent pain. Although research has provided some useful information about the nature and prevalence of diseases common in prison, it has failed to examine the manner in which inmates cope with illness and, more specifically, strategies implemented to cope with chronic pain.

The present study built upon previous research that examined the types of coping strategies individuals use to manage chronic pain and research that examined the degree to which possessing an internal versus external locus of control influences the manner in which individuals attempt to cope with their pain. Specifically, inmates were administered a questionnaire assessing pain coping strategies, a measure assessing pain locus of control, a questionnaire assessing perceived disability and pain severity, and a brief measure assessing level of depression. Based on previous research, it was anticipated that inmates would utilize passive coping strategies more often than active coping strategies and that passive strategies would be associated with poorer adjustment to pain. It was also hypothesized that inmates would report external locus of control beliefs more often than internal locus of control beliefs, and that an external locus of control will be associated with the use of passive coping strategies.

Hypotheses

H₀1. Inmates will report using passive pain coping strategies more often than using active pain coping strategies.

H₀2. Passive pain coping strategies will be significantly positively correlated with depression, pain intensity, and pain interference with daily activities.

H₀3. Inmates will report higher agreement with external locus of control beliefs than internal locus of control beliefs.

H₀4. Locus of control will be significantly related to pain coping, such that external locus of control will be positively correlated with passive pain coping strategies.

H₀5. External locus of control will be significantly positively correlated with depression, pain intensity, and pain interference with daily activities.

CHAPTER 2

Methodology

Design of the Study

The present study examined the type of coping strategies that are frequently implemented by inmates experiencing chronic pain and the degree to which these inmates possess an internal versus external locus of control. In addition, the impact of coping strategy use and locus of control on inmates' level of depression, experience of pain intensity, and interference with daily activities were examined. The present study is correlational and used the following predictor and criterion variables. Predictor variables include coping style and locus of control. The criterion variables include depression, pain intensity, and pain interference with daily functioning.

Predictor variables were measured using the Coping Strategies Questionnaire (CSQ; Rosenstiel & Keefe, 1983) and the Pain Locus of Control Questionnaire (PLOC; Toomey, Mann, Abashian, & Thompson-Pope, 1991). Inmates' level of depression was measured with the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996). The West Haven-Yale Multidimensional Pain Inventory (WHYMPI; Kerns, Turk, & Rudy, 1985) was used to assess pain interference and reported pain intensity.

A power analysis was conducted in order to determine the appropriate sample size for the study. In general, previous studies examining the relationships between coping strategies and various facets of well-being and locus of control show a trend towards medium effect sizes. For,

instance, one study conducted by Snow-Turek et al. (1996) investigated the relationships between coping strategies and factors such as pain severity, level of depression, and interference with daily activities. Snow-Turek et al. found a large effect size (.54) for the relationship between coping strategies and daily activities. Furthermore, a large effect size (.59) was also reported regarding the relationship between coping strategies and level of depression.

Another study conducted by Brown and Nicassio (1987) also investigated the relationships between coping strategies and different facets of well-being. Brown and Nicassio found small effect sizes (.11-.28) for the relationships between specific coping strategies and pain severity. In addition, the authors identified small to medium effect sizes (.12-.38) for the relationships between specific coping strategies and level of depression. Regarding the relationship between coping strategies and functional impairment, small to medium effect sizes (.07-.35) were reported by Brown and Nicassio. Finally, regarding coping strategies and locus of control, small to medium effect sizes were identified (.20-.35).

Thus, considering the variability in the literature on the size of effects for these variables and the observation that the literature appears to support a trend towards medium effect sizes, the current sample size is based on a medium effect size estimate. In estimating a medium effect size, Cohen (1992) suggests that in order to achieve power of .80, and with setting alpha at .05, a sample size of approximately 85 is necessary.

Participants

Data was collected from a total of 88 male prisoners at McNeil Island Corrections Center (MICC), a medium-sized prison in Washington, over a period of eight months. All participants indicated experiencing some type of chronic pain, lasting for at least three months. Participants were excluded from participating if they: a) were identified by prison officials as a potential

threat to the safety of the interviewer; or b) had inadequate command of the English language. The questions listed in Appendix G were asked after the informed consent was read by the primary investigator in order to ensure inmates understanding of English. During data collection, no inmates were excluded from participating in the study, however 3 inmates declined to participate in the study.

In terms of demographic information, there were significantly more White participants than Black or Hispanic. Specifically, 64% of participants ($n = 56$) were White, 17% of participants ($n = 15$) were Black, 15% of participants ($n = 13$) were Hispanic, and 5% of participants ($n = 4$) were Asian/Pacific Islander. With regard to age, the mean age of participants was approximately 44 years ($M = 44.64$, $SD = 10.87$), with a minimum age of 26 years and maximum age of 72 years. Unfortunately, information regarding participants' level of education, criminal history, and marital status was not obtained at the time of interview and was unavailable through the Washington Department of Corrections database on offenders. Furthermore, the primary investigator was not permitted to collect specific information regarding participants' pain condition. Specifically, the primary investigator was prohibited from asking any questions other than those on approved measures that may be similar to questions asked during a medical evaluation.

Measures

Coping Strategies Questionnaire (CSQ; Rosenstiel & Keefe, 1983). Pain coping was measured with the CSQ. The CSQ is a 44-item questionnaire, which includes seven scales designed to assess frequently used pain coping strategies. The CSQ consists of seven subscales, including Coping Self-Statements (CSS), Catastrophizing (CAT), Diverting Attention (DA), Ignoring Pain Sensations (IPS), Praying or Hoping (PH), Reinterpreting Pain Sensations (RPS),

and Increasing Activity Level (IAL). All seven subscales are comprised of six items. Participants were asked to indicate how frequently they use a particular strategy when they experience pain, and responses were scored on a 7-point Likert scale, ranging from 0 (“never”) to 6 (“always”) (Lefebvre et al., 1995). In order to score the CSQ, participants’ responses to each of the six items within a subscale are summed to derive a score for each of the seven subscales. Thus, the range of scores is from 0 to 36 for each subscale. The CSQ has been shown to have good reliability and validity (Rosenstiel & Keefe, 1983). For example, Snow-Turek et al. (1996) reported that the CSQ subscales were found to be internally consistent with a pain population ranging from .71 to .82. In addition, the CSQ subscales were found to be adequately stable over a 6-month period, ranging from .65 to .69 (Snow-Turek et al., 1996).

Pain Locus of Control Questionnaire (PLOC; Toomey, Mann, Abashian, & Thompson-Pope, 1991). Locus of control was measured with the PLOC. The PLOC is a revision of the Multidimensional Health Locus of Control Scale (MHLOC; Wallston et al., 1978). The measure consists of 36 items in a six-point Likert format, with 12 items assigned to each of the three subscales: Internality, Powerful Others, and Chance (see Appendix B). The Internality scale consists of items such as “If my pain gets worse, it is my own behavior which determines how soon I will get relief,” and “I am in control of relieving my pain.” The Powerful Others scale consists of items such as “Regarding relief of my pain, I can only do what my doctor tells me to do,” and “My family has a lot to do with whether my pain gets better.” The Chance scale consist of items such as “If it’s meant to be, I will have relief from pain,” and “Most things that affect my relief of pain happen to me by accident.” The PLOC has been examined as a 36-item measure and as two 18- item forms. The PLOC has been shown to have good internal consistency with the 36 item version and low internal consistency when using the

two separate forms (Gibson & Schroder, 2001). Participants are asked to rate, on a six-point Likert scale, the degree to which they agree with each of the 36 statements, with 1 being “strongly disagree” and 6 being “strongly agree.” The PLOC is scored by summing the responses to all items within a scale, which provides a total score for each of the three subscales. Thus, the range of scores is from 12 - 72. The total score of each scale was tallied and used in the data analyses. In addition, scores from the Powerful Others and Chance subscales were combined and divided by 2 to get a total score for external locus of control beliefs. The Internality subscale served as a measure of internal locus of control beliefs. The PLOC has been found to have test-retest reliability ranging from 0.88-0.95 (Main & Waddell, 1991). Furthermore, Gibson and Helme (1995) reported that the PLOC scales have been found to have good internal consistency with an older population ranging from 0.75 to 0.87.

West Haven-Yale Multidimensional Pain Inventory (WHYMPI; Kerns, Turk, & Rudy, 1985). The WHYMPI is a 56-item self-report inventory, which was used to assess participants’ perceived disability and pain severity (see Appendix C). The WHYMPI includes a total of 12 empirically derived scales which comprise three sections. The first section of the measure evaluates the impact of pain on the subjects’ lives and consists of five scales measuring (1) pain severity (Pain); (2) perceptions of interference with daily functioning (Interference); (3) appraisal of significant others support (Support); (4) perceived life control (Control); (5) and affective distress (Negative Mood). Sample items from the first section include “In general, how much does your pain interfere with your day-to-day activities,” “during the past week how tense or anxious have you been,” and “rate the level of your pain at the present moment.” The second section examines the manner in which significant others typically respond to one’s communication of pain, and it assesses punishing, solicitous, and distracting responses. The

final section of the WHYMPI measures the frequency with which subjects decide to perform or withdraw from common activities due to pain (Jaspers et al., 1993).

Only the first two subscales of the first section were used for the purposes of the current study, resulting in a total of 11 items. Participants are asked to rate the degree to which they experience each item on a 0–7 point Likert type scale with 0 representing “not at all” or “never” and 7 representing “very much” or “very often” (Geisser et al., 1994). The WHYMPI is scored by summing the items within each scale and then dividing by the number of items within each scale. Thus, the range of scores is from 0 to 7 for each subscale. The original authors of the inventory determined that the internal consistency of the WHYMPI scales range from .70 to .90. Furthermore, they determined that the test-retest reliabilities of these scales over a period of two weeks ranged from .62 to .91 (Kerns, Turk, & Rudy, 1985). For the purpose of this study, the mean rating for the Pain Severity and Interference items were used.

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II (Appendix D) is a 21-item self-report measure that requires subjects to report on the experience of cognitive, affective, and vegetative symptoms of depression. The BDI provides a quantitative measure of depressive symptoms, and a score of 10 or more signifies at least mild depression (Weickgenant, Slater, Patterson, Atkinson, Grant, & Garfin, 1993). The authors of the inventory determined that the internal consistency of the BDI-II items range from .39 (loss of pleasure in sex) to .70 (loss of pleasure), as some items have less content validity than others (Beck et al., 1996). Furthermore, the authors reported a test-retest correlation of .93 after one week. Scores range from 0 to 63, with 0 – 13 considered minimal, 14 – 19 mild, 20 – 28 moderate, and 29 – 63 severe levels of depression. With regard to offenders, a study conducted by Boothby and

Durham (1999) found that of newly incarcerated offenders, 22% scored in the moderate range and 5% in the severe range of depression on the BDI.

Procedures

In order to recruit potential participants, the primary investigator posted an advertisement (Appendix A) on bulletin boards in each unit detailing the purpose of the current study, criteria for participation, what participation would include, and how those willing to participate may contact the primary investigator. The bulletin boards are commonly used to advertise other studies being conducted at the prison, job openings, groups being offered, and other prison announcements.

Those inmates who were willing to participate in the study were asked to respond by filing a Health Services Kite, which is generally used to request a visit to the infirmary. On the Health Services Kite, inmates were asked to write "ISU" or "Joe," which helped maintain confidentiality regarding the nature of the study. Medical personnel then forwarded the request forms to the primary investigator. Upon receipt of the request form, the primary investigator arranged a time with the director of clinical services in which it was permissible to bring willing participants to a testing area within the prison. Correctional officers were not required to escort inmates to the testing area, as MICC is a minimum-security facility in which inmates are allowed to walk to appointments by themselves.

After arriving at the testing area individually, inmates were given two consent forms and a packet of the questionnaires, all of which were read aloud by the researcher. All materials were read aloud to further ensure comprehension, as some inmates' reading skills may be limited. In addition, reading materials aloud permitted the researcher to make sure questionnaires were completed in a timely manner. The consent forms and questionnaires were

pre-numbered from 1 to 88, with all of the consent forms being numerically matched with the questionnaire packets. Numerically pairing the consent forms and questionnaire packets in this manner allowed the researcher to identify the questionnaires of inmates who may have wished to withdraw their participation after completion, as well as identify those inmates who indicated suicidal intent on the BDI. The researcher conducted an immediate post-test screening of the BDI, and if an inmate indicated suicidal intent on the BDI, medical personnel at MICC were notified. During data collection, one inmate indicated suicidal intent and MICC were notified. The numerical pairing system also helped ensure confidentiality, as the consent form and questionnaires were stored separately so that participants could not be readily identified with the questionnaires they complete.

First, the consent form was read aloud by the researcher. Following the consent form being read, inmates were asked the questions outlined in Appendix G to ensure their understanding of what would be asked of them as well as their comprehension of English. Inmates responded orally to the questions in Appendix G, and all three questions had to be answered adequately to participate in the study. An additional period of time was also provided for inmates to ask questions regarding any concerns they may have. If an inmate chose not to participate or did not pass all three questions outlined in Appendix G, they were asked to return to their unit. Those inmates who chose to participate signed one consent form to be returned to the researcher and kept a consent form for their records. Each testing session was completed individually with inmates. Inmates were provided with a hard-copy of the questionnaires being used in the study. All items were read aloud by the researcher, but the offender circled his own responses on the questionnaires. It generally took approximately 30 minutes to complete the questionnaires. After completing the questionnaires, inmates were again given the opportunity to

ask any questions they had. The inmates were not provided with any form of incentive for participating in the study. All questionnaires were collected and returned to a secure storage area.

Modifications to Procedures

In April 2009, the primary investigator received approval from the Washington Department of Corrections (DOC) to begin collecting data at McNeil Island Corrections Center (MICC). The original letter of approval for this research project suggested that the primary investigator use his identification badge issued by the Special Commitment Center (SCC), where he is currently employed, when visiting MICC. The SCC is a treatment facility for civilly committed sex offenders, which is also located on McNeil Island about two miles from MICC. It was anticipated that using the SCC badge may create complications in interactions with inmates due to the stigma associated with working in a treatment facility for sex offenders. When this concern was brought to the attention of officials at MICC, they agreed it may be a problem and sent a memo to the dock-house directing staff there to issue the primary investigator a visitor's badge when coming to the island for research purposes.

Beginning in May 2009, the primary investigator began collecting data at MICC. For the first three months of the study, data collection ran very smoothly and without incident (41 inmates participated). However, approximately two months into data collection, a staff member working in the dock-house was unable to find the memo regarding a visitor's badge being issued to the primary investigator, and indicated he was unable to do so at that time. Since the primary investigator had previously received permission to use his SCC badge to access the prison, he decided to proceed with data collection using the SCC badge. Once data collection commenced, the questionnaires were administered to three participants who seemed to take notice of the SCC

badge, but continued meeting with the primary investigator without incident. The next inmate who came into the testing room appeared to glance at the SCC badge and then proceeded to turn and walk out of the room. He did not show any visible signs of distress and did not voice any concerns to the primary investigator. Although the event did not appear to qualify as an adverse incident, it was immediately reported to Jeff Perry, the Mental Health Director at MICC, and to Dr. Hammen at Indiana State. After consulting with Dr. Hammen, it was concluded that the event did not warrant filing a Form F for an adverse incident. However, following this incident there was a sharp decline in the number of inmates who volunteered to participate in this study.

After the incident noted above, the primary investigator met with Mr. Van Boening (MICC Superintendent), Mr. Perry (MICC Mental Health Director), and Ms. Bodine (MICC Medical Director) regarding the lack of inmates volunteering for the study. During this meeting, Ms. Bodine suggested a modification to the study's protocol in order to address the dearth of volunteers. Specifically, Ms. Bodine generated a list from the institution's electronic medical record system, of those inmates who had been seen in the infirmary for chronic pain. No information other than names was provided, and the primary investigator did not have access to the inmates' records. Inmates on the list were called out in order to meet with the primary investigator. After arriving at the testing area, the primary investigator introduced himself and explained to each inmate that they were called out to hear about the research study being conducted (i.e., the purpose, criteria for participation, and what participation includes). They were also notified that their name was provided by medical personnel on a list of inmates that have been seen in the infirmary for chronic pain. Additionally, inmates were notified that this list had been provided with the approval of the DOC. It was also explained that none of their other personal or medical information was provided, and that their medical records had not been

accessed for the purpose of this research project. Once the information detailed above was provided to potential participants, they were provided a time to ask any questions they had and indicated their interest hearing more about the study. If an inmate indicated that they were interested in learning more about the study, the primary investigator then read the consent form aloud and followed all procedures outlined in the original protocol approved by the Indiana State IRB and Washington DOC. The changes described above were successful in facilitating the recruitment of the final 47 participants. The inmates were not coded in a manner that allowed the groups to be distinguished and it was not possible to identify if there were relevant differences between groups.

CHAPTER 3

Results

The mean and standard deviation of the age of the participants was calculated and the percentage of participants' belonging to the categories of ethnicity were determined. These data were presented in the Participants section above. Description data, means and standard deviations, were also calculated for each of the measures and are presented in Table 1.

Table 1

Means and Standard Deviation for Primary Variables

Measure	<i>M</i>	<i>SD</i>
Active Pain Coping Strategies	16.47	6.92
CSQ – Coping Self-Statements	24.00	7.47
CSQ – Ignoring Pain Sensations	19.00	8.52
CSQ – Increasing Activity Level	18.00	7.73
CSQ – Diverting Attention	14.00	8.40
CSQ – Reinterpreting Pain Sensations	8.00	7.25
Passive Pain Coping Strategies	13.04	6.55
CSQ – Praying & Hoping	16.00	8.90
CSQ – Catastrophize	10.00	7.00
PLOC – Internality	45.55	12.78

Table 1 (continued)

Measure	<i>M</i>	<i>SD</i>
External Locus of Control	36.52	8.76
PLOC – Powerful Others	38.00	12.77
PLOC – Chance	35.00	11.23
WHYMPI – Pain Severity	3.50	1.16
WHYMPI – Pain Interference	2.93	1.38
Beck Depression Inventory	15.00	9.51

Note. CSQ = Coping Strategies Questionnaires (Range for each CSQ subscale is 0 – 36), PLOC = Pain Locus of Control Questionnaire (Range for each PLOC subscale is 12 – 72), WHYMPI = West Haven Yale Multidimensional Pain Inventory (Range for each WHYMPI subscale is 0 – 7), and on the Beck Depression Inventory scores range from 0 to 63, with 0 – 13 considered minimal, 14 – 19 mild, 20 – 28 moderate, and 29 – 63 severe levels of depression.

Hypothesis 1 compared the frequency ratings for passive pain coping strategies to the ratings for active pain coping strategies with a paired samples *t*-test. Hypothesis 2 examined the relationship between passive pain coping and depression, pain intensity, and pain interference with daily activities using a series of Pearson's product moment correlations. Hypothesis 3 examined the difference in frequency ratings for external locus of control beliefs to the ratings for internal locus of control beliefs using a paired samples *t*-test. Hypothesis 4 examined the relationship between external locus of control and passive pain coping strategies using a Pearson's product moment correlation. Hypothesis 5 examined the relationship between external locus of control beliefs and depression, pain intensity, and pain interference with daily activities using a series of Pearson's product moment correlations.

To ensure accurate scoring, all participant data was scored by two separate raters. To ensure data entry accuracy, data was entered into two separate spread sheets by two individuals,

then row and column sums were compared. Descriptive statistics were computed to ensure all data entered fit within the expected minimum and maximum values for the measures' subscales (Table1).

The first hypothesis predicted that inmates use passive coping strategies more frequently than active coping strategies. The active (Diverting Attention, Reinterpreting Pain Statements, Coping Self-Statements, Ignoring Sensations, and Increasing Activity Level) and passive (Praying and Hoping and Catastrophizing) subscales were averaged for each participant to create an active and passive score for each participant. The mean across all participants for active coping was 16.47 ($SD = 6.92$) and the mean across all participants for passive coping was 13.04 ($SD = 6.55$). A paired samples t -test was conducted where individual participant means across the five active coping subscales of the CSQ were compared across participants to individual participant means across the two passive coping subscales of the CSQ. There was a significant difference, though not in the hypothesized direction ($t(87) = 3.89, p < .001$), with participants rating the active strategies as being used more than the passive strategies overall. The coping strategies that were rated highest in frequency of use were Coping Self-Statements, Ignoring Pain Sensations, and Increasing Activity Level, whereas the least used coping strategies included Reinterpreting Pain Sensations, Castastrophize, and Diverting Attention (Table 1).

The second hypothesis predicted passive pain coping strategies would be significantly correlated with higher depression, pain intensity, and pain interference with daily activities. Overall, participants endorsed a mild level of depression, moderate level of pain intensity, and moderate to low level of pain interference (Table 1). A Pearson Product Moment Correlation was computed between the mean for passive pain coping strategies and depression as measured by the BDI-II. There was a significant positive correlation in the hypothesized direction ($r = .57$,

$p < .001$). A Pearson Product Moment Correlation also was computed between the mean for passive pain coping strategies and pain intensity as measured by the WHYMPI. There was a significant positive correlation in the hypothesized direction ($r = .43, p < .001$). A Pearson Product Moment Correlation was also used to examine the relationship between the mean for passive pain coping strategies and pain interference with daily activities as measured by the WHYMPI. There was a significant positive correlation in the hypothesized direction ($r = .53, p < .001$). Thus, higher levels of passive pain coping strategies were significantly related to higher levels of depression, pain severity and interference, supporting the second hypothesis.

The third hypothesis predicted that inmates would report higher levels of external locus of control beliefs than internal locus of control beliefs. Table 1 indicates that as a group they slightly agreed with the Internality beliefs and slightly disagreed with the Powerful Others and Chance locus of control beliefs. For this analysis, the mean of the external subscales of the PLOC (Powerful Others and Chance) was compared to the mean for the internal locus of control subscale (Internality). There was a significant difference, though not in the hypothesized direction ($t(87) = 4.70, p < .001$). The mean across all participants for internal locus of control beliefs was 44.55 ($SD = 12.78$) and the mean across all participants for external locus of control beliefs was 36.52 ($SD = 8.76$). The third hypothesis was not supported as participants rated significantly higher agreement with internal locus of control beliefs.

The fourth hypothesis predicted that locus of control would be significantly related to pain coping, such that the mean external locus of control would be positively correlated with the mean for passive pain coping strategies. A Pearson Product Moment Correlation found a significant positive correlation in the hypothesized direction ($r = .54, p < .001$).

The fifth hypothesis predicted that external locus of control would be significantly positively correlated with depression, pain intensity, and pain interference with daily activities. A Pearson Product Moment Correlation was computed between the mean external locus of control score on the PLOC and depression as measured by the BDI-II. There was a small significant correlation in the hypothesized direction ($r = .27, p < .05$). A Pearson Product Moment Correlation between the mean external locus of control score and pain intensity (WHYMPI) yielded a significant moderate correlation in the hypothesized direction ($r = .39, p < .001$). A Pearson Product Moment Correlation between the mean external locus of control score and pain interference with daily activities (WHYMPI) also was significant and in the hypothesized direction ($r = .39, p < .001$).

Demographic Variables

Although the prison limited access to information about prisoner's health condition, offenses committed, and basic demographic information such as level of education, data was available on age and ethnicity. Exploratory analyses were conducted to examine whether age or ethnicity were related to coping strategies. Table 2 presents correlations between participants' age and coping strategies as measured by CSQ subscales. None of the relationships between age and coping strategies were significant.

Table 3 presents coping strategies (CSQ subscales) by ethnicity. For all ethnic groups, the active strategy, Coping Self-Statements, was rated highest, whereas Reinterpreting Pain Sensations was rated lowest. When interpreting this data the small number of Asian and African American participants should be considered.

In addition, locus of control (PLOC) was examined by ethnic classification (See Table 4). A z -test was used to determine whether any of these means were significantly different. First,

the largest (Asian) and smallest (African American) means by ethnicity for Internality were compared using a z -test, which was not significant ($z = -1.595, p > .05$). Next, the largest (Asian) and smallest (African American) means by ethnicity for Powerful Others were compared using a z -test, which was significant ($z = -4.682, p < .001$). Then the largest (Latino) and smallest (African American) means by ethnicity for Chance were compared using a z -test, which was significant ($z = -14.729, p < .001$). Therefore, although there was not a significant difference for Internality, Asians endorsed higher Powerful Other locus of control than African Americans and Latinos endorsed higher Chance locus of control than African Americans.

Table 2

Correlations Between Age and Coping Strategies

<u>Coping Strategies Questionnaire Subscales</u>	<u>Correlation with Age</u>
CSQ – Coping Self-Statements	0.017
CSQ – Catastrophize	-0.014
CSQ – Diverting Attention	0.090
CSQ – Ignoring Pain Sensations	0.003
CSQ – Praying and Hoping	0.050
CSQ – Reinterpreting Pain Sensations	0.015
CSQ – Increasing Activity Level	0.033
<i>Note.</i> CSQ = Coping Strategies Questionnaire.	

Table 3

Frequency of Coping by Ethnicity

Coping Strategy	Caucasian (<i>n</i> = 56)		African American (<i>n</i> = 15)		Latino (<i>n</i> = 13)		Asian (<i>n</i> = 4)	
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
CSQ – CSS	23.10	(7.85)	24.10	(7.12)	27.10	(5.65)	28.30	(9.18)
CSQ – CAT	8.02	(5.99)	11.00	(6.13)	12.80	(8.09)	16.80	(9.81)
CSQ – DA	13.00	(8.51)	16.00	(9.40)	16.00	(6.06)	14.00	(10.21)
CSQ – IS	18.00	(8.38)	19.00	(8.20)	20.00	(8.02)	18.00	(15.25)
CSQ – PH	14.00	(8.15)	20.00	(7.03)	22.00	(9.95)	23.00	(9.33)
CSQ – RPS	7.82	(7.17)	8.20	(6.96)	9.54	(8.50)	9.50	(7.42)
CSQ – IAL	17.00	(7.43)	16.00	(8.97)	19.00	(5.73)	23.00	(12.58)

Note. CSQ = Coping Strategies Questionnaire. CSQ Subscale CSS = Coping Self-Statements. CSQ Subscale CAT = Catastrophize. CSQ Subscale DA = Diverting Attention. CSQ Subscale IS = Ignoring Pain Sensations. CSQ Subscale PH = Praying & Hoping. CSQ Subscale RPS = Reinterpreting Pain Sensations. CSQ Subscale IAL = Increasing Activity Level.

Table 4

Locus of Control (PLOC) Means by Ethnic Classification

	Caucasian (<i>n</i> = 56)		African American (<i>n</i> = 15)		Latino (<i>n</i> = 13)		Asian (<i>n</i> = 4)	
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
PLOC – Internality	45.00	(13.110)	42.00	(12.06)	44.00	(10.27)	46.00	(20.70)
PLOC – Powerful Others	38.00	(12.770)	34.00	(10.57)	42.00	(14.62)	43.00	(13.02)
PLOC – Chance	33.00	(9.882)	31.00	(7.83)	47.00	(8.24)	45.00	(20.09)

Note. PLOC = Pain Locus of Control Questionnaire.

Regression Analyses

To further examine the data, three regression analyses were conducted using Pain Severity and Interference from the WHYMPI and Depression (BDI) as the criterion variables and the seven coping subscales of the CSQ (i.e., Coping Self-Statements, Catastrophize, Diverting Attention, Ignoring Sensations, Praying and Hoping, Increasing Activity Level, and Reinterpreting Pain Sensations) as the predictor variables. The regression equation with Pain Severity as a criterion variable was significant ($F(1, 75) = 2.95, p < .05$), but only Catastrophizing significantly predicted pain severity scores ($\beta = .044, t(77) = 2.21, p < .05$). Table 5 presents these results. The regression equation with Pain Interference as a criterion variable was also significant ($F(1, 75) = 4.47, p < .05$). The predictor variables Catastrophizing ($\beta = .069, t(77) = 3.10, p < .05$), Praying and Hoping ($\beta = .040, t(77) = 2.13, p < .05$), and Increasing Activity Level ($\beta = -.052, t(77) = 2.03, p < .05$) significantly predicted Pain Interference scores (Table 6). The regression equation with depression as a criterion variable was also significant ($F(1, 75) = 7.75, p < .05$). Catastrophizing significantly predicted Depression scores ($\beta = .093, t(77) = 6.88, p < .001$), as did Diverting Attention ($\beta = .034, t(77) = 2.30, p < .05$). The regression table is presented in Table 7. Catastrophizing was a significant predictor of Pain Severity, Interference, and Depression; Praying and Hoping predicted Pain Interference, whereas Increasing Activity Level was a negative predictor of Pain Interference. Diverting Attention also predicted increased Depression.

Table 5

Regression Analyses with Pain Severity as the Criterion Variable

Predictor Variables	β	t	p
CSQ – Coping Self-Statements	.041	1.441	.154
CSQ – Catastrophize	.044	2.212	<.05
CSQ – Diverting Attention	-.019	-0.852	.396
CSQ – Ignoring Pain Sensations	-.011	-0.462	.645
CSQ – Praying and Hoping	.016	0.933	.354
CSQ – Increasing Activity Level	.006	0.244	.808
CSQ – Reinterpreting Pain Sensations	.012	0.580	.564
$R = .526$ $R^2 = .271$ Adjusted $R^2 = .183$			
<i>Note.</i> CSQ = Coping Strategies Questionnaire.			

Table 6

Regression Analyses with Pain Interference as the Criterion Variable

Predictor Variables	β	t	p
CSQ – Coping Self-Statements	.037	1.160	.251
CSQ – Catastrophize	.069	3.104	<.05
CSQ – Diverting Attention	.007	0.271	.791
CSQ – Ignoring Pain Sensations	-.016	-0.630	.534
CSQ – Praying and Hoping	.040	2.130	<.05
CSQ – Increasing Activity Level	-.052	-2.030	<.05
CSQ – Reinterpreting Pain Sensations	-.004	-0.180	.861
$R = .606$ $R^2 = .367$ Adjusted $R^2 = .285$			
<i>Note.</i> CSQ = Coping Strategies Questionnaire.			

Table 7

Regression Analyses with Depression as the Criterion Variable

Predictor Variables	β	t	p
CSQ – Coping Self-Statements	-.226	-1.170	.246
CSQ – Catastrophize	.093	6.885	<.001
CSQ – Diverting Attention	.034	2.301	<.05
CSQ – Ignoring Pain Sensations	.128	0.820	.415
CSQ – Praying and Hoping	.080	0.704	.483
CSQ – Increasing Activity Level	-.134	-0.868	.388
CSQ – Reinterpreting Pain Sensations	-.220	-1.513	.134

$R = .708$ $R^2 = .502$ Adjusted $R^2 = .437$

Note. CSQ = Coping Strategies Questionnaire.

CHAPTER 4

Discussion

The present study was conducted to extend previous research that examined the types of coping strategies individuals use to manage chronic pain and the influence of locus of control on the manner in which individuals attempt to cope with their pain. Prior findings have suggested that passive pain coping strategies tend to be correlated with increased pain, poorer psychological adjustment, and lower levels of daily functioning. Furthermore, previous research suggests that those having an external locus of control more frequently use passive pain coping strategies. Therefore, it was hypothesized that inmates would use passive coping strategies more often than active coping strategies, and that passive strategies would be associated with poorer adjustment to pain. It was also hypothesized that inmates will report external locus of control beliefs more often than internal locus of control beliefs and that greater external locus of control will be associated with the use of passive coping strategies.

The first hypothesis predicted that inmates would report using passive pain coping strategies more often than active pain coping strategies. One reason this finding was expected was due to past research that has shown inmates tend to utilize passive coping strategies (Zamble & Porporino, 1988). Additionally, it was hypothesized that inmates would report utilizing passive pain coping strategies more often is because passive pain coping strategies generally entail relinquishing control of the pain to others and are associated with a sense of helplessness

(Brown & Nicassio, 1987). Given the unique characteristics of prison environments, where health care is often inadequate and it is sometimes difficult to obtain over-the-counter medications, it was believed that inmates would tend to experience a sense of helplessness and employ strategies that involve relinquishing control of the pain. However, the hypothesis was not supported by the results and findings revealed that inmates in the sample employed active pain coping strategies significantly more often than passive pain coping strategies.

The results of this study indicate that inmates reported they more frequently employ coping strategies that involve attempts to control pain or function in spite of pain. One explanation for this might be that inmates respond to the limitations of the prison environment, such as difficulty obtaining over-the-counter medications and having fewer types of medical interventions available to them, by actively attempting to manage their pain independently, assuming outside intervention will be difficult to obtain.

Several factors may have affected the failure to support the hypothesis that inmates would report using passive pain coping strategies more often than active pain coping strategies. First, the participants in the current study were in a minimum custody facility which allowed inmates significantly greater freedoms than are available in other custody levels. For example, inmates in the minimum custody facility where the study was conducted are allowed to move about the facility without an escort and are granted more free-time in the yard, have access to a “Hobby Shop,” are allowed overnight visits with family members, and can have warm compresses in their cells. The allowance of these greater freedoms may have afforded inmates in this study more opportunity to engage in active coping strategies. Additionally, being afforded the privileges noted above may provide inmates a sense they can employ active coping strategies that involve attempts to control pain or function in spite of pain. Thus, the findings suggest that

the amount of active coping may vary as a function of the degree of restrictiveness of the level of custody.

An alternative explanation of the finding that the participants used active coping strategies more often may be that inmates learn to employ coping strategies that allow them to function despite pain, because failure to do so may be perceived as a weakness by other inmates. In a prison environment, being perceived as weak could make offenders susceptible to being taken advantage of or preyed upon by other inmates.

Another explanation may be that inmates endorsed more frequent use of active coping strategies rather than passive coping strategies because of a desire to portray themselves as more capable or less vulnerable. Active coping strategies on the CSQ include statements such as, “I tell myself I can overcome the pain,” where as passive coping strategies on the CSQ include statements such as, “It is awful and I feel that it overwhelms me.” Thus, inmates may have perceived that selecting active coping strategies would portray them in a more positive light. During the informed consent process it was made clear to inmates that their participation in this study would not affect the medical attention they receive. Thus, without that potential gain, inmates may have sought to endorse strategies they perceived would portray them more favorably. Unfortunately, a measure of social desirability was not used, which would have been a way to control for response sets.

Findings indicating that inmates reported employing active pain coping strategies more often than passive pain coping strategies is also consistent with the finding that sample reported greater internal locus of control beliefs as compared to external locus of control beliefs. Previous research has found that individuals with an internal locus of control engage in characteristically

active coping strategies more often than individuals with an external orientation (Jensen & Karoly, 1991).

The present study also hypothesized that inmates would report greater external locus of control beliefs than internal locus of control beliefs. However, results revealed that significantly more inmates reported internal locus of control beliefs than external locus of control beliefs. No other studies have examined health locus of control among male inmates, but previous research examining health locus of control among female inmates found they reported feeling lower internal control of their health compared to healthy adult females who were not incarcerated (Zehner-Moore, McDermott, & Cox, 1988). Zehner-Moore et al. (1988) suggested that health locus of control is affected by the prison environment. Thus, they suggested that incarceration encouraged dependence on staff for attention to health needs and this was combined with dissatisfaction with available health staff and facilities. Together, these factors contributed to lower perceived internal control over health. On the other hand, results of the present study suggest inmates' dissatisfaction with prison health providers and facilities may decrease their reliance on others to control health outcomes. Perhaps out of perceived necessity, inmates learn to rely more on themselves to positively affect outcomes they experience while in prison.

Reitzel and Harju (2000) examined the degree to which general locus of control beliefs and type of incarceration setting affected depression. Their findings revealed that severity of depression did not vary in the different levels of confinement as a function of inmate self-report on measures of locus of control. The authors suggested that control orientation is a trait characteristic and as a consequence tends to remain constant across custody levels. If control orientation is a trait, control orientation would be relatively unchanged by incarceration. This would suggest that locus of control of the respondents in the current study would not have been

affected by incarceration and their health beliefs were unchanged by the prison environment. Therefore, the findings may reflect their pre-prison locus of control.

Although the hypotheses regarding the increased use of passive coping strategies was not supported, the hypothesis was supported that the greater use of passive pain coping strategies would be significantly and positively correlated with depression, pain intensity, and pain interference with daily activities. Thus, results found that inmates who endorsed more frequent use of passive pain coping strategies reported experiencing more depression, higher rated pain intensity, and increased interference with daily activities. These findings are congruent with previous research suggesting that passive pain coping strategies are consistently associated with poorer adjustment. Mercado, Carroll, Cassidy, and Côté (2000), and Brown and Nicassio (1987) found that patients utilizing passive pain coping strategies reported greater levels of pain and functional impairment.

The hypothesis that external locus of control would be positively correlated with passive pain coping strategies was also supported. Those inmates who endorsed greater passive pain coping strategies also endorsed greater external locus of control beliefs. This finding is consistent with results from a study conducted by Härkäpää (1991), who found that stronger external health locus of control beliefs were related to greater use of passive coping strategies, such as catastrophizing and praying and hoping. Jensen, Turner, and Romano (1991) also investigated the role of control beliefs in the selection of coping strategies. Based on social learning theory, the authors hypothesized that individuals tend to employ only the coping strategies that they believe they are capable of performing. Their findings indicated that subjects' beliefs regarding their abilities were significantly associated with coping efforts. Thus, results of the present study in conjunction with previous research appear to support the notion

that holding more external health locus of control beliefs leads to greater use of passive coping strategies and internal locus of control beliefs are associated with more active coping strategies.

The fifth and final hypothesis that external locus of control beliefs would be significantly positively correlated with depression, pain intensity, and pain interference with daily activities was also supported. Thus, those inmates who reported higher levels of external locus of control beliefs also indicated experiencing more depression, higher pain intensity, and increased interference of pain with daily activities. These results are consistent with previous research indicating external locus of control beliefs have a considerable negative impact on a number of health related outcomes. According to Crisson and Keefe (1988), patients perceiving outcomes to be controlled by powerful others or chance frequently indicated that their coping strategies were ineffective in controlling and decreasing pain. Moreover, patients endorsing external locus of control beliefs indicated experiencing more overall psychological distress.

In addition to the planned analyses, a series of regression analyses were conducted to examine the unique contribution of the seven coping subscales of the CSQ (i.e., Coping Self-Statements, Catastrophize, Diverting Attention, Ignoring Sensations, Praying and Hoping, Increasing Activity Level, and Reinterpreting Pain Sensations) in predicting health status. A regression equation with Pain Severity as the criterion variable significant, but only Catastrophizing significantly predicted pain severity scores. This finding supports previous research that has found individuals who catastrophize about pain frequently report higher pain ratings (Geisser et al., 1994). The finding that Catastrophizing significantly predicted pain severity scores is also not surprising given that it is categorized as a passive pain coping strategy and passive pain coping strategies have been found to be associated with poorer adjustment. Specifically, Brown and Nicassio (1987) found that patients utilizing passive pain coping

strategies reported greater levels of pain. The finding that other CSQ subscales did not significantly predict Pain Severity scores is consistent with previous research. Prior studies have yielded mixed results with regard to the relationship between Coping Self-Statements, Diverting Attention, Ignoring Sensations, Praying and Hoping, Increasing Activity Level, and Reinterpreting Pain Sensations and pain severity ratings.

Another regression equation with Pain Interference as the criterion variable and CSQ subscales as predictors revealed that Catastrophizing, Praying and Hoping, and Increasing Activity Level significantly predicted Pain Interference scores. Specifically, results showed that Catastrophizing and Praying and Hoping predicted greater Pain Interference scores. This finding is consistent with previous research suggesting these passive pain coping strategies are positively associated with increased reports of interference in daily functioning (Hill et al., 1995; Robinson et al., 1997; Ashby & Lenhart, 1994). In contrast, Increasing Activity Level predicted lower Pain Interference scores. Most research examining the role of distracting activities in adapting to chronic pain suggests that such behavior rarely predicts adjustment to chronic pain. For example, Jensen et al. (1992) found that engaging in distracting activities was not associated with disability or interference in daily functioning. An explanation of this finding may be that inmates reports of increasing their activity level means something qualitatively different than non-incarcerated individuals' reports of increasing their activity level given the confines of prison.

The final regression equation predicting depression using the CSQ found that Catastrophizing and Diverting Attention significantly predicted depression scores. The finding that Catastrophize predicted higher depression scores was expected given previous research (Geisser et al., 1994; Hill, 1993; Robinson et al., 1997). However, the finding that Diverting

Attention predicted higher depression scores is somewhat surprising given that a majority of the research on distraction has found that it is unrelated to depression (Geisser et al., 1994; Harkapaa, 1991). This finding is particularly surprising because it seems as though this might be a harder strategy to employ in prison due to the monotony of their environment.

Together, results of the regression analyses reveal that Catastrophizing was the only coping strategy that significantly predicted Pain Severity, Pain Interference, and depression. This is consistent with previous research showing that Catastrophizing tends to be positively associated with poorer adjustment (Geisser et al., 1994; Hill, 1993; Robinson et al., 1997). Thus, in developing programs designed to improve inmates' coping skills, interventions aimed at addressing Catastrophizing should be thoroughly discussed.

Finally, although not part of the hypotheses, several analyses were conducted to examine the influence of demographic variables on pain coping strategies. Demographic information was limited to age and ethnicity. There was not a significant relationship between the scores on the seven CSQ subscales and age or ethnicity and pain coping styles. However, *z*-tests indicated that there were differences in locus of control beliefs based on ethnicity. Although all groups were similar on Internality, African Americans reported lower beliefs in Powerful Others than Asian and lower beliefs in Chance than Latino inmates, suggesting African Americans endorse lower levels of external locus of control.

Limitations

The results of the present study should be viewed in light of several limitations. First, the findings that tested the hypotheses are largely based on bivariate correlations of the relationship of passive pain coping strategies and the relationship of external locus of control beliefs with depression, pain intensity, and pain interference with daily activities. As a consequence, greater

confidence in the findings would be warranted if the study had employed a more conservative alpha level to control for the number of correlations that result in a loss of power. Furthermore, there would be greater confidence in the findings if the sample size had been increased to 125 that would allow 80% power at the .01 alpha level. However, difficulties with recruitment encountered during data collection limited the participants to 88 inmates which allowed for 80% power at the .05 alpha level.

Another limitation of the present study is that approximately the first half of subjects who participated in the study were self-selected (i.e., they volunteered), whereas the remaining participants were selected from a list generated by prison medical personnel based on the criterion that the inmate was seen for treatment of pain over at least a three month period in the correctional infirmary. Given the inability to maintain a uniform recruitment process throughout the study, error variance may have been introduced to the sample. Thus, there may be some qualitative difference between the self-selected and those recruited from a list generated by medical staff. The inmates were not coded in a manner that allowed the groups to be distinguished and it was not possible to identify if there were relevant differences between the groups.

An additional limitation of the current study arose because institutional policies on inmate information did not allow the primary investigator to gather any demographic information other than age and ethnicity. This is a significant limitation given that past research suggests marital status and educational level attained influences selection of coping strategies. For instance, Mercado et al. (2000) found that married individuals reported more passive coping than non-married individuals. They stated that most likely arises because married individuals have someone else to take control when they are in pain. Although this effect may be limited or non-

existent due to participants' incarceration, it may have been a significant factor given that the facility is minimum custody and inmates are allowed regular visits, including overnight visits with their spouses. Furthermore, a study by Brown and Nicassio (1987) found that education influenced coping with less educated patients employing passive coping strategies more often than well-educated patients. The primary investigator also did not have access to files on offenses committed and length of sentence that could affect coping and locus of control.

Denying access to inmate files also prevented examination of the effects of mental health disorders in participants. According to Black et al. (2010), approximately 40% of inmates are diagnosed with Antisocial Personality Disorder and are likely to exhibit traits of narcissism. In general, there is a high rate of mental disorders in correctional populations. As a group, the average level of depression was mild in the current study. Therefore, it was not possible to determine the influence of mental disorders on their endorsement of locus of control beliefs, pain coping strategies, as well as depression.

Furthermore, the prison did not permit access to inmates' medical files. Therefore, the presence of a chronic pain condition could not be confirmed. Furthermore, the institutional policy prevented from asking any questions that could be seen as conducting any sort of medical assessment, including inquiries such as the type of pain condition or history of pain condition. As a result, the effects of medical diagnosis and condition could not be assessed, nor could it be ascertained whether the participants truly had chronic pain.

Implications

The findings were consistent with those of other studies in the current literature on pain coping strategies and health locus of control. Thus, results of the present study suggest that inmates who employ passive pain coping strategies and possess an external health locus of

control experience significantly more depression, pain intensity, and pain interference with their daily activities. Thus, changing intake procedures at prisons to include brief measures of pain coping strategies and health locus of control, such as the Coping Strategies Questionnaire and Pain Locus of Control Questionnaire, may permit early identification of those inmates entering the system with poor pain coping strategies and external locus of control beliefs. Assisting these individuals by offering psychoeducational interventions aimed at increasing their ability to adaptively cope with their pain may subsequently lessen their experience of depression, pain intensity, and pain interference with their daily activities.

These implications are particularly important when the prevalence of chronic pain in prison and the negative ramifications of poor coping and external locus of control beliefs are considered. As previously mentioned, one study found that over 70% of inmates' visits to the infirmary were due to some type of chronic pain (Ingram-Fogel, 1991). Consequently, helping inmates develop more adaptive coping strategies would increase their ability to effectively manage pain and reduce their reliance on the infirmary for pain management. For example, Young (1998) noted that inmate's use of medical services is strongly related to their inability to handle pain. Thus, facilitating inmates' ability to adaptively cope with their pain might lower the overall number of visits to the infirmary and decrease the resulting costs. In addition, working with inmates on improving their repertoire of coping strategies and sense of control is necessary for their well-being, as previous research has consistently shown that individuals' possessing external locus of control beliefs and utilizing maladaptive coping strategies experience poorer psychological and physical functioning (Brown & Nicassio, 1987; Mercado, Cote, Carroll, & Cassidy, 2000; Rosenstiel & Keefe, 1983; Snow-Turek et al., 1996).

Finally, the development of psychoeducational interventions aimed at improving inmates' repertoire of coping strategies might lower rates of recidivism, which is a significant problem. The Bureau of Justice statistics suggest that 67.5% inmates re-offend (Bureau of Justice, 2004). This statistic is not surprising given the results of a study conducted by Zamble and Quinsy (1997), which asked inmates how they would respond to several stressful situations and found that most repeat offenders put forth coping strategies which would worsen the situation.

Future Directions

First, the current findings must be replicated and extended to provide further support for the hypotheses that passive pain coping strategies and external locus of control are positively correlated with depression, pain intensity, and pain interference with daily activities and that external locus of control is significantly correlated with passive pain coping strategies in a correctional population. The present study indicates that the investment of additional resources into replication and extension of the current study with a larger sample of participants is warranted. The limits of the current study should be addressed by recruiting participants employing a uniform process and obtaining data on health and mental disorders as stated above.

Future research should include demographic information previous studies have been shown to influence selection of coping strategies such as marital and educational level. Furthermore, future studies should assess for comorbid mental and physical disorders among participants. For instance, given that there is a relatively high prevalence of individuals meeting criteria for Antisocial and other Personality Disorders in prison it would be interesting to investigate the relationship between various personality disorders and locus of control beliefs. In addition, future research in this area should have better controlled assessment of medical diagnosis and treatment, in order to be able to confirm the presence of a chronic pain condition.

Studies in the future should also examine the influence of custody level on locus of control orientation. Findings of the present study suggest the allowance of greater freedoms may afford inmates more opportunity to engage in active coping strategies. Thus, active coping may vary as a function of the degree of restrictiveness of the level of custody. Conducting a study that included inmates from minimum, medium, and maximum security facilities would allow for the role of custody level to be elucidated.

Finally, given the extent of pain and other behavior related disorders in incarcerated samples, outcome studies of prison based of psychoeducational programs directed at facilitating inmates' ability to adaptively cope with their pain may have significant impact on wellbeing and adjustment of inmates and on cost of care. Assessing whether helping inmates develop more adaptive coping strategies leads them to feel more confident in their ability to effectively manage pain and, thus decrease reliance on the infirmary for pain management is important, and would provide support for the continued development of such programs and outline future directions for research.

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APPENDIX A: QUESTIONS TO ENSURE COMPREHENSION OF ENGLISH

- 1) What is the purpose of the study you are being asked to participate in?

Acceptable Response: Any response from the inmate indicating they understand the purpose of the study is to examine how they cope with pain, as well as the effectiveness of the strategies implemented. For example:

“To see how inmates cope/deal with pain.”

“To ask me how I handle my pain.”

“To see if how I deal with my pain is helpful for me.”

- 2) If you choose to participate, what will you be asked to do?

Acceptable Response: Any response indicating their understanding that they will be asked sit for approximately 45 minutes and complete several questionnaires. For example:

“I will have to sit here for about an hour and do several questionnaires.”

“It will take 45 minutes to fill out some questionnaires.”

- 3) If you volunteer to be in the study, can you withdraw at any time without penalty?

Acceptable Response: Any response indicating their understanding that they may withdraw at any time without penalty. For example:

“I can leave whenever I want without there being a penalty.”

“I don’t have to do anything I don’t want to.”

“I can stop whenever I want without any consequences.”

- 4) Will participation in this study impact your parole status?

Acceptable Response: Any response indicating their understanding that their parole status will not be affected by participating in this study.

APPENDIX B: STUDY ADVERTISEMENT

DO YOU HAVE PHYSICAL PAIN?

Has your pain lasted off and on for at least 3 months?

If you answered **YES** to these questions, you are invited to take part in a study being conducted by Joe Mitrovich, a graduate student from Indiana State University.

The purpose of this study is to look at the different coping strategies that inmates use in order to deal with their pain, as well as why inmates choose these strategies. In addition, the study will look to see which strategies for dealing with pain are helpful.

If you are willing to participate in the study, please respond by filing a Health Services Kite, and leave it in the health services kite box. On the Health Services Kite, simply write “**ISU or Joe,**” and medical personnel will then forward the request forms to the researcher.

If you volunteer to participate in this study, you will be asked to complete several questionnaires about your pain and how you cope with pain, and it will take approximately 45 minutes of your time. Your participation in this study will have no effect on your parole status.

Again, if you have physical pain that has lasted off and on for at least 3 months, you are eligible to participate in this study. Participation is voluntary.

APPENDIX C: INFORMED CONSENT

CONSENT TO PARTICIPATE IN RESEARCH

Chronic Pain Coping Strategies Among Inmates

You are asked to participate in a research study conducted by Joe Mitrovich, from the Psychology Department at Indiana State University. The current study is being conducted as part of a graduate student dissertation. Your participation in this study is entirely voluntary. Please read the information below and ask questions about anything you do not understand before deciding whether or not to participate.

• PURPOSE OF THE STUDY

The purpose of this study is to look at how inmates deal with pain they experience. In addition, the study seeks to better understand how well inmates' ways of coping work for them.

If you have experienced any type of physical pain for at least three months in a row you are invited to participate in this study.

• PROCEDURES

To participate in this study you will first have to answer some questions to show that you understand English and understand what participation involves. If you volunteer to participate in this study, you will be asked to complete four questionnaires about your pain and how you cope with pain. All questionnaires will be read aloud. The total time required for participation is about 45 minutes.

• POTENTIAL RISKS AND DISCOMFORTS

Participation in this study will require about 45 minutes of your time, during which you will be asked to sit at a table and complete a packet of questionnaires. There is minimal risk involved with participation in this study. While you may be uncomfortable answering some questions, the risks of participation are not greater than other programs offered at MICC.

• POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Information gained through this study may be used to develop classes to help inmates know how to better deal with their pain. Your participation in this study will have no effect on your parole status.

• CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by means of assigning numbers to each participant so that they will not be readily identified with the questionnaires they complete. The researcher will conduct an immediate post-test screening of the BDI, and if an inmate indicates suicidal intent on the BDI medical personnel at MICC will be notified. All data and lists of participants will be stored in a locked room, and only the primary investigator and the dissertation chair will be able to see this information.

- **PARTICIPATION AND WITHDRAWAL**

You can choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits to which you are otherwise entitled. You may also refuse to answer any questions you do not want to answer. There is no penalty if you withdraw from the study and you will not lose any benefits to which you are otherwise entitled.

- **IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about this research, please contact Joe Mitrovich at 812-237-3317 or jmitrovich@indstate.edu. The advisor for this research project is Dr. Jennifer Boothby.

- **RIGHTS OF RESEARCH SUBJECTS**

If you have any questions about your rights as a research subject, you may contact the Indiana State University Institutional Review Board (IRB) by mail at 114 Erickson Hall, Terre Haute, IN 47809, by phone at (812) 237-8217, or e-mail the IRB at irb@indstate.edu. You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with ISU. The IRB has reviewed and approved this study.

The study described above has been explained to me. I voluntarily consent to participate in this activity. I have been told that I can refuse to answer any question or withdraw from the study at any time without penalty. I have had an opportunity to ask questions. I have been told that future questions I may have about the research or about my rights as a participant will be answered by one of the researchers listed above.

Printed Name of Subject

Signature of Subject

Date

APPENDIX D: PAIN LOCUS OF CONTROL SCALE

PLOC

This is a questionnaire designed to determine the way in which different people view pain and what makes it worse or better (relieves it). Each item is a brief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to agree (6). For each item we would like you to circle the number that represents the extent to which you agree or disagree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs. There are no right or wrong answers.

	1	2	3	4	5	6
	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. If my pain gets worse, it is my own behavior which determines how soon I will get relief.	1	2	3	4	5	6
2. No matter what I do, if my pain is going to get worse, it will get worse.	1	2	3	4	5	6
3. Having regular contact with my physician is the best way for me to avoid my pain getting worse	1	2	3	4	5	6
4. Most things that affect my relief of pain happen to me by accident.	1	2	3	4	5	6
5. Whenever my pain gets worse, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am in control of relieving my pain.	1	2	3	4	5	6
7. My family has a lot to do with my pain getting worse or better.	1	2	3	4	5	6

	1 Strongly Disagree	2 Moderately Disagree	3 Slightly Disagree	4 Slightly Agree	5 Moderately Agree	6 Strongly Agree
8. When my pain gets worse I am to blame.	1	2	3	4	5	6
9. Luck plays a big part in determining how soon my pain is relieved.	1	2	3	4	5	6
10. Health professionals control relief of pain.	1	2	3	4	5	6
11. When my pain is relieved, it is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing which affects relief of my pain is what I myself do.	1	2	3	4	5	6
13. If I take care of myself, I can relieve my pain.	1	2	3	4	5	6
14. When my pain is relieved; it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15. No matter what I do, my pain is likely to get worse.	1	2	3	4	5	6
16. If it's meant to be, I will have relief from pain.	1	2	3	4	5	6
17. If I can take the right actions, I can relieve my pain.	1	2	3	4	5	6
18. Regarding relief of my pain, I can only do what my doctor tells me to do.	1	2	3	4	5	6
19. If my pain gets worse, I have the power to relieve it.	1	2	3	4	5	6

	1 Strongly Disagree	2 Moderately Disagree	3 Slightly Disagree	4 Slightly Agree	5 Moderately Agree	6 Strongly Agree
20. Often I feel that no matter what I do, if the pain is going to get worse, It will get worse.	1	2	3	4	5	6
21. If I see an excellent doctor regularly, my pain is less likely to get worse.	1	2	3	4	5	6
22. It seems that relief from pain is greatly influenced by accidental happenings.	1	2	3	4	5	6
23. I can only relieve my pain by consulting health professionals.	1	2	3	4	5	6
24. I am directly responsible for relief of my pain.	1	2	3	4	5	6
25. Other people play a big part in whether my pain gets better or worse.	1	2	3	4	5	6
26. Whatever makes my pain worse is my own fault.	1	2	3	4	5	6
27. When my pain gets worse, I just have to let nature run its course.	1	2	3	4	5	6
28. Health professionals relieve my pain.	1	2	3	4	5	6
29. When I have relief from pain, I am just plain lucky.	1	2	3	4	5	6
30. My relief from pain depends on how well I take care of myself.	1	2	3	4	5	6
31. When my pain gets worse, I know it is because I have not been taking care of myself properly.	1	2	3	4	5	6

	1 Strongly Disagree	2 Moderately Disagree	3 Slightly Disagree	4 Slightly Agree	5 Moderately Agree	6 Strongly Agree
32. The type of care I receive from other people is what is responsible for how much my pain is relieved.	1	2	3	4	5	6
33. Even when I take care of myself, its easy for my pain to get worse.	1	2	3	4	5	6
34. When my pain gets worse, it's a matter of fate.	1	2	3	4	5	6
35. I can pretty much relieve my pain by taking good care of myself.	1	2	3	4	5	6
36. Following doctor's orders to the letter is the best way for me to relieve my pain.	1	2	3	4	5	6

APPENDIX E: WEST-HAVEN YALE MULTIDIMENSIONAL PAIN INVENTORY

WHYMPI

Instructions: An important part of our evaluation includes of examination of pain from your perspective because you know your pain better than anyone else. The following questions are designed to help us learn more about your pain and how it affects your life. Under each question is a scale to mark your answer. Read each question carefully and then circle a number on the scale under that question to indicate how that specific question applies to you. An example may help you better understand how you should answer the question.

1. Rate your level of your pain at the present moment.

0	1	2	3	4	5	6
No pain						Very intense pain

2. In general, how much does your pain interfere with your day-to-day activities?

0	1	2	3	4	5	6
No interference						Extreme interference

3. Since the time your pain began, how much has your pain changed your ability to work?
(___ Check here, if you have retired for reasons other than your pain).

0	1	2	3	4	5	6
No change						Extreme change

4. How much has your pain changed the amount of satisfaction or enjoyment you get from taking part in social and recreational activities?

0	1	2	3	4	5	6
No change						Extreme change

5. Rate your overall mood during the past week.

0	1	2	3	4	5	6
Extremely low						Extremely high

6. How much has your pain interfered with your ability to get enough sleep?

0	1	2	3	4	5	6
No interference						Extreme interference

7. On the average, how severe has your pain been during the past week?

0	1	2	3	4	5	6
Not at all						Very severe

8. How able are you to predict when your pain will start, get better, or worse?

0	1	2	3	4	5	6
Not at all able to predict						Very able to predict

9. How much has your pain changed your ability to take part in recreational and other social activities?

0	1	2	3	4	5	6
No change						Extreme change

10. How much do you limit your activities in order to keep your pain from getting worse?

0	1	2	3	4	5	6
Not at all						Very much

11. How much has your pain changed the amount of satisfaction or enjoyment you get from family-related activities?

0	1	2	3	4	5	6
No change						Extreme change

12. During the past week how much control do you feel that you have had over your life?

0	1	2	3	4	5	6
No control						Extreme control

13. On an average day, how much does your pain vary (increase or decrease)?

0	1	2	3	4	5	6
Remains the same						Changes a lot

14. How much suffering do you experience because of your pain?

0	1	2	3	4	5	6
No suffering						Extreme suffering

15. How often are you able to do something that helps you reduce your pain?

0	1	2	3	4	5	6
Never						Very often

16. How much has your pain changed your relationship with your spouse, family, or significant other?

0	1	2	3	4	5	6
No change						Extreme change

17. How much has your pain changed the amount of satisfaction or enjoyment you get from work? (_____Check here, if you are not presently working).

0	1	2	3	4	5	6
No change						Extreme change

18. During the past week how much do you feel that you've been able to deal with your problems?

0	1	2	3	4	5	6
Not at all						Extremely well

19. How much control do you feel you have over your pain?

0	1	2	3	4	5	6
No control						A great deal of control

21. During the past week, how successful were you in coping with stressful situations in your life?

0	1	2	3	4	5	6
Not at all successful						Extremely successful

22. How much has your pain interfered with your ability to plan activities?

0	1	2	3	4	5	6
No change						Extreme change

23. During the past week how irritable have you been?

0	1	2	3	4	5	6
Not at all irritable						Extremely irritable

24. How much has your pain changed or interfered with your friendships with people other than your family?

0	1	2	3	4	5	6
No change						Extreme change

25. During the past week how tense or anxious have you been?

0	1	2	3	4	5	6
Not at all or anxious						Extremely tense or anxious tense

APPENDIX F: BECK DEPRESSION INVENTORY (BDI)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- 0 I do not feel sad
- 1 I feel sad much of the time
- 2 I am sad all the time
- 3 I am so sad or unhappy that I can't stand it

2. Pessimism

- 0 I am not discouraged about my future
- 1 I feel more discouraged about my future than I used to be
- 2 I do not expect things to work out for me
- 3 I feel my future is hopeless and will only get worse

3. Past Failure

- 0 I do not feel like a failure
- 1 I have failed more than I should have
- 2 As I look back, I see a lot of failures
- 3 I feel I am a total failure as a person

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy
- 1 I don't enjoy things as much as I used to
- 2 I get very little pleasure from the things I used to enjoy
- 3 I can't get any pleasure from the things I used to enjoy

5. Guilty Feelings

- 0 I don't feel particularly guilty
- 1 I feel guilty over many things I have done or should have done
- 2 I feel quite guilty most of the time
- 3 I feel guilty all of the time

6. Punishment Feelings

- 0 I don't feel I am being punished
- 1 I feel I may be punished
- 2 I expect to be punished
- 3 I feel I am being punished

7. Self-Dislike

- 0 I feel the same about myself as ever
- 1 I have lost confidence in myself
- 2 I am disappointed in myself
- 3 I dislike myself

8. Self-Criticisms

- 0 I don't criticize or blame myself more than usual
- 1 I am more critical of myself than I used to be
- 2 I criticize myself for all of my faults
- 3 I blame myself for everything bad that happens

9. Suicidal Thoughts or Wishes

- 0 I don't have nay thoughts of killing myself
- 1 I have thoughts of killing myself, but I would not carry them out
- 2 I would like to kill myself
- 3 I would kill myself if I had the chance

10. Crying

- 0 I don't cry anymore than I used to
- 1 I cry more than I used to
- 2 I cry over every little thing
- 3 I feel like crying, but I can't

11. Agitation

- 0 I am no more restless or wound up than usual
- 1 I feel more restless or wound up than usual
- 2 I am so restless or agitated that it's hard to stay still
- 3 I am so restless or agitated that I have to keep moving or doing something

12. Loss of Interest

- 0 I have not lost interest in other people or activities
- 1 I am less interested in other people or things than before
- 2 I have lost most of my interest in other people or things
- 3 It's hard to get interested in anything

13. Indecisiveness

- 0 I make decisions about as well as ever
- 1 I find it more difficult to make decisions than usual
- 2 I have much greater difficulty in making decisions than I used to
- 3 I have trouble making any decisions

14. Worthlessness

- 0 I do not feel I am worthless
- 1 I don't consider myself as worthwhile and useful as I used to
- 2 I feel more worthless as compared to other people
- 3 I feel utterly worthless

15. Loss of Energy

- 0 I have as much energy as ever
- 1 I have less energy than I used to have
- 2 I don't have enough energy to do very much
- 3 I don't have enough energy to do anything

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern
- 1a I sleep somewhat more than usual
- 1b I sleep somewhat less than usual
- 2a I sleep a lot more than usual
- 2b I sleep a lot less than usual
- 3a I sleep most of the day
- 3b I wake up 1-2 hours early and can't get back to sleep

17. Irritability

- 0 I am no more irritable than usual
- 1 I am more irritable than usual
- 2 I am much more irritable than usual
- 3 I am irritable all the time

18. Changes in Appetite

- 0 I have not experienced any change in my appetite
- 1a My appetite is somewhat less than usual
- 1b My appetite is somewhat greater than usual
- 2a My appetite is much less than before
- 2b My appetite is much greater than before
- 3a I have no appetite at all
- 3b I crave food all the time

19. Concentration Difficulty

- 0 I can concentrate as well as ever
- 1 I can't concentrate as well as usual
- 2 It's hard to keep my mind on anything for very long
- 3 I find I can't concentrate on anything

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual
- 1 I get more tired or fatigued more easily than usual
- 2 I am too tired or fatigued to do a lot of the things I used to do
- 3 I am too tired or fatigued to do most of the things I used to do

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex
- 1 I am less interested in sex than I used to be
- 2 I am much less interested in sex now
- 3 I have lost interest in sex completely

APPENDIX G: COPING STRATEGIES QUESTIONNAIRE

Individuals who experience pain have developed a number of ways to cope, or deal with their pain. These include saying things to themselves when they experience pain, or engaging in different activities. Below is a list of things that people have reported doing when they feel pain. For each activity, I want you to indicate, using the scale below, how much you engage in that activity when you feel pain, where a 0 indicates you never do that when you are experiencing pain, a 3 indicates you sometimes do that when you are experiencing pain, and a 6 indicates you always do that when you are experiencing pain. *Please write the numbers you choose in the blanks beside the activities.* Remember, you can use any point along the scale.

Never do that		Sometimes do that		Always do that		
0	1	2	3	4	5	6

When I feel pain .

- _____1. I try to feel distant from the pain, almost as if the pain was in somebody else's body.
- _____2. I leave my cell and do something, such as going to the yard or hobby shop.
- _____3. I try to think of something pleasant.
- _____4. I don't think of it as pain but rather as a dull or warm feeling.
- _____5. It is terrible and I feel it's never going to get any better.
- _____6. I tell myself to be brave and carry on despite the pain.
- _____7. I read.
- _____8. I tell myself that I can overcome the pain.
- _____9. I take my medication.
- _____10. I count numbers in my head or run a song through my mind.

Never
do that

Sometimes
do that

Always do
that

0

1

2

3

4

5

6

When I feel pain ...

- _____11. I just think of it as some other sensation, such as numbness.
- _____12. It is awful and I feel that it overwhelms me.
- _____13. I play mental games with myself to keep my mind off the pain.
- _____14. I feel my life isn't worth living.
- _____15. I know someday someone will be here to help me and it will go away for awhile.
- _____16. I walk a lot.
- _____17. I pray to God it won't last long.
- _____18. I try not to think of it as my body, but rather as something separate from me.
- _____19. I relax.
- _____20. I don't think about the pain.
- _____21. I try to think years ahead, what everything will be like after I've gotten rid of the pain.
- _____22. I tell myself it doesn't hurt.
- _____23. I tell myself I can't let the pain stand in the way of what I have to do.
- _____24. I don't pay any attention to the pain.
- _____25. I have faith in doctors that someday there will be a cure for my pain.
- _____26. No matter how bad it gets, I know I can handle it.
- _____27. I pretend it's not there.
- _____28. I worry all the time about whether it will end.
- _____29. I lie down.

Never
do thatSometimes
do thatAlways do
that

0

1

2

3

4

5

6

When I feel pain ...

- _____30. I replay in my mind pleasant experiences in the past.
- _____31. I think of people I enjoy doing things with.
- _____32. I pray for the pain to stop.
- _____33. I take a shower or bath.
- _____34. I imagine that the pain is outside of my body.
- _____35. I just go on as if nothing happened.
- _____36. I see it as a challenge and don't let it bother me.
- _____37. Although it hurts, I just keep on going.
- _____38. I feel I can't stand it anymore.
- _____39. I try to be around other people.
- _____40. I ignore it.
- _____41. I rely on my faith in God.
- _____42. I feel like I can't go on.
- _____43. I think of things I enjoy doing.
- _____44. I do anything to get my mind off the pain.
- _____45. I do something I enjoy, such as watching TV or listening to music.
- _____46. I pretend it's not a part of me.
- _____47. I do something active, like recreational activities or projects.
- _____48. I use a heating pad.

Based on all the things you do to cope, or deal with your pain, on an average day, how much control do you feel you have over it? Please circle the appropriate number. Remember, you can circle any number along the scale.

No control			Some control			Complete control
0	1	2	3	4	5	6

Based on all the things you do to cope, or deal with your pain, on an average day, how much are you able to decrease it? Please circle the appropriate number. Remember, you can circle any number along the scale.

Can't decrease at all			Can decrease it somewhat			Can decrease it completely
0	1	2	3	4	5	6