

**Impact of Therapeutic Support of Inherent Coping
Strategies on Chronic Low Back Pain:
A Nursing Intervention Study**

by

Diana Elizabeth McMillan

A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF NURSING

Faculty of Nursing
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**IMPACT OF THERAPEUTIC SUPPORT OF INHERENT COPING
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DIANA ELIZABETH MCMILLAN

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Table of Contents

List of Figures	v
List of Tables	vi
Acknowledgments	vii
Abstract	ix
Chapter I — Statement of the Problem	1
Purpose	3
Significance of the Study	3
Key Components of the Research Investigation	5
Pain	5
Gate Control Theory	6
Coping	7
Depression	8
Therapeutic Support	9
Conceptual Framework	10
Neuman Health-Care Systems Model	10
Theoretical Assumptions	11
Investigator-Generated Assumptions	13
Study Questions	14
Study Definitions	15
Summary	16
Chapter II — Review of the Literature	17
Physiological Variables in Chronic Low Back Pain	17
Origin of the Pain Problem	17
Chronic Nonmalignant Low Back Pain	18
Type of Injury	19
Severity of Pain	19
Duration of Pain	20
Surgical Interventions for Pain	21
Medical Interventions for Pain	21
Gender	22
Developmental Variables in Chronic Low Back Pain	23
Age	23

Sociocultural Variables in Chronic Low Back Pain	23
Societal Influences	24
Cohort Influences	24
Cultural Influences	25
Support	25
Social Support	25
Therapeutic Support	26
Employment/Disability Status	26
Psychological Variables in Chronic Low Back Pain	27
Suffering	28
Emotional Status and Personality	28
Perceived Control	30
Coping	33
Inherent Coping Strategies	34
Imposed Coping Strategies	40
Memory for Pain	44
Measurement Biases	44
Summary	44
Chapter III — Method	46
Methodological Rationale	46
Methodological Implementation	49
Sampling	49
Measurement Tools	51
Qualitative Measures	52
Quantitative Measures	55
Procedure	63
Treatment Group — Therapeutic Support of Inherent Coping Strategies	67
Control Group — Unsupported Inherent Coping Strategies	69
Measurement Error Reduction	70
Information-Seeking by Subjects	71
Analysis	71
Quantitative Data Analysis	71
Qualitative Data Analysis	71
Ethical Considerations	73

Limitations	74
Summary	76
Chapter IV — Quantitative Results	77
Sample Representativeness	77
Characteristics of the Sample	79
Findings from Pain, Coping and Depression Measures	84
Pain Measures	84
Coping Measures	92
Depression Measure	99
Comparisons Between Qualitative and Quantitative Measures	100
Chapter Summary	101
Chapter V — Qualitative Results	103
Occupation, Employment and Health History Variables	103
Impact of CLBP (Theme I)	105
Physical Impact	105
Descriptions about the Pain Experience	105
Concomitant Physical Impact	108
Psychological Impact	110
Impact on Accommodation	119
Impact on Careers	119
Living with CLBP (Theme II)	120
Coping Behaviors	121
Types of Coping Strategies	121
Feelings Towards Strategy Use	123
Effectiveness and Limitations of Coping Strategies	124
Major Influences Shaping Coping Behaviors	125
Influences on Coping Behaviors: Pain History Variables	125
Influences on Coping Behaviors: Temporal Focus	126
Influences on Coping Behaviors: Philosophies of Pain and Life	127
Influences on Coping Behaviors: Supportive/Nonsupportive Environments	128
Influences on Coping Behaviors: Resources and Responsibilities	130
Influences on Coping Behaviors: Past Treatment	131
Influences on Coping Behaviors: Medication Avoidance	132
Change Through the Pain Experience (Theme III)	132

Chapter Summary	133
Chapter VI — Discussion of the Findings	135
Comparison of Findings to the Four Study Questions	135
Comparison of Findings to the Neuman Health-Care Systems Model	152
Study Recommendations	154
Recommendations For Nursing Practice	154
For Nursing Education	155
For Nursing Research	156
Summary	157
References	159
Appendix A — CLBP Support Criteria and Source	177
Appendix B — Pre-treatment Interview Schedule	179
Appendix C — Post-treatment Interview Schedule	185
Appendix D — Daily Activity Diary	187
Appendix E — Numerical Rating Scale for Pain	191
Appendix F — McGill Pain Questionnaire (Semantic Scale)	192
Appendix G — Coping Strategy Questionnaire	193
Appendix H — Coping Strategy Questionnaire Score Key	197
Appendix I — Beck Depression Inventory	198
Appendix J — Explanation of the Study	202
Appendix K — Consent Form for Pain Clinic Physicians	206
Appendix L — Invitation to Potential Subjects	207
Appendix M — Telephone Introduction to Potential Subjects	209
Appendix N — Consent Form	212
Appendix O — Rationale for Questions in Interview I and II	215
Appendix P — Procedural Time Line	218
Appendix Q — Stages of Thematic Analysis	219
Appendix R — Scatterplot of CSQO-T by NRS1	220
Appendix S — Scatterplot of REINSEN by NRS2	221
Appendix T — Scatterplot of PRI-E by DECRSE	222

List of Figures

Figure A — NRS 95% Confidence Intervals: Control Subjects	89
Figure B — NRS 95% Confidence Intervals: Treatment Subjects	89
Figure C — MPQ 95% Confidence Intervals: Control Subjects	90
Figure D — MPQ 95% Confidence Intervals: Treatment Subjects	90
Figure E — Frequency of CSQ Items Reported by Strategy Category	93
Figure F — Frequency of CSQO Items Reported by Strategy Category	93
Figure G — CSQ 95% Confidence Intervals: Control Subjects	97
Figure H — CSQ 95% Confidence Intervals: Treatment Subjects	97
Figure I — CSQO 95% Confidence Intervals: Control and Treatment Subjects	98
Figure J — Frequency of Perceived Causes of CLBP	104
Figure K — Frequency of Other Pain Conditions	104

List of Tables

Table 1 — Stratified Accidental Sample Design: Stratification Levels by Condition	49
Table 2 — T-test Power Percentages as a Function of Effect Size and Cell Sample Size	51
Table 3 — T-Test Analysis of Interval Level Subject Variables by Condition	81
Table 4 — Wilcoxon Rank Sum Test Between Category Differences for Six Subscales by Perceived Employment Status	82
Table 5 — Total Sample Responses at Interview I for Pain, Coping, and Depression	83
Table 6 — Average Total Sample Responses on Daily Activity Diary	84
Table 7 — Significant Wilcoxon Rank Sum Tests for Pain Responses by Descriptive Category	85
Table 8 — Significant Kendall Tau <i>b</i> Correlations Between Pain Responses and Health History Variables	86
Table 9 — Significant Kendall Tau <i>b</i> Correlations Between Pain and Coping Responses	87
Table 10 — Wilcoxon 2-Sample Test Analyses of Pain, Coping and Depression Scale Difference Scores Between Conditions	91
Table 11 — Significant Wilcoxon Rank Sum Tests for Coping Responses by Descriptive Category	94
Table 12 — Significant Kendall Tau <i>b</i> Correlations Between Coping Responses and Health History and Depression Variables	96
Table 13 — Wilcoxon Rank Sum Test Difference Scores for Pain, Coping, and Depression by High and Low Study Impact and Condition	101

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Abstract

Chronic low back pain (CLBP) is a prevalent and debilitating health problem. Relief following traditional medical treatment of CLBP is often limited. Many individuals with CLBP have developed their own coping strategies to deal with their discomfort. The therapeutic support of these patient-selected coping regimes by nurses is expected to be of benefit. However, the concept of support has been poorly operationalized, and the empirical testing of support intervention is lacking. The Neuman Health-Care Systems Model provides a holistic framework for patient care, and was used to consider the interrelationship of the study variables.

A convenience sample of 19 CLBP clients, drawn from two tertiary care hospital pain clinics, served to determine if there was a significant difference in treatment outcome measures (perceived pain, coping efficacy ratings and depression levels) when individuals with CLBP were therapeutically supported versus unsupported in their own coping strategies. Measures included Pre-treatment and Post-treatment Semistructured Interview Schedules, Daily Activity Diary, 11-point Numerical Rating Scale, McGill Pain Questionnaire-Semantic Portion, Coping Strategy Questionnaire (Open and Closed), and the Beck Depression Inventory. Treatment was based on eight support criteria, and consisted of a more detailed discussion of the client's own pain experience and coping methods, and the researcher's verbal and non-verbal support of the client's nonhealth-threatening inherent coping strategies.

Quantitative findings did not support the study prediction. Positive intervention-related trends warrant further investigation with a larger sample size. A number of pain, coping, depression, and health history variables were significantly related. Thematic analysis of the qualitative data resulted in three themes: Impact of CLBP, Living with CLBP, and Change Through the Pain Experience. Subthemes included patterns of pain, sleep disturbances, feelings of depression, isolation, desperation, coping strategy limitations, and increased self awareness. Qualitatively, study participation had a major positive impact on 3 treatment and 2 control subjects, and a moderately positive impact on 4 controls. Implications for nursing practice, education, and research are discussed.

Chapter I — Statement of the Problem

Helping clients manage or alleviate pain is a fundamental responsibility of nursing professionals. Considerable literature has been written in support of noninvasive techniques, such as relaxation, distraction, imagery, and pacing, as useful measures to reduce perceived pain. Several studies have examined individuals' own (inherent) coping strategies in situations of physical pain.

Findings indicate that these regimes can improve pain ratings and feelings of control, that strategies used are well known and unique to the individual and compatible with held beliefs, and that several methods may be necessary as the effectiveness of any one particular coping strategy may vary over time (Chaves & Brown, 1987; Copp, 1974; Gross, 1986; Keefe & Dolan, 1986; King, 1985; Miller, Garrett, McMahon, Johnson, & Wikoff, 1985; Rosenstiel & Keefe, 1983; Spinhoven, Ter Kuile, Linssen, & Gazendam, 1989; Turner & Clancy, 1986; Watt-Watson, Evans, & Watson, 1988).

Support of a client's own coping strategies is frequently cited as an integral part of the nursing role (Broome, 1986; Ducharme, Stevens, & Rowat, 1984; Gardner, 1979; Mitchell, 1983; Orem, 1985). The exact nature of nursing-based support, however, is not well delineated and can only be inferred from a broad base of theoretical, research and clinical literature. Research indicates that not all coping regimes are beneficial to patient outcome (Keefe & Dolan, 1983; Rosenstiel & Keefe, 1983).

Furthermore, the positive treatment effects of encouraged use of particular pain management regimes appears to also involve a validation by the researcher that these

strategies are needed — that the patient's pain experience is real — and that these attempts contribute to greater feelings of perceived pain control (Braden, 1990; Giloth, 1990; Smith, Airey, & Salmond, 1990; Upton, 1988; Walker, Akinsanya, Davis, & Marcer, 1989). This researcher has used the term 'therapeutic support' to embody a more specific definition of the word support than is frequently given. The definition of this term is provided within the list of study definitions found at the end of this chapter.

Therapeutic support criteria can be found in Appendix A. The importance of supporting an individual's own coping strategies is particularly relevant in light of findings that health professional-advised coping regimes may be of little use and are infrequently followed (King, 1985).

While the therapeutic support of inherent coping strategies may be considered a fundamental role for nurses, the impact of this treatment on patient pain and coping outcome measures has not been systematically investigated. Thus, a pilot test is warranted in order to systematically evaluate the impact of therapeutically supporting inherent coping strategies for a given population. This pilot test, conducted with nonmalignant chronic low back pain (CLBP) clients, constitutes the current research investigation.

Three key factors that contribute to the physical and emotional comfort of chronic pain patients are perceived pain, coping efficacy and depression level. Perceived pain is affected by both psychological and physiological influences and is often the primary consideration for any treatment outcome evaluation in this client group. Most CLBP patients do not find complete pain relief through surgical or medical interventions and therefore must also rely on their own coping strategies for a portion of their pain

management. Overall coping strategy efficacy reflects the degree of success that these pain management regimes provide, and the use and success of these activities may contribute significantly to a client's sense of control (Smith et al., 1990). Finally, depression is a common experience of CLBP patients (Fordyce, 1976). Level of depression has been shown to relate to both pain perception (Turner & Romano, 1989; Watt-Watson et al., 1988) and the ability to cope (Turner & Clancy, 1986; 1988).

Purpose

An important question for nursing practice, and the goal of this research investigation, was to determine if there was a significant difference in treatment outcome measures (perceived pain, coping efficacy ratings and depression levels) when individuals with CLBP were therapeutically supported versus unsupported in their own coping strategies.

Significance of the Study

More than five hundred thousand Canadians are currently afflicted with chronic back disability (Adams, Dowler, Lafleur, Jordan-Simpson, & Wilkings, 1991). In Manitoba, lower spinal injury claims totalled 5,365 in 1993 alone, and were second only to hand injuries for the highest incidence of reported accidents (Workers Compensation Board of Manitoba, 1993). The cost of chronic back pain disability in terms of health care (Hart, Deyo, & Cherkin, 1995) and employment revenue loss are dramatic (Webster & Snook, 1994; 1993). As well, the impact of this spinal column dysfunction on the individual and their family can be devastating (Bowman, 1991; Hurst, 1990; McCaffery & Beebe, 1989; Snelling, 1994; Watt-Watson et al., 1988).

Although individuals with chronic low back pain (CLBP) generally seek medical intervention, often repeatedly, pain relief following traditional medical treatment has frequently been limited (Bowman, 1991; Smith et al., 1990). In part, the limited success of traditional methods may stem from the lack of a clear diagnosis for the pain origin. Loeser (1980) contends that up to 60% of CLBP patients have no identifiable medical explanation for their pain. Unfortunately, the lack of evident organic findings leads some clinicians to blame the victims, while dismissing their real suffering (1991; Fordyce, Roberts, & Sternbach, 1985; McCaffery & Beebe, 1989). Although traditional medical treatments and psychological techniques remain an important element for enhancing patients' pain coping abilities, "... it is argued that ... a much wider holistic approach to pain management is required in order to prevent responses to pain which are not adaptive, to promote personal control over pain, and to maximize the effectiveness of pain treatments" (Walker et al., 1989, p. 246).

Most CLBP patients have out of necessity developed coping strategies to deal with their discomfort. The therapeutic support of these learned and culturally acceptable patient-selected coping regimes by nurses is expected to be of benefit to the individual's well being. Furthermore, this treatment may be especially valuable to CLBP clients in light of the limited pain relief success by traditional medical intervention, the prolonged duration of the painful condition, and because the control and self esteem associated with inherent pain management use may help alleviate feelings of helplessness and hopelessness common to this condition.

Therefore, the provision of therapeutic support for inherent coping regimes may be a particularly important nursing treatment for individuals attempting to cope with this potentially lifelong painful disorder. As nursing professionals, it is our responsibility to provide optimal patient care. In order to meet this challenge we must make our nursing interventions explicit, and then systematically assess the validity of the treatment's effectiveness. This pilot study is an attempt to address one important and fundamental treatment in the clinical practice arena, namely, the therapeutic support of inherent coping regimes for CLBP patients.

Key Components of the Research Investigation

The four key components within this research investigation are pain, coping, depression, and therapeutic support. Each of these elements will be briefly introduced within the ensuing paragraphs.

Pain

The first fundamental research variable to be considered is pain. The concept of pain is very complex and involves physiological, psychological, sociocultural and behavioral considerations (Peric-Knowlton, 1984). Melzack and Wall (1982) define pain as "... a category of experiences, signifying a multitude of different, unique experiences having different causes, and characterized by different qualities varying along a number of sensory and affective dimensions" (p. 71). A similar but much simpler definition of the concept is offered by McCaffery (1979): "(pain is) whatever the experiencing person says it is, existing whenever he says it does" (p. 11). The knowledge that pain is a subjective

experience leads this investigator to adopt McCaffery's generalized but practical definition for purposes of this study.

Gate Control Theory

One of the most widely supported theories of pain is the gate control theory (Melzack & Wall, 1965). This theory provides a compatible but more detailed conceptual framework for pain than the useful but general research model (Neuman Health-Care Systems Model, Neuman, 1982) to be discussed later in this chapter.

Melzack & Wall (1965) propose that stimulation of peripheral areas, such as the skin, result in impulse transmissions by large inhibitory and small anti-inhibitory nerve fibres to three areas within the spinal cord. These include: 1. the cells of the substantia gelatinosa in the dorsal horn which act as a 'gate control system' for incoming nerve impulses; 2. the dorsal column fibres which activate the evaluative and cognitive processes of the reticular formation and cortex respectively to form the 'central control system'; and 3. the central transmission or 'T cells' in the dorsal horn that activate the neural 'action system' which results in a perception and response to pain stimuli (1965). Of particular importance for this study is the proposition that the neural gate is not only affected by nerve impulses in the peripheral areas, but that the perception of the pain stimulus can be modified by a central control system which is cognitive in nature. Additionally this central control, and therefore also the neural gate, is acted upon by both motivational-affective and sensory-discriminative elements found in the action system.

The gate control theory is appealing since it can explain successful use of electrical nerve stimulation (which activate inhibitory fibres), acupuncture, nerve blocks, and ice

massage (Melzack & Wall, 1982). Additionally, the complexities of chronic pain, phantom limb pain and the partial pain relief derived by pharmacological interventions such as narcotics can be explained at least in part by this model (1982). Recent studies with phantom limb patients (Katz & Melzack, 1990) and phantom limb experiments in rats (Katz, Vaccarino, Coderre, & Melzack, 1991), suggest that intense and sustained somatosensory stimulation may produce permanent changes in the central neural structures and result in pain that outlasts the noxious stimulation. Whether these findings are applicable to the general chronic pain population has not yet been determined. Finally, although Melzack and Wall (1982) provide a general relationship between noninvasive, cognitive and evaluative related coping techniques such as relaxation therapy, distraction, and guided imagery, the details of these psychological influences on the central control system and their exact impact on the neural gate remains unclear (Kim, 1980).

Coping

The second pivotal component under inquiry is coping. Neuman sees coping patterns as an integral aspect of an individual's self-preservation (1982). These attempts to regain a dynamic equilibrium are unique for each individual (1982). The following two definitions are congruent with the Neuman model and serve to clarify what constitutes coping strategies in this study. Lazarus and Folkman (1984) define coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Coping strategies have been defined by Zeitlin (1980) as "specific behavioral sequences however simple or complex, used to deal with specific challenges and problems" (p. 140).

Pearlin and Schooler (1978) suggest that a range of coping skills may be as effective if not more effective than one mastered response. The Neuman model would seem to support this perspective, since it considers stressors as impacting on the individual in a dynamic and interactive way such that one coping method alone may not always result in the return to equilibrium. King (1985) found that patients often used several coping strategies at once, and that the types of techniques differed pre- and post-surgically. Some studies have examined the impact of imposed coping strategies on pain but have never asked the subjects about their own coping methods, nor included a comparison condition in which subjects were allowed to use personal coping strategies (Geden et al., 1984; Ziemer, 1983). Other studies have examined patients' own coping strategies, but only in relation to such variables as treatment-related stressors, current concerns, rationale for use, type and extent of helpfulness of the strategy, treatment predictive abilities, and locus of control (Baldree, Murphy, & Powers, 1981; King, 1985; La Montagne, 1987).

Miller et al., (1985) found a significant difference existed between coping methods listed as being used and those reported as advised by their physicians. Reesor and Craig (1988) suggest that coping style may be an important area of assessment when treating medically incongruent chronic back pain. However, it cannot be assumed that a style match is also a strategy match.

Depression

The third variable to be highlighted is depression. Some degree of depression is experienced by most clients suffering from chronic pain (Fordyce, 1976), and CLBP is no exception. These feelings of despair are closely related to perceptions of helplessness

(Spinhoven, et al., 1989) and difficulties in problem solving (McCaffery & Beebe, 1989). Furthermore, high levels of depression are also closely related to greater levels of perceived pain (Watt-Watson, et al., 1988). Depression in and of itself is a form of suffering. For CLBP patients however, this emotional state appears to contribute to a vicious cycle in which perceived pain is greater, coping abilities are poorer (reducing pain control), and as a result, depression is predicted to increase.

Therapeutic Support

The final concept for consideration is therapeutic support. Psychosocial support by health care professionals has been suggested as being an important element in enhancing patient coping (Devine & Cook, 1986; Ducharme, et al., 1993; Gardner, 1979). Pallen (1991) determined that "the supportive component is a crucial one in the health provider-consumer system" (p. 199). Unfortunately, the characteristics of what constitutes support are often not clearly or readily defined, and must be inferred from a broad theoretical, research and clinical resource base (Gardner, 1979).

Lipowski (1970) conveys the importance of supporting a client's existing strategies, or if inappropriate, the encouragement of a different but effective method. Neuman (1982) proposes that when a reaction has occurred (such as pain) it is the nurse's responsibility to optimize the individual's internal and external resources in an attempt to stabilize or strengthen the internal lines of resistance to reduce the reaction. Supporting the client's own coping methods may be one way to achieve this goal for patients in pain.

Gardner (1979) gave a helpful review of the support literature in nursing. Although "Support for nurses has at least three parameters: physical, social, and

emotional” (p. 15, 1979), the meaning of support was not operationally defined. While Ducharme et al., (1994) and Lindsey (1988) provide useful reviews of several tools designed to assess social support, the measurement of therapeutic support in nursing were not addressed. One social support tool (Norbeck, 1980) includes the general category of “health care providers” within the assessment of social support. However, only one question — “How much does this person agree with or support your actions or thoughts?” (1980, p. 3) — really begins to address the issue of therapeutic support within the nursing care role, and this analysis is at a very superficial level. Lindsey (1988) identifies areas for further research in social support including determining the “nature of support relationships that leads to improved coping or adjustment” (p. 110), and adds that “Enhancing or facilitating the quality of support may be a crucial intervention strategy” (p. 110).

Conceptual Framework

Neuman Health-Care Systems Model

The Neuman Health-Care Systems Model (Neuman, 1982) is a useful framework when considering the interrelationship of the variables under investigation, namely: pain (stressor); normal coping patterns, which form an integral component of an individual’s normal line of defence; depression (stressor); and therapeutic support (intervention). The model is represented as a series of concentric defense lines which act to protect a central core of basic structure energy resources (1982, p. 13). Each unique individual is acted upon by intra-, inter- and extra-personal forces or stressors which can upset their equilibrium or normal line of defense. The interrelationship of “physiologic, psychologic,

sociocultural and developmental variables determine the nature and degree of the (individual's) stress reaction" (1982, p. 12). The model nicely addresses the subjective nature of the pain experience. The nurse is provided with a holistic framework for patient care and is able to address the pain management problem by attempting to reduce the actual pain stressor, by reducing additional stressors which can also weaken the client's ability to handle the stress, and by attempting to strengthen the client's flexible lines of resistance, normal lines of defence, and flexible lines of defence.

Theoretical Assumptions

Neuman (1982) includes both explicit and implicit assumptions in her model. The following nine assumptions were paraphrased from Neuman's list.

1. Individuals are unique and possess common response ranges.
2. Various stressors can upset the equilibrium or normal line of defense of an individual. Physiological, psychological, sociocultural, and developmental variables affect the degree that the flexible line of defense is used.
3. Individuals develop unique ranges of response over time called their normal line of defense.
4. If the flexible line of defense cannot prevent incoming stressors from reaching the normal line of defense, the stressor causes instability in the system.
5. The internal lines of resistance in a system attempt to stabilize and renormalize the system.
6. An individual's state of wellness or illness results from the dynamic interrelationship of physiological, psychological, sociocultural and developmental variables.

7. Primary prevention attempts to identify and allay potential risk factors associated with stressors.
8. Secondary prevention follows the occurrence of a symptom and relates to prioritized intervention and treatment.
9. Tertiary intervention relates to the adaptive process during reconstitution (1982, p. 12, 14).

Several implicit assumptions can be gleaned from Neuman's discussion. Wellness is considered the optimal state of an individual. Interveners such as nurses have the ability and responsibility to assist individuals towards this dynamic equilibrium. Individuality is highly valued and is to be considered throughout the care process. Furthermore, group and community systems can be considered in similar ways to individual systems (Neuman, 1982).

Two elements of Neuman's model that are fundamental to the topic but lacking in clarity warranted further consideration. These components — flexible lines of defense and flexible lines of resistance — have been defined by the researcher as follows:

1. Flexible lines of defense are transitory behavioral, cognitive or affective attempts to prohibit the stressor from impacting or disturbing the normal functioning of the system. An example of a flexible line of defense could be the use of ignoring behaviors in work or social situations that do not permit the use of preferred or typical coping strategies.
2. Flexible lines of resistance are automatic behavioral or physiological defense mechanisms unique to an individual. These factors differ from normal patterns

because of their cognitively independent nature. Secondly, they are not as basic as the core factors by virtue that not all individuals possess these specific types of resistance.

Examples of this type could include various pain-related guarding behaviors that are both automatic and specific to each individual.

Although the predictive value of the present model is limited, Neuman (1982) has provided the researcher with a useful guide for the areas of current investigation. The model has been making substantial contributions to nursing education (Connors, Harmon, & Langford, 1982; Johnson, et al., 1982; Knox, Kilchenstein, & Yakulis, 1982; Lebold & Davis, 1982; Moxley & Allen, 1982; Tollett, 1982), and nursing practice (Baker, 1982; Beitler, Tkachuk, & Aamodt, 1980; Benedict & Sproles, 1982, Craddock & Stanhope, 1980; Echlin, 1982; Goldblum-Graff & Graff, 1982). Few empirical studies have been found however, that use the Neuman model as a framework for investigation. Ziemer (1983) used the Neuman model as a framework to study the effects of information on post-surgical coping. The results did not support the predicted hypotheses. There were several methodological reasons why this could have occurred, in addition to the possibility that the model is not reflective of reality (1983). The sparsity of related empirical research is reflective of the level of abstraction in the model. This is expected to change as the model becomes more operationally defined.

Investigator-Generated Assumptions

Before pursuing any research investigation, it is critical to explicitly consider both the assumptions generated by the theoretical underpinnings and by the researcher. The

assumptions of the conceptual framework have been delineated, and the investigator-generated assumptions specific to the research question will now be outlined.

1. Chronic back pain patients possess individual methods to deal with their pain.
2. Clients will be able to identify their pain coping strategies.
3. Clients will accurately record pain and activity levels and patterns and pain relief practices.
4. Verbal acknowledgement of a particular coping strategy is perceived differently than verbal encouragement for a particular strategy. Verbal encouragement will be perceived as support for that strategy, verbal acknowledgement will be perceived as a neutral response (neither support nor discouragement).
5. Valid inherent coping strategy support criteria have been found for the CLBP population (see Appendix A).

Study Questions

A number of complex interrelationships are involved in this investigation. This research study will explore the following questions.

1. What inherent coping strategies do CLBP patients identify, and what is the frequency and general efficacy of this use?
2. How do demographic variables and pain and coping history variables relate to the three identified outcome measures (perceived pain, coping efficacy, and depression level)?
3. How do feelings of control and perceptions of coping mastery relate to these outcome measures?

4. What is the impact of a treatment of therapeutic support versus no support on perceived pain, coping efficacy ratings, and depression on CLBP patients?

Study Definitions

Chronic Low Back Pain: pain in the lumbar region of the spinal column that has persisted for at least six months. All CLBP subjects in this study will have a diagnosis of CLBP unrelated to malignant conditions.

Depression: “1. A specific alteration in mood; 2. A negative self-concept associated with self-reproaches and self-blame; 3. Regressive and self-punitive wishes; 4. Vegetative changes; and 5. Change in activity level” (Beck, 1979, p. 162).

Depression will be operationalized by scores on the Beck Depression Inventory (Beck, 1979).

Inherent Coping Strategies: Techniques or practices that an individual spontaneously uses in attempts to reduce a stressful or painful situation. These regimes are learned, socially and culturally acceptable to the individual and are perceived by that person as appropriate for a particular situation.

Inherent Coping Strategies will be operationalized by the responses on the Coping Strategy Questionnaire (Rosenstiel & Keefe, 1983), the Pre- and Post-treatment Interview Schedules (Questions 19 and 2, respectively) and by the self-reports provided in the Daily Activity Diary (Question H).

Perceived Pain: “(Pain is) whatever the experiencing person says it is, existing whenever he says it does” (McCaffery, 1979, p. 11).

Perceived pain will be operationalized by responses on the Numerical Rating Scale, the scores on the semantic portion of the McGill Pain Questionnaire (Melzack, 1975), and by the reports in the Daily Activity Diary (Questions B, C, D, and E).

Therapeutic Support of Inherent Coping Strategies: A noninvasive, nontechnological, psychosocial nursing treatment provided to CLBP patients using an interactive interview process. The interview follows a semistructured individualized format and addresses eight support criteria appropriate for clients with CLBP (see Appendix A).

Summary

Theoretically, the use of a CLBP client's inherent (learned, socially and culturally acceptable) coping regimes during painful experiences could result in the strengthening of personal defense mechanisms and the reduction of additional stressors on the system (Neuman, 1982). The anticipated increased feelings of control (Averill, 1973) and greater self-efficacy (Bandura, 1986) that self-selected strategies may have on the individual also lend theoretical support to the prediction that therapeutically supporting inherent strategies is a valid treatment with positive impact on patient care outcome measures. The aim of this investigation was to determine whether the provision of therapeutic support for inherent coping strategies had a more positive effect on perceived pain, coping strategy efficacy ratings, and depression levels than the unsupported use of an individual's own pain management regimes in chronic low back pain patients.

Chapter II — Review of the Literature

In order for nurses to gain an understanding of how to optimally assist clients suffering from chronic back pain and to test whether this care includes the therapeutic support of inherent coping strategies, a number of influencing factors need to be considered. According to Neuman (1982), an individual's state of wellness or illness results from the dynamic interrelationship of physiological, developmental, sociocultural and psychological variables. A review of the literature revealed that specific factors within each of these four areas may play vital roles in a number of parameters relating to chronic back pain perception, coping, and treatment outcome. The impact of these factors on chronic back pain will now be highlighted. Particular attention will be given to one central psychological variable, namely coping. Specific findings relating to coping practices will be discussed.

Physiological Variables in Chronic Low Back Pain

A number of relevant physiological issues germane to the current CLBP will now be discussed. These topics include: the origin of the pain problem, chronic nonmalignant low back pain, type of injury, severity of pain, duration of pain, surgical and medical interventions for pain, and gender.

Origin of the Pain Problem

Back pain can result from a number of sources including: acute trauma, repetitive musculoskeletal strain (e.g. bending, lifting, twisting), congenital and developmental-related deformities (e.g. scoliosis, spondylolisthesis and Scheuermann's

Disease), inflammatory diseases (e.g. rheumatoid arthritis, ankylosing spondylitis, and spondylitis), degenerative diseases (e.g. Paget's Disease and osteoporosis), cancers (e.g. spinal and metastatic), and psychogenic pain syndrome (Chase, 1992; Hall, 1980; White, 1988). Additional factors associated with back pain include exposure to continuous vibrations, cigarette smoking, obesity, pregnancy, poor physical conditioning, poor posture, leg length discrepancy, and being above average in height (Battie, Bigos, & Fisher, 1989; Chase, 1992; Frymoyer, 1988; Hall, 1980; Kelsey, et al., 1984).

Chronic Nonmalignant Low Back Pain

Back pain may be acute or chronic, malignant or nonmalignant. For purposes of this study, examination will focus primarily on literature relating to chronic nonmalignant back pain. It is important to distinguish chronic from acute pain because there are profound differences in the pain experience that do not permit the generalizability of the disease model (used typically for acute pain) to chronic pain patients (Fordyce, et al., 1985). Furthermore, as the physiological paths of the conditions differ markedly, it is expected that malignant and nonmalignant prognoses generate profound differences psychologically, socioculturally, and developmentally.

McCaffery and Beebe (1989) define chronic nonmalignant pain as "... pain that has lasted 6 months or longer, is ongoing on a daily basis, is due to non-life-threatening causes, has not responded to currently available treatment methods, and may continue for the remainder of the patient's life" (p. 233-234). Whipple (1990) adds that "Chronic pain is usually ... poorly localized. The pain may be classified as dull, aching, diffuse, constant,

and nagging; it may be intractable. The client may appear exhausted, listless, depressed, and withdrawn” (p. 22).

Most chronic back pain is nonmalignant in nature and can be generally classified as resulting from one of three conditions (Hall, 1980). Type One is typified by a worn and inflamed facet joint caused by the rubbing of vertebral bones instigated by excessive strain on the spine, decreased lubrication to the joint or a flattened spinal disc. Type Two back pain is based on a flattened disc that has bulged suddenly. The third condition results from the pressing or rubbing of a nerve by a bulging disc or a pinching of a nerve between two vertebrae when their intervertebral disc becomes flattened (Hall, 1980). Despite this, there are those who suggest that in 60 to 88 % of low back pain cases there is no identifiable pathological or mechanical basis for their suffering (Loeser, 1980; Pellino & Oberst, 1992).

Type of Injury

Type of injury appears to have differing effects on outcome results. While one study by Gross (1986) would suggest that the type of back injury is related to pain and coping behaviors, other researchers have not found this association (Turner, Robinson, & McCreary, 1983).

Severity of Pain

One meta-analysis of research studies using the McGill Pain Questionnaire (MPQ) considered the relative severity of perceived pain for seven pain conditions: cancer, chronic back pain, mixed chronic pain (excluding back pain), acute/postoperative pain, labor/gynecological pain, dental pain, and experimental induced pain (Wilkie, Savedra,

Holzemer, Tesler, & Paul, 1990). Subjects with back pain or mixed chronic pain reported the highest values for all MPQ scores. Only 50% of the retrieved studies met inclusion criteria, and of those included, inconsistencies existed with regard to the version, procedure and scoring methods of the MPQ used (1990).

The relationship between coping behaviors and pain severity is unclear. Although Spinhoven, et al., (1989) state “that the type of coping strategy a patient employs is not related to the severity of the pain problem” (p. 81), they note that helplessness related to reports of greater pain. Turner and Clancy (1986) found that coping style is related to average pain, and that diverting attention relates positively with pain intensity. Other authors found no significant differences in pain ratings between individuals who reported using coping strategies and those who denied strategy use or between catastrophizers and coping strategy deniers (Chaves & Brown, 1987).

Duration of Pain

The relationship of duration of pain to outcome measures such as pain intensity and treatment efficacy is mixed. One CLBP study indicated that duration of continuous pain was positively related to pain severity (Rosenstiel & Keefe, 1983). Turner & Clancy (1986) examined coping strategies of 74 CLBP patients and found that duration of pain did not account for a significant proportion of variance in average pain level, measures of depression, pain-related physical and psychosocial disability, or downtime. Findings by Block, Kremer and Gaylor (1980) suggest that duration of chronic pain is less significant than the type of referral (i.e. medical versus disability). Kosten and Kleber (1987) conclude that there is a reduction in the circulating endorphin levels, the body's natural

analgesic, over time with repeated exposure to pain; leading one to expect greater perceived pain levels with increased pain chronicity. Fatigue, which may be a consequence and a contributor to pain duration and pain levels, has been negatively correlated with CLBP rehabilitation outcome (Sandstrom, 1986).

Surgical Interventions for Pain

While surgery can be effective for a few specific types of back problems, this method of treatment is not recommended for many types of back pain conditions, nor is it without risk (Hall, 1980). The two main surgical procedures for back pain involve either decompression or stabilization (1980). In decompression-related surgery, a herniated disc is removed or the bone pinching a nerve is reduced. Stabilization involves a fusing of one or more painful joints. One hazard of fusion is that the back does not become stronger but more rigid, and this rigidity of one joint can lead to added stress on surrounding joints.

In addition, surgery itself causes scar formation which can contribute to pain. Some clients expect that surgery alone will cure their pain problem and thus ignore the development and maintenance of good body mechanics and back strengthening habits. Evidence from two research investigations suggests that clients unrelieved by back pain surgery have greater pain intensity levels than CLBP patients with no previous back surgery (Rosenstiel & Keefe, 1983; Spinhoven, et al, 1989).

Medical Interventions for Pain

While rest, back strengthening exercises and good body mechanics are standard recommendations for most back pain sufferers, a host of other physician prescribed and non-traditional treatments are often used. Medications include analgesics (narcotic and

nonnarcotic), muscle relaxants (i.e. diazepam), anti-inflammatory agents such as aspirin, steroids (i.e. oral or injectable cortisone) and nonsteroidal anti-inflammatory drugs such as phenylbutazone, indomethacin, naproxen and ibuprofen (Chase, 1992; Hall, 1980). While these interventions can have positive pain management effects, they are not free from serious adverse impact (Saag & Cowdery, 1994).

Other treatment methods include ultrasound, hydrotherapy, diathermy, chemonucleolysis, cryoanalgesia (deters receptor firing), rhizotomy (surgical or nonsurgical), counterirritants (hot packs, ice, liniments), a back brace, traction, transcutaneous electrical nerve stimulation (TENS), orthopedic mattresses and seat cushions, manipulation, massage, myotherapy, relaxation, aroma therapy, homeopathy, osteopathy, ice massage, and a wide range of cognitive (i.e. imagery, distraction, music therapy) (Chase, 1992; Decrosta, 1984; Fordyce, et al., 1985; Hall, 1980; McCaffery & Beebe, 1989; Twomey & Taylor, 1995) and behavioral therapies (positive reinforcement, extinction, shaping, modelling).

Gender

The impact of gender on chronic low back pain is inconclusive. Gender failed to relate significantly with conservative treatment outcome measures in CLBP (Turner et al., 1983), or pain intensity, family functioning, or coping responses (Crisson & Keefe, 1988; Watt-Watson et al., 1988), or pain (1988). Findings by Anderson and Rehm (1984) indicate that gender did not relate significantly to coping or pain perception for three chronic pain groups (sickle cell anemia, arthritis, and low back pain). In other CLBP studies, women did show greater functional impairment than men (Spinhoven et al., 1989),

rated themselves as generally more impaired in areas of homemaking and exercise (Buckelew et al., 1990), but had less obsessive-compulsive behaviour than males (Crisson & Keefe, 1988).

Developmental Variables in Chronic Low Back Pain

Developmental variables are the second major influencing factor of an individual's state of wellness or illness (Neuman, 1982). The one developmental variable significant to the CLBP condition is age, and will now be presented.

Age

In a review of the age-related incidence of back pain, Hall (1980) found that prevalence was greatest between the ages of 30 to 60 years with a peak range as narrow as 40 to 59 years of age. Disc herniation, one potential contributor to CLBP, was reported to have a particularly high risk of occurrence during mid-life, based on the age-related changes of the spinal column and the high activity and frequently higher load levels of this age group (Kraemer, 1995).

Johnson, Magnani, Chan, and Ferrante (1989) examined modifiers of patient-controlled analgesia efficacy in 42 chronic and 33 acute pain inpatients and found no significant correlation between age and patient pain, satisfaction or locus of control. Anderson and Rehm (1984) found that while the frequency of coping strategy use was not related to age, a number of cohort correlations did exist.

Sociocultural Variables in Chronic Low Back Pain

The third category of influences identified by Neuman (1982) are sociocultural variables. While broadly based and often descriptive in nature, the literature reviewing

sociocultural influences on pain and chronic back pain appears to indicate that societal, cohort and cultural values, support and employment/disability status, factor significantly in pain expression, assessment and treatment outcome. Each of these issues will now be examined.

Societal Influences

“Reported intensity of pain is influenced systematically by social reinforcement” (Fordyce et al., 1985, p. 120). Verbal and non-verbal pain related behavior may vary markedly. Fordyce (1976) proposes that in some cases pain is not what the patient says it is, but also relates to the patient’s behavior. This perspective does not discount that the experience is real to the patient, rather that sociocultural factors and behavioral mores also shape what the individual may feel is acceptable in expressing. Health beliefs and sociocultural factors were found to affect the health care utilization and health care behaviors of 2660 Belgian respondents with low back pain (Szpalski et al., 1995).

Cohort Influences

Anderson and Rehm (1984) examined coping strategies and perceived pain of 60 black patients with sickle cell anemia, arthritis or chronic low back pain. While pain ratings were not related to cohort factors, the frequency of coping strategy use did increase significantly for those with more brothers, larger families, lower birth orders, and single marital status (1984). Chronic pain was reported to have a negative impact on several aspects of family functioning, which in turn may contribute to poorer patient outcomes (Snelling, 1994).

Cultural Influences

Clinical experience indicates that culture can play a significant role in the types of coping strategies followed when advised and practised inherently. Davitz and Davitz (1975) propose that the expression of pain is influenced by cultural norms. Language and non-verbal communication have been seen as sources of misunderstanding when patients and health care professionals are from different cultures (McCaffery, 1983).

Support

Aaronson (1989) defines support as an effect modifier — a way to buffer the impact of stress on an individual. Within the Neuman Model (1982), support may be considered as a method of optimizing a client's internal and external resources. Support also plays a protective role by facilitating coping (Cobb, 1976).

Social Support

Social support is believed to contribute to good health by reducing stress (Aaronson, 1989). "The quality and availability of social support may have an important role in an individual's recovery from or adaptation to an illness or surgery" (Lindsey, 1988, p. 108). Patient-family interactions have been suggested as significantly influencing pain behavior, or the failure to support well behavior, or both (Anderson & Rehm, 1984; Fordyce, 1976). Higher perceptions of family member support were found in older chronic pain subjects from larger families (1984). Spousal support pain behaviors have both positive and negative effect on pain display that varies according to whether the spouse was present and whether the support was enacted or perceived (Paulsen & Altmaier, 1995). High reports of enacted support (punishing, solicitous, and distracting

responses) related to more frequent pain behaviors, while high perceived support (attachment, reliable alliance, opportunity for nurturance, and guidance) related to fewer pain behaviors (1995).

Therapeutic Support

Devine and Cook (1986) propose that psychosocial support by health care professionals is an important factor in enhancing patient coping. The support of inherent coping regimes is considered a fundamental nursing role (Broome, 1986; Gardner, 1979; Lipowski, 1970; Mitchell, 1983). Support is considered a crucial component in the “health provider-consumer system, (and yet) ... nurses were mentioned very little by respondents as supportive health professionals” (p. 199) in one study of individuals with chronic arthritic pain (Pallen, 1991). The actual criteria that would provide for the delivery of this ‘support’ is not clearly defined. While this psychosocial treatment is recognized as therapeutic and within the scope of nursing practice, research regarding the components of this therapeutic support is needed.

Using a broad theoretical, clinical and research base, the author has compiled eight therapeutic support criteria relevant to the support of inherent coping strategies of the CLBP client (see Appendix A). It is hoped that the delineation and validation of these selected practices will contribute to the understanding of this fundamental nursing practice concept.

Employment/Disability Status

CLBP subjects have identified a “... hopelessness of not being able to maintain their employment” (Bowman, 1991, p. 382). Some research suggests that disability status

may act as a positive reinforcement to maintain pain behavior (Block et al., 1980; Chapman & Brena, 1982; Rosenstiel & Keefe, 1983; Spinhoven et al., 1989). Other studies do not support this hypothesis (Melzack, Katz, & Jeans, 1985; Turner et al., 1983). One study found that disability was negatively related to treatment satisfaction (Hazard, Haugh, Green, & Jones, 1994).

A Swedish study (Sandstrom, 1986) examined the clinical and social factors involved in the rehabilitation of CLBP working and sicklisted clients. While both groups exhibited improvement, the working group showed decreased pain frequency and better management of activities of daily living (ADL) (1986). Health care use and ADL management capacity attitudes did not differ between groups, although those sicklisting did consume greater amounts of analgesic (1986). Physical examinations were not predictive of work status, nor was pain intensity significantly related to work loss. Long sickness absence prior to rehabilitation did correlate with poorer return to work rates of older clients (1986).

Psychological Variables in Chronic Low Back Pain

The next of Neuman's (1982) influencing variables to be considered are psychological variables. In the Gate Control Theory proposed by Melzack and Wall in 1965, pain perception is affected by both physiological and psychological influences. Reflections by Turner and Romano (1989) on chronic back pain patients reiterate this theoretical perspective: "It is important that patients recognize that pain is not purely physiological phenomena, but subjective and influenced by thoughts and feelings" (p. 98). A review of the literature indicated that the following psychological variables may figure

significantly in perceived pain and pain-related behavior of chronic low back pain patients: suffering, emotional status and personality variables, perceived control, coping, inherent coping strategies, imposed coping strategies, memory for pain, and measurement biases. A discussion of each of these influences will now be offered.

Suffering

Smith et al., (1990) suggest that the disabling effects of chronic pain are influenced more by pain behaviors and suffering than nociception and resulting pain. Suffering, according to Loeser (1982), is a process in which the perception of constant pain generates fear and pain expectations leading to an escalating cycle of worry, depression and egocentricity that increases perceived pain intensity. Chapman and Gavrin (1993) define suffering as "... a complex negative and affective cognitive state characterized by perceived threat to the integrity of self, perceived helplessness in the face of threat, and exhaustion of psychological and personal resources for coping" (p. 11). It was also suggested that the resulting stress creates a "... biological disequilibrium that pervades every aspect of life" (1993, p. 11).

Emotional Status and Personality

An established body of literature exists indicating correlations between psychological distress, personality variables and pain and coping behavior. Several indices have been subsumed in the literature under the rubric of emotional status measures and personality variables. These include stress, anxiety, depression, hypochondriasis, hysteria, lie scale, psychopathic deviance, somatization, and defensiveness. Hypochondriasis (Chapman & Brena, 1982; Turner et al., 1983), depression, (1983; Watt-Watson et al.,

1988), psychasthenia (1983), hysteria (1982; 1983), MMPI lie (1982), and psychopathic deviance (1982) have all been found to correlate significantly with pain intensity. Pain tolerance and functional disability are believed to be influenced by anxiety, depression, tension, thoughts about the meaning of pain, and a sense of control (Turner & Romano, 1989).

Depression is common with chronic back pain. Fordyce (1976) notes from clinical experience that "... it is the exceptional chronic pain patient who is not depressed" (p. 72). In one of the few phenomenological studies of CLBP clients, Bowman (1991) found that clients followed a pattern of seeking medical relief and obtaining medical treatment (medical or surgical) while gaining poor pain relief. At some point the clients found that "... they had to learn to live with the pain ... with this realization often creating feelings of despair" (1991, p. 383). Additional comments gleaned from the study further support the extensive and depressive impact of this condition. "Chronic low back pain affected every area of these individuals' lives ... individuals said life would never be the same again" (1991, p. 383).

Significant decreases in depression have occurred following behavioral treatment pain management programs for chronic pain (Block et al., 1980). As well, depression appears to relate positively to pain intensity (Watt-Watson et al., 1988), pain tolerance (Turner & Romano, 1989), helplessness (Spinhoven et al., 1989) and dissatisfaction with family functioning (Watt-Watson et al., 1988). Magni, Moreschi, Rigatti-Luchini, and Merskey (1994) considered pain and depression in a prospective study of 2324 people in

chronic musculoskeletal pain and found that each variable was predictive of the other, but accounted for only a small portion of the variance.

Depression has been found to have a negative relationship to coping, especially catastrophizing (Jensen, Turner, Romano, & Karoly, 1991; Turner & Clancy, 1986; Watt-Watson et al., 1988) and to high active coping (1989). Others have suggested that catastrophizing is not a symptom of depression, but a separate construct that influences the relationship between depression and evaluative and affective pain components (Geisser, Robinson, Keefe, & Weiner, 1994).

McCaffery and Beebe (1989) suggest that anxiety and depression are not the sole cause of pain and may not increase pain intensity, but do contribute markedly to one's outlook, motivation and ability to use coping strategies for pain control. High incidence of pre-injury emotional trauma, such as abandonment and emotional abuse, were found in one study of 27 chronic back patients (Blair, Blair, & Rueckert, 1994).

Perceived Control

One of the most consistently reported stresses of chronic low back pain is a sense of reduced control. In one phenomenological study (Bowman, 1991),

... the presence of chronic low back pain left these individuals feeling out of control, with the pain being in control of their lives. They could never participate in activities without wondering if the pain would return or increase in intensity. This lack of control created feelings of helplessness (p. 383).

In a discussion of nontechnologic strategies for coping with CLBP, Smith et al., (1990) posit that for these clients, the "... pain has taken control. The goal of treatment must be for the patient to take control over the pain. This involves use of supraspinal

interventions or non-traditional strategies aimed at modulating pain at the cerebral and thalamic level” (p. 28). Turner and Chapman (1982) concur with this client empowerment goal, and add that pain control and systematic control of attentional focus have not been adequately accounted for within studies nor properly examined as central elements of investigation.

Perceived control has been classified into three categories: 1. behavioral control (availability of an influencing response); 2. cognitive control (ability to interpret, appraise or incorporate mentally); and 3. decisional control (ability to choose one of several courses of action) (Averill, 1973). Skevington (1983) identifies perceived control and situational control as central issues in chronic pain research. Pain control is seen as different and less applicable to chronic pain situations than pain management (Davis, 1992). Pain relief, pain modulation, and self efficacy, were the three defining attributes found for pain management (1992).

Several authors offer that the encouragement of active participation in care and decision-making may help to increase a patient’s sense of control (Braden, 1990; Giloth, 1990; Upton, 1988; Walker et al., 1989). Lefcourt (1973) predicts that it is the perception of control and not actual control that is the crucial determinant of stress reduction, and that this plays “... a definite and positive role in sustaining life” (p. 424). Wells (1994) found that control beliefs were related to distress and disability in 71 chronic nonmalignant pain sufferers.

Rotter proposed that individuals perceive the control of reinforcement for their behavior to be externally or internally located (1966). Levensen (1974) further

distinguished external control into 'external powerful others' and 'external chance'.

Although many studies indicate a moderate to strong relationship between locus of control and pain coping (Crisson & Keefe, 1988; Johnson et al., 1989; Pellino & Oberst, 1992; Spinhoven et al., 1989) or psychological distress (Block et al., 1980; 1988; 1992), another study is less conclusive and suffers from a lack of statistical support (Chaves & Brown, 1987).

Ferington (1986) examined personal control and coping effectiveness with spinal cord injured patients. While this researcher cautions the generalizability of this particular back injured population to back pain patients, the perspective on levels of control is a novel and thoughtful approach. Ferington (1986) identified three levels of control: individual preferences to control, general expectation for control (locus of control), and perception of options to control. The author hypothesized that the degree of control congruence — a cognitive consistency between perceived, preferred and expected control — would have a significant relationship to client depression. High levels of perceived control were found to associate with low levels of depression for individuals exhibiting internal and external locus of control. Low preference of perceived control did not show similar significance levels. Perceived control was significantly related to depression, age, and days in hospital (1986).

Pellino and Oberst (1992) found that the appraisal of the entire pain situation, the perception of internal control of pain, and the duration of pain impacts psychological distress in CLBP. Furthermore, higher education levels and increasing duration of pain were associated with increased perception of internal control of pain and high internal pain

control ratings correlated with reports of reduced pain levels (1992). The use of self-control strategies was not found to relate to general coping ability in three chronic pain conditions (Anderson & Rehm, 1984).

One study of chronic pain patients suggests that changes in self-concept are associated with reduced feelings of autonomy and control (Watt-Watson et al., 1988). In addition, these researchers found that while nearly half of the subjects (15/34) conveyed they had no control at all over their pain, 13 of these 'powerless' patients did in fact identify some pain coping strategy (1988).

Coping

There exist many challenges for individuals with CLBP. While pain management is certainly a major concern, the literature reviewed so far indicates that fear, depression, disruptions in daily living, family functioning and recreational activities, and potential job loss are also factors that these individuals must deal with.

Moos and Schaefer (1984) state that the "... individual's cognitive appraisal, definition of the adaptive tasks involved, and selection and effectiveness of coping skills are influenced by three sets of factors: demographic and personal characteristics, aspects of the illness, and features of the physical and social environment" (p. 9). Thus coping with back pain is not an isolated process but one that must take into account each individual's unique set of strengths, weaknesses and circumstances.

The measurement of coping behavior has generally focused on two areas: coping style and coping strategy. Coping style is seen as an enduring pattern of cognitive and behavioural modes of dealing with stressful situations (Copp, 1974; Craig & Edwards,

1983; Lipowski, 1970). Coping strategies have been defined as “intrapyschic activities as well as ... communications and actions ... aimed at reduction of distress and suffering” (1970, p. 97). Furthermore, because coping strategies reflect what a person is doing to deal with stress at a particular time, coping strategies are “more varied, numerous and changeable than the coping styles” (1970, p. 97).

Wegman (1984) has reviewed 20 measurement tools used in coping research. These instruments include a variety of approaches, address patient and family perspectives, cover a range of populations and attempt to assess a number of aspects of the coping phenomena. The efficacy of a particular coping behavior is not always clear, and is often subjective, changeable and patient-specific. Despite these drawbacks, effective coping remains a major patient goal in nursing practice and a primary focus in coping research.

One facet of this efficacy problem that has been given considerable attention in the literature is the use of coping strategies. This review will now address two important aspects of coping: inherent and imposed coping strategies.

Inherent Coping Strategies

Inherent coping strategies refer to those techniques that an individual spontaneously uses in attempts to reduce a stressful or painful situation. These methods are within the client’s known repertoire of pain management behaviors, and are used by the individual because they are known, acceptable and seen as appropriate by that individual for a given situation (Copp, 1974).

A number of studies have examined what coping strategies individuals use to deal with stressful situations. Inherent coping strategy use has been studied in the general

population (Broome, 1986; Mattlin, Wethington, & Kessler, 1990); several examine pain management strategies of people in acute pain (Chaves & Brown, 1987; Copp, 1974; King, 1985); others have investigated inherent coping methods in chronic pain conditions (Anderson & Rehm, 1984; Broome, 1986; 1974; Keefe & Dolan, 1986; Pallen, 1991; Watt-Watson et al., 1988) including CLBP (Anderson & Rehm, 1984; Gross, 1986; Hurst, 1990; Keefe & Dolan, 1986; Reesor & Craig, 1988; Rosenstiel & Keefe, 1983; Spinhoven et al., 1989; Turner & Clancy, 1986).

Coping strategies that have been identified by CLBP patients as within their pain management repertoire include: relaxation exercises, stretching, visualization, guided imagery, lying down in conjunction with a relaxing activity, preplanning and pacing, getting absorbed in an activity, changing positions (Hurst, 1990), being determined that it would not control one's life, and dependence on dreams and faith (Bowman, 1991).

One recurring theme in the literature is that a variety of coping strategies may be required. Broome (1986) found that "although some people often used certain methods, they did not find they worked for them all the time" (p. 44). In a study of coronary artery bypass grafting patients, King (1985) found that the helpfulness of the coping strategy identified changed pre- to post-operatively with the exception of positive thinking, which was found to be helpful throughout hospitalization. King concluded from this that "the coping process is influenced by both stable person factors and variable situation factors" (1985, p. 585).

Other authors have a different view on the importance and efficacy of variety in coping strategy use. In 1983, Rosenstiel and Keefe devised a closed response format tool,

the Coping Strategy Questionnaire (CSQ), to measure coping strategy use in 61 CLBP clients. A variety of strategies were reported, however the overall coping effectiveness was rated as low. Type of coping strategy was not related to pain duration, disability status or back surgery history.

A principal component analysis determined how the different CSQ coping strategies were related to each other and the overall efficacy ratings (Rosenstiel & Keefe, 1983). Sixty-eight percent of the variance was accounted by three factors: 35% from cognitive coping and suppression (high reinterpreting, self-statements and ignoring pain sensations); 21% variance from helplessness (high catastrophizing, low effectiveness, low activity level); 12% variance from diverting attention and praying or hoping. Cognitive coping and suppression were positively related to functional impairment; helplessness was positively related to depression and anxiety; diverting attention/praying was positively related to pain level and functional impairment (1983). The authors suggest that not all coping strategies are beneficial, as the use of some strategies (particularly catastrophizing) was related to poorer adjustment (1983). The usefulness of the CSQ has been recognized in several other inherent coping strategy studies included in this review, however, it must be recognized that the closed format of the tool limit subject responses to this preselected strategy set.

Seventy-four CLBP patients were tested to assess the replicability of the factor structure of Rosenstiel and Keefe's (1983) CSQ and to determine the effects on coping strategy use in either of two imposed coping conditions — cognitive-behavioral or operant behavioral therapy — or waiting list control condition (Turner & Clancy, 1986). A

principal components analysis yielded a similar three factor result: denial of pain (ignore pain, reinterpret sensation, ability to reduce pain but low on coping self statements); diverting attention and praying (diverting attention, praying, hoping and increased activity); helplessness (catastrophizing, low scores on control pain and coping self statements). When the three CSQ factors were taken collectively, results were nonsignificant for average pain but related to increased depression, downtime and physical and psychosocial functioning. An independent coping strategy analysis revealed that: denial of pain related positively to downtime; diverting attention and praying were positively related to average pain; and helplessness was related to greater levels in depression, and functional physical and psychosocial impairment. Several treatment related changes in coping strategies were found. Compared to the waiting list controls, the cognitive-behavioral group showed greater attention diversion. Both cognitive-behavioral and operant groups exhibited less catastrophizing and increased coping self statements and the operant group indicated more ignoring of sensations. Finally, Pearson correlations indicated that increased use of praying and hoping was significantly related to decreased pain intensity; low use of catastrophizing was related to decreased pain intensity and decreased total and psychosocial impairment. Several methodological problems were found and include the lack of treatment program attendance records, the explanation of treatment attrition, and the lack of concurrent analgesic and medical treatment records.

Other researchers tested the factor structure of the CSQ on 126 chronic pain (whiplash) clients and determined that the measure had a 5-factor structure that differed somewhat from subscales determined by Rosenstiel and Keefe (1983). Coping

Self-Statements and Increasing Pain Behavior subscales were not found to be distinct coping strategies. As well, a new factor, 'Distraction', was found to be a compilation of Diverting Attention and Increasing Activity Level (Swartzman, Gwadry, Shapiro, & Teasell, 1994).

Chaves and Brown (1987) considered the inherent coping strategies of 75 dental pain patients in relation to personality variables. Forty-four percent used spontaneous coping strategies, 19% denied strategy use and 37% used catastrophizing ideations. No differences were found between copers, deniers and catastrophizers with respect to pain ratings, but clients identifying coping strategies experienced less stress than catastrophizers. Results may be biased by an age-related confound for catastrophizers.

Keefe and Dolan (1986) studied pain behavior and pain coping strategies in CLBP ($n = 32$) and myofascial pain patients ($n = 32$). Findings suggest that the assumption of high level functioning based on variety and frequency of pain coping strategies is incorrect and that the high use of attention diversion and praying/hoping behavior by CLBP clients was responsible for their poor level of functioning.

The effectiveness of coping strategies for pain reduction was also studied on post-surgical low back pain patients (Gross, 1986). Measurements included the CSQ (Rosenstiel & Keefe, 1983) and ratings of the degree of perceived control over pain and perceived ability to reduce pain. Results indicated that the use of coping strategies was not related to the severity of the initial medical assessment but rather to the pain relief experienced post surgery (1986). Spinhoven et al., (1989) suggest that type of coping

strategy used is not related to pain severity, surgical history, disability status or continuous/intermittent pain.

In 1988, Reesor and Craig conducted a Canadian study that compared medically congruent and incongruent chronic back pain patients. Findings indicated that while some back pain clients exhibit behavior that is exaggerated, or medically incongruent for their organic signs and symptoms, their recognized organic basis is in fact more severe than 'medically appropriate' pain patients (1988). One may question whether individuals with more severe chronic pain feel the need to exaggerate their pain behavior as a means to attract attention to their condition (1988). Paradoxically, clinical experience of this researcher indicates that patients who are seen as exaggerating their pain condition often receive even less attention to their pain concerns. Reesor and Craig found that congruent and incongruent pain clients used similar coping strategies, and hypothesize that the incongruent back pain patients either: "(a) lacked conviction that coping strategies would be effective; (b) used their coping skills inconsistently; (c) used their coping skills too rigidly; and/or (d) catastrophized while attempting to implement coping" (1988, p. 44).

Chronic pain patients, who perceive themselves as poor copers have shown greater depression and dissatisfaction to family functioning but not necessarily more pain-related disruptions in activity (Watt-Watson et al., 1988). Clinical experience of the author has revealed that the use of inherent coping strategies within the hospital setting is sometimes accompanied by a sense of reservation and fear of ridicule. Findings by Copp (1974) support this assessment as patients "... stressed that their coping behavior might be 'against the rules' or 'might be laughed at as not scientific'. They also believed that if they

employed coping methods they used at home ‘doctors and nurses might not like it’ ” (1974, p. 495). Furthermore, “Some individuals may need help to identify the strategies that they currently utilize to modify their situation” (Watt-Watson et al., 1988, p. 106).

One author suggests that the positive results found in the provision of sensory information to patients pre-operatively is that it enhances the patient’s cognitive control and optimizes the use of inherent coping strategies (Hill, 1982). Even authors who advise particular coping strategies appear to recognize the benefits of control and individuality within a coping strategy type: “It is often useful to teach patients several (relaxation) methods, so that patients may select the approach they find most useful” (Turner & Romano, 1989, p. 100).

Imposed Coping Strategies

Imposed coping strategies are stress relief or stress management methods that are advised by individuals other than the person experiencing the stressful situation. In many cases, these advisors are health care professionals or researchers in health care or psychology. The term ‘imposed’ is one that the author has generated for this type of coping strategy. Within the literature, these imposed coping methods may be labelled as treatment programs, treatment conditions, prescribed pain relief methods, advised coping strategies, or recommended pain relief alternatives.

The comparison of prescribed pain relief methods has formed the cornerstone of progressive nursing and medical care. However, it is clear from a review of the coping literature that the importance of distinguishing the difference between prescribed

treatments and a client's own coping methods is only just gaining recognition in the research arena (Hill, 1982; King, 1985; Miller et al., 1985; Turner & Clancy, 1986).

Specific imposed coping strategies that have been offered for CLBP patients include: TENS, ice massage, myotherapy (DeCrosta, 1984), distraction (DeCrosta, 1984; Smith et al., 1990), physical therapy (Hazard et al., 1989; Heinrich, Cohen, Naliboff, Collin, & Bonebakker, 1984), and occupational therapy (Hazard et al., 1989), relaxation (1990; Strong, Cramond, & Maas, 1989), relaxation with biofeedback (Strong et al., 1989), therapeutic touch, behavior modification and spirituality (1990).

The effectiveness of advising coping strategies as pain relief measures is mixed and the methodological quality of many treatment programs has been found lacking (Koes, Bouter, & Heijden, 1995). Hazard et al. (1989) examined the impact of an imposed behavioral treatment program on employment status for 59 CLBP clients and found major improvements at discharge for all self-assessment pain, disability and depression measures. Age, and disability were positively related to unemployment one year post treatment. Graduates identified "... resolution of fear of reinjury, compensation issues, career/employment dissatisfaction, family discord, and other psychosocial problems" as critical to their reemployment (1989, p. 160). No effort was made to account or record changes and effects of individuals' own coping regimes.

Turner and Clancy (1986) used Rosenstiel and Keefe's (1983) CSQ to evaluate coping strategy changes following cognitive-behavioral therapy, operant behavioral therapy, or waiting list control conditions for 74 CLBP clients. Results showed within and between group differences in coping strategies. Another study compared physical (PT)

and behavioral therapy (BT) for CLBP on a number of outcome measures (Heinrich et al., 1984). While both groups showed decreases in psychological stress and pain, post treatment and at the six month evaluation, the anticipation that PT would improve physical outcome and BT would improve psychological outcome was only marginally supported. The moderate pain severity of the subjects may have contributed to a measurement ceiling effect. Furthermore, participants and dropouts showed significant differences such that dropouts were younger, less chronic, had higher divorce or separation rates and consumed more alcohol. Inherent coping effects and mastery of imposed coping skills were not considered. One multidisciplinary rehabilitation program, that included both physical conditioning and coping skills training (imposed), found an increase in perceived general well-being that fell with length of follow-up from 65% at 6 months, to 40% at three or more years ($N = 129$) (Lanes et al., 1995).

The final CLBP study reviewed involved a comparison of the effects of applied relaxation training with and without biofeedback on pain report scores (Strong et al., 1989). Forty female CLBP patients at a outpatient pain clinic were alternately assigned to one of the two conditions. The results suggest that while both relaxation training forms had positive effects on decreasing pain reports at discharge, only the combined condition showed significantly superior effects at a follow-up assessment. No significant between treatment differences were found for the number of words chosen at follow-up (1989).

Other imposed coping strategies have been tested on alternative patient populations. The impact of providing behavioral or sensory pre-operative information on post-operative recovery was tested on bilateral cataract surgery patients (Hill, 1982). Only

the combined treatment condition showed significant positive effects, and this was believed to have resulted because it fostered inherent coping strategy use (1982). Guided imagery was found to have only short term positive effects on the incidence of post-surgical depression in older adults (Leja, 1989). The study suffered from the lack of control group comparisons (1989).

Miller et al., (1985) followed a mailed questionnaire format to compare used versus advised coping strategies of 480 cardiovascular clients. Based on a response rate of 54%, the researchers determined that there is a significant difference between advised and used coping strategies, that the "... advice was of limited usefulness" (p. 12), and that "... coping methods are individual, tending to be within a known range of possibilities" (1985, p. 13).

Gross (1986) suggests that particular cognitive coping strategies, such as coping self-statements, reinterpreting pain sensations, and cognitive distraction may be inappropriate to advise to CLBP patients. Turner and Clancy (1986) suggest that the empirical basis for teaching cognitive and behavioral skills to increase coping, pain and control, and functioning is unsubstantiated.

Finally, three suggestions for directions in coping research that echo this researcher's own clinical and literature-based conclusions have been offered: the "development of more refined methods to assess coping strategies, attention to developing and empirically testing more sophisticated conceptual formulations, and the elucidation of environmental variables (e.g. social support) that may facilitate more adaptive coping" (Turner & Clancy, 1986, p. 363).

Memory for Pain

Memory for pain has been studied as an influencing factor in perceived pain rating. Findings by Jamison, Sbrocco, and Parris (1989), indicate that patients with low back pain (26.9% of sample, $N = 93$) were highly accurate in their pain memories. Accuracy of recall was not significantly related to age, medications, medical findings or compensation, but did vary related to pain duration, emotional distress and limitations in activity (1989). An examination of the literature on memory for pain by Erskine, Morley and Pearce (1990) indicated that recall for acute pain may be more accurate than that of chronic pain as chronic pain recall judgement is more affected by a global and relatively stable view of the pain problem. While some authors (1990) conclude that present mood, affective states and pain intensity influence pain memory, others (1989) found no relationship between current pain level and pain recall accuracy. Smith and Safer (1994) also suggest that chronic pain and medication recall is strongly biased based on current pain levels.

Measurement Biases

An integral part of determining pain severity, coping behavior or treatment success is the use of measurement tools. Harrison (1991) believes that normal individuals attempt to be truthful in their reports but can be biased by ambiguous, leading or loaded questions, and insensitive or inappropriate tools or circumstances.

Summary

Factors that may impact on the pain perception and coping strategy use of CLBP clients have been discussed under Neuman's (1982) four influencing variables: physiological, developmental, sociocultural, and psychological. The number of influencing

factors are numerous and their relationship to pain perception, treatment outcome measures and coping is complex and not always clear. A substantial body of literature indicates that individuals with chronic pain use a variety of inherent coping strategies and that these strategies appear to have some positive effects on patient outcome measures. Additionally, the theoretical, research and clinical literature seems to infer that the therapeutic support of nonhealth threatening inherent pain management regimes would contribute positively to patient care by enhancing pain management, increasing feelings of control and decreasing levels of depression. It is apparent that while a few researchers have recognized the apparent benefits of supporting inherent coping practices, the actual conduct of systematic research in this area of pain and coping has yet to be addressed. The following chapter will outline the method used to investigate this interesting and challenging nursing practice question.

Chapter III — Method

This chapter will present the use of a research design that integrates two approaches: quantitative (measures and quasi-experimental design) and qualitative (descriptive survey design). This hybrid approach was optimal for addressing the current research problem — determining the impact of therapeutic supported versus unsupported inherent coping strategies on the perceived pain, coping strategy efficacy, and depression level of chronic low back pain patients. The rationale for the integrated approach was based on the findings from the literature review and the complexity of the current research problem. The substantial research, clinical, and theoretical support validate a predictive approach to the research question; the conclusions rendered by the quantitative format are intricately bound and enriched by the unique and subjective pain perceptions, pain histories, and coping strategy experiences offered by the subjects within the complementary qualitative method.

This chapter will address the rationale for the integrated quantitative/qualitative approach, method including sampling, measurement tools, procedure, therapeutic intervention, and analysis, and ethical considerations and study limitations.

Methodological Rationale

Several factors need to be considered when deciding upon an appropriate research method. According to Brink and Wood (1983), “The appropriate method depends on the level of the question and the extent of the existing knowledge about the problem” (p. 63).

The present research problem will be considered in light of the following levels of questions identified by Brink and Wood (1983).

At question level I, a theoretical explanation of the research problem is not found and the research base is weak at most (Brink & Wood, 1983). The investigator is required to perform a thorough exploration of the topic, and could follow one of several exploratory/descriptive designs including: grounded theory, phenomenology, ethnography, and ethnosience.

Question level II warrants that the investigator have a solid knowledge base to define the concepts under study but not enough to make predictions about them. The goal at this level is to determine the relationships between the concepts or the ideas within a given concept. Descriptive surveys are appropriate at this level and can provide for correlational data analysis (Brink & Wood, 1983).

Question level III demands that the major concepts of the research problem be well delineated in the literature and that prediction of the causal relationship between variables is possible. This hypothesis-testing level requires an experimental design and therefore the manipulation of at least one variable (Brink & Wood, 1983).

The present research problem has elements that fall into either level II or level III. There are several important qualitative considerations at the second level of analysis that impacted on the interpretation of the quantitative findings. These included the subjects': demographic data, pain history, coping strategy history, fatigue level, the effectiveness evaluation of the coping methods used, and the feelings related to the use of those strategies. Each of these variables would be best measured in a more descriptive format

such as a descriptive survey (Brink & Wood, 1983). The descriptive approach selected consists of two semistructured interviews (pre-treatment and post-treatment) and a daily activity diary, that include open and closed questions (all three measures), probing, clarification, and reflection (interviews). Descriptive analysis was based primarily on response categorization. The purpose of the inclusion of the descriptive data was to "... provide an enlarged contextual ... framework within which to analyze and interpret the data, thus increasing the understanding of the phenomena being studied and (by) helping to eliminate alternate explanations" (Goodwin & Goodwin, 1984, p. 380). Similarly, the researcher was able to enhance the validity of the predictive findings by triangulating the subject data (Myers & Haase, 1989).

With regards to the third level of analysis, there exists predictive support that encouraged inherent coping strategies should result in lower levels of perceived pain than unsupported inherent coping methods. Furthermore, as will be outlined in the implementation section, coping strategy condition (independent variable) was manipulated (supported inherent or unsupported inherent) with the anticipation that the perceived pain ratings, depression scores, and inherent coping strategy effectiveness scores (dependent variables) would vary accordingly. This portion of the research problem was reflective of a third level of question, and thus a quasi-experimental design was selected as the most appropriate methodology. An overall schema of the integrated research design is found in Table 1. Specifics of the design implementation for both approaches will now be discussed.

Table 1
Stratified Accidental Sample Design: Stratification Levels by Condition

Condition	Setting	
	A	B
Treatment (Therapeutically supported inherent coping strategies)	8	0
Control (Unsupported inherent coping strategies)	6	5

Methodological Implementation

Sampling

Accidental sampling was used to obtain the subject pool of 19 chronic nonmalignant low back pain patients referred to two Canadian midwestern tertiary care hospital pain clinics. Although a convenience sample does place limitations on the generalizability of the results, this format was considered to be the most feasible and practical given the nature and limited finances of the study. To increase the representativeness of the sample, the following steps were taken: the provision of a clearly defined population and the identification of variables such as gender, age, marital status, disability status, pain and coping experience, history of previous back surgery, fatigue level, and current level of depression (Polit & Hungler, 1987). Although equal comparative samples were planned, unequal samples of 14 and 5 were drawn from the two settings. An equal selection format was attempted to decrease any preference bias for institution or clinic physician by the referring physician or client. Except for gender (all

Setting B Ss were males), differences appeared insignificant, enabling the investigator to collapse the data into two larger groups (treatment and control).

Subjects were selected on the basis of the following criteria:

1. age 18 years or older;
2. referred to either one of two tertiary care pain clinics;
3. diagnosis of chronic nonmalignant low back pain, with pain experienced for at least 6 months;
4. not currently experiencing any other major medical or psychiatric disorder;
5. adequate ability to read and speak in the English language;
6. currently receiving only conservative treatment for pain (i.e. rest, medication, or exercise regime);
7. has not experienced surgery for back pain in the past year.

It was considered that concurrent additional major medical and psychiatric disorders, concurrent invasive or aggressive medical treatment, and/or recent back surgery could influence the subjects' present pain and coping experience. Therefore, these concerns were addressed within the inclusion criteria to help reduce possible extraneous variability.

A power analysis was done to determine an appropriate sample size. An initial power analysis for the study was calculated, and with a sample size of 20, and two conditions (treatment & control), provided 65% and 97% confidence levels for moderate (.5) and large (.8) effect sizes, respectively (Dr. J. Sloan, Statistician, Manitoba Nursing Research Institute, personal communication, April 24, 1992). A recent recalculation to

determine confidence levels for the same effect sizes and a sample of 19 ($tx = 8, c = 11$), indicated that the original analysis was in error, as confidence dropped to 15% and 31%, respectively (Dr. J. Sloan, Statistician, Manitoba Nursing Research Institute, personal communication, May 11, 1995), see Table 2. Quantitative findings in this study, will therefore be regarded cautiously and treated as indicative of interesting statistical trends that merit further investigation. Details of the sample will be provided in the quantitative results chapter.

Table 2
T-test Power Percentages as a Function of Effect Size and Cell
 Sample Size

Effect Size	Cell Sample Size					
	$n = 8$	$n = 10$	$n = 15$	$n = 20$	$n = 30$	
Small	.2	7%	7%	8%	9%	12%
Moderate	.5	15%	18%	26%	33%	47%
Large	.8	31%	39%	56%	69%	86%

Measurement Tools

This section will discuss the measurement tools used in the current study.

Qualitative measures included the Pre-treatment and Post-treatment Interview Schedules and the Daily Activity Diary. Quantitative measures included two pain scales: the Numerical Rating Scale For Pain and the McGill Pain Questionnaire—Semantic (Melzack, 1975); the Coping Strategy Questionnaire (Rosenstiel & Keefe, 1983); and the Beck Depression Inventory (Beck, 1979). Available validity and reliability support and tool limitations will be presented for each measure.

Qualitative Measures

Three qualitative measures were used in the current research investigation. They were: the Pre-treatment Interview Schedule, the Post-treatment Interview Schedule, and the Daily Activity Diary. Rationale for each of the pre- and post-treatment interview questions is provided in Appendix O. A procedural time line can be found in Appendix P.

Pre-treatment Interview Schedule

The literature supports the assessment of a number of demographic variables when considering pain and coping in CLBP patients. These include: gender, age, marital status, education level, occupation, disability status, and ethnicity. These variables were included in the semistructured interview schedule found in Appendix B.

A number of pain history factors have been identified as germane to CLBP research and are included in the Pre-treatment Interview Schedule (see Appendix B). Factors identified are: duration of the chronic pain problem, duration of the current back pain problem, current additional pain problems, number of previous back surgeries, and an indication of current fatigue level. Qualitative questions were also posed to determine how subjects described their recent pain experience. Analysis of the descriptive data helped to support the construct validity of the pain scales.

Additionally, it was useful to establish what the client used as the maximum scale end-point when rating their perceived pain. Thus the interview also included the following question: "Describe the situation that has caused you the most physical pain." The interview included a discussion of how the client manages when in pain. Topics included what medications and nonpharmacologic coping strategies the client enlisted, and to what

degree these methods helped to alleviate that pain. Performance frequency ratings of coping strategies were assessed. Patients are also asked to list all other medications currently used. Duration of the pre-treatment interview lasted between 20 to 40 minutes.

To increase content and construct validity, both interview schedules were pilot tested on two individuals experienced with chronic low back pain, professionally and/or personally, to ensure clarity, meaningfulness of responses, comprehensibility, neutrality of phrasing, openness, and tactfulness (Polit & Hungler, 1987). One clinical expert reviewed the interview schedules and found them to be appropriate for this sample and study purpose (Dr. R. Roy, Faculty of Social Work, University of Manitoba, personal communication, April 27, 1992). Additional review panel members included a doctor of anesthesiology at a pain clinic and two nurse clinicians with expertise in patient pain.

Post-treatment Interview Schedule

Approximately 45 minutes before the appointment with the physician, the client participated in the second research interview. Duration of the post-treatment interview was typically 30 minutes and not more than 50 minutes. Topics in the post-treatment interview were similar to the questions presented in the pre-treatment interview, and addressed current pain and fatigue levels (using an NRS format), types and frequency of coping strategies used over the past two weeks, and perceptions of coping strategy effectiveness. In addition clients were given an opportunity to reflect on their feelings about the use of these regimes, the specifics for why these particular methods helped them, their ease of use and the compatibility of particular strategies with life style and personal style. A copy of the Post-treatment Interview Schedule is found in Appendix C.

Daily Activity Diary

The inclusion of a daily diary is a common component in chronic pain assessment. Typically, the diary includes measures of pain, medication use, activities performed (W. E. Fordyce, personal communication, April 27, 1992), and may also include additional pain relief measures (Follick, Ahern, & Laser-Wolston, 1984; McCaffery & Beebe, 1989). Some diaries address a more psychologically therapeutic component, and consist of personal descriptions of the pain experience (Copp, 1990).

The purpose of the daily record is generally to provide a more detailed and accurate assessment of the pain, the current pain management and management effectiveness, and the activities related to the pain experience over a period of time (McCaffery & Beebe, 1989). Copp (1990) has suggested that the more descriptive forms of pain diaries can also serve as a distractive coping strategy and a catalyst for reflection. However, these descriptive diaries can be very time consuming and taxing to individuals who do not derive satisfaction from creative writing endeavours. Furthermore, one must respect that some individuals do not wish exposure of personal thoughts and feelings. In view of the specific qualitative and quantitative measurement needs of this study, and the ethical considerations for subject involvement, the diary format designed by the researcher included only questions subsumed under the more typical pain assessment formats.

The Daily Activity Diary (see Appendix D), designed for use in this study, was based on the general formats of two very prevalent diaries (Fordyce, 1976; McCaffery & Beebe, 1989) identified in the chronic pain clinical arena (McCaffery & Beebe, 1989) and in the CLBP research literature (Keefe & Dolan, 1986; Rosenstiel & Keefe, 1983;

Spinhoven et al., 1989; Turner & Clancy, 1986). The 14 day diary format was modified to allow for a brief daily retrospective evening assessment that would not be overly taxing for the subjects. The study diary form was reported to take approximately 10 minutes to complete each evening.

Follick et al. (1984) evaluated the validity and reliability of a daily activity diary containing most of the components included in the current study (11-point pain intensity scale, description of major activities performed, list and dosage of medications taken and additional pain relief activities or devices used). In addition, the authors also assessed tension, mood and primary position (lying, sitting, standing/walking, sleep). Self-report records were compared with electromechanical measures of downtime, similar diary spousal reports and pill counts, and prescription refills. Patient and spousal ratings were all significantly correlated between the .05 and .01 levels. Pearson's r correlations between self-reports and mechanical monitoring were also significant (0.94 , $df = 6$, $p < .01$).

Limitations of this measure include a requirement of reading and writing ability in English, accuracy for recalled activity and pain experienced, and a task involvement of about 10 minutes daily for two weeks. While complete records were not expected, and not found, reports did contribute to a more accurate picture of the pain experience, pain management, and coping strategy efficacy ratings for clients.

Quantitative Measures

A number of pain assessment tools can be found in the literature. Both ordinal and nominal rating scales are frequently used to assess pain. Two of these scales, the Numerical Rating Scale For Pain (based on the version used by Rosenstiel and Keefe,

1983), and the McGill Pain Questionnaire (Melzack, 1975) are reportedly easy to administer and well supported in the research literature and have been selected for use in the current investigation. In addition, a measure of coping behavior, the Coping Strategy Questionnaire (Rosenstiel & Keefe, 1983), and a measure of depression level, The Beck Depression Inventory (Beck, 1979) will be discussed.

Numerical Rating Scale for Pain (NRS)

The use of a numerical rating scale (NRS) requires that patients rate their perceived pain intensity as a number, typically from 0 to 5, 0 to 10, or 0 to 100 (McCaffery & Beebe, 1989). Often, verbal endpoints are used to indicate extremes of the scale (Price, 1988). In this study, clients were asked to rate their perceived pain intensity on an 11-point scale with 0 as “no pain” and 10 as “pain as bad as it could be” (see Appendix E). The same scale was used by Rosenstiel and Keefe (1983) in their work with CLBP clients. While no reliability and validity ratings were found for this particular version of the scale, these verbal endpoints have also been used successfully with chronic pain patients (Jensen, Karoly, & Braver, 1986). An 11-point scale has additional support based on the reported simplicity for use by clients in pain (McCaffery & Beebe, 1989; Murphy, McDonald, Power, Unwin, & MacSullivan, 1988; Price, 1988), and for the validity regarding the number of levels needed in pain intensity tools (Jensen, Turner, & Romano, 1994). When compared to other pain scales, one version of the numerical rating scale (NRS-101, Jensen et al., 1986) appeared to have equally low error response rates (5.3%; $N = 75$ chronic pain patients), and a high average factor loading (0.87) for pain

intensity using a principal axis analysis. Unlike the visual analogue scale, the numerical rating scale tested did not suffer from age-related error responses (1986).

Subjects were requested to give ratings of their current pain, the least, worst, and average pain experienced yesterday, and the least, worst, and average pain experienced in the previous week. The memory for chronic pain has been called quite accurate by some researchers (Jamison et al., 1989), and subject to present pain effect by others (Smith & Safer, 1993). The establishment of a baseline for pain intensity is useful when considering treatment effects on pain perception. In an effort to limit the number of additional clinic trips made by the client, a prospective baseline assessment was not appropriate. While a retrospective pain baseline collection format may be subject to bias, it was selected as the only feasible and meaningful pretreatment data collection alternative.

The NRS was also incorporated into the two-week Daily Activity Diary. Each evening at bedtime, subjects were asked to record intensity levels for the least pain, worst pain and average pain experienced that day. It was predicted that these three indications would provide a truer picture of the client's pain experience, without taxing the individual unduly during the recording process. It must be remembered that the numbers on these scales do not represent a ratio measure, but rather only an ordinal assignment. Therefore, only nonparametric tests were appropriate during analysis (Price, 1988).

McGill Pain Questionnaire (MPQ) (Semantic Scale)

The MPQ (Melzack, 1975), and specifically the semantic portion of this tool, has frequently been used in the assessment of chronic pain and a number of papers attest to its use in the chronic back pain population (Byrne et al., 1982; Kremer & Atkinson, 1981;

Melzack, 1975; Turk, Rudy, & Salovey, 1985; Reesor & Craig, 1988; Wilkie et al., 1990).

The semantic portion of the tool consists of 20 sets of word descriptors, with 3 to 6 ranked words per set, totalling a list of 78 descriptors (see Appendix F). The perceived pain experience is described using three theoretically derived major classes of word descriptors (sensory, affective and evaluative), in addition to a miscellaneous class, necessitated by clinical findings (1975). The number of sets measuring the descriptor classes is not consistent (sensory = 10, affective = 5, evaluative = 1, and miscellaneous = 4). Chapman et al. (1985) question whether this biases the results obtained when attempting to assess for the multidimensionality of pain perception.

Melzack (1975) suggests that the researcher read aloud the instructions for completing the semantic scale, to ensure that the subjects are aware of the essential scoring features. These features are: to choose only one item from a word list, to choose only subclasses they feel are appropriate to their pain, and to describe only the current perceived pain (1975). Several measures were derived from the semantic scale. These included the Number of Words Chosen (NWC), the Total Pain Rating Index (PRI-T), and the PRI for each of the four descriptor categories (sensory: PRI-S; affective: PRI-A; evaluative: PRI-E; miscellaneous: PRI-M). The NWC is simply the number of words chosen by the subject, with a score range from 0-20. The PRI indices often use a simple summation of the ranked scores from each set, as appropriate. Melzack et al., (1985) however, have subsequently recommended the use of weighted-rank values to better capture the relative sensitivity of words selected. Weighted-rank values were used in the analysis of this investigation.

Support for the face validity of the MPQ has been identified (Reading, 1982). Construct validity of the three major classes of word descriptors has been supported in CLBP (Byrne et al., 1982) and chronic and acute pain research (Reading, 1982). The construct validity of the affective component with chronic pain clinic subjects has also been shown (Kremer & Atkinson, 1981). Contrary to findings by Reading (1982), a study by Turk et al., (1985) did not support the discriminant validity of the sensory, affective, and evaluative subscales with chronic back pain patients. Only the miscellaneous dimension was found to be a significant discriminant between CLBP and myofascial pain dysfunction patients (Keefe & Dolan, 1986). Concurrent validity of the MPQ has been supported with correlations to analgesic use (Reading, 1982). A review of chronic pain assessment measures by Williams (1988) found the verbal measures in the MPQ to be moderately reliable (between 0.60 and 0.85) and probably valid. While the limitations of length and scale complexity are not as problematic with use of only the semantic portion of the MPQ, careful administration of the tool was still required to reduce misinterpretation. As predicted by Chapman et al. (1985), a few patients did show some difficulty with the vocabulary classifications, particularly when their command of the English language was not as strong. In these instances, the researcher attempted to provide meaningful and unbiased definitions for the difficult word or words. In no instance, did the researcher feel that the value of the tool was seriously jeopardized.

Coping Strategy Questionnaire (CSQ)

One coping assessment tool, designed especially for use with CLBP patients is the Coping Strategy Questionnaire (CSQ) by Rosenstiel and Keefe (1983) (see Appendix G).

The purpose of the scale is to assess the degree of reported use of six cognitive coping strategies and one behavioral coping strategy when experiencing pain. Subscales and their scoring keys are listed in Appendix H. The coping strategy subscales assessed by the CSQ include: 1. diverting attention (DIVATTN); 2. reinterpreting pain sensations (REINSEN); 3. ignoring pain sensations (IGNORE); 4. coping self-statements (COPSELF); 5. praying or hoping (PRAYHOP); 6. catastrophizing (CAT); and 7. increasing behavioral activities (BEHACT). Each subscale was measured by six questions. Subjects responded to each question using a 7-point scale, where 0 = never, 3 = sometimes, and 6 = always. The tool also includes two measures assessing the client's overall coping strategy effectiveness. Using a 7-point scale, clients were asked to rate: 1. how much control they felt they had over pain; and 2. how much they were able to decrease pain. The original scale included an additional subscale, increasing pain behavior. Rosenstiel and Keefe (1983) determined that while the alpha coefficients, a measure of internal consistency, were high for most subscales (between 0.71 and 0.85), the alpha coefficient for the increasing pain behavior subscale was poor (0.28). Thus, these researchers included those scale questions as "filler items" which were not scored (see Score Key, Appendix H). It appears that in some subsequent research with the CSQ, these filler items have been dropped from the questionnaire altogether (Crisson & Keefe, 1988; Keefe & Dolan, 1986; Turner & Clancy, 1986). Internal reliability of the subscales is supported (Spinoven et al., 1989).

Several studies have used the CSQ to measure coping strategy behavior in CLBP subjects (Crisson & Keefe, 1988; Gross, 1986; Jensen, Nygren, Gamberale, Goldie, & Westerholm, 1994; Keefe & Dolan, 1986; Reesor & Craig, 1988; Rosenstiel & Keefe,

1983; Spinhoven et al., 1989; Turner & Clancy, 1986). The acceptance for the use of this relatively new tool in CLBP research by several authors, the general coping behavior agreement with the chronic pain and chronic back pain literature, and the clinical support for tool items, contribute to the support of the tools face validity.

In addition to subscale mean scores, Rosenstiel and Keefe (1983) attempted to determine the relationship between different coping strategies and to overall coping strategy effectiveness using an oblique rotation principal component analysis. Three coping strategy factors were found, resulting in 68% of the response variance. The reliability of this conclusion is cautiously accepted in light of the large number of items (42) for the sample size used ($N = 61$). Other research with CLBP patients ($N = 50$; $N = 108$) lend support to the reliability and validity of Rosenstiel and Keefe's (1983) factor analysis findings (Gross, 1986; Spinhoven et al., 1989). This contrasts to a study of 126 whiplash patients, where the CSQ was found to result in a fairly similar, but 5-factor structure, with Diverting Attention and Increasing Activity Level combining to form a new factor, Distraction (Swartzman et al., 1994). Predictive support for the CSQ has been established (Gross, 1986; 1983; Turner & Clancy, 1986). A review of chronic pain assessment and outcome tools reported that the CSQ (1983) is moderately reliable (r between 0.60 and 0.85) and valid (Williams, 1988).

Beck Depression Inventory (BDI)

The Beck Depression Inventory (Beck, 1979) is considered a standard, highly reliable ($r > 0.85$) and valid test for the measurement of depression (Williams, 1988) and for depression screening in CLBP sufferers (Bishop, Edgley, Fisher, & Sullivan, 1993).

The tool (see Appendix I) is a 21 item self-administered questionnaire, requiring high school reading ability. Two subjects had less education than required by the tool. In situations where reading comprehension was questioned, statements were read aloud by the researcher. Subjects responded to each item on the basis of a 4-point descriptive response set. The scale is reported and was found to take approximately 10 to 15 minutes to complete (Beck, 1979). Scale scores were calculated by summing individual item responses, thus the possible score range is 0 to 63. Although "there is no arbitrary score that can be used for all purposes as a cut-off point... the following score ranges can be used as guidelines: 0-9 Normal Range; 10-15 Mild Depression; 16-19 Mild-Moderate Depression; 20-29 Moderate-Severe Depression; and 30-63 Severe Depression" (Vicky Maynes, Research Materials Coordinator, Center for Cognitive Therapy, personal communication April 30, 1992). Others have suggested that a cut-off of 15 is preferred for detecting clinical depression in CLBP clients (Bishop et al., 1993).

According to the author, the scale items were clinically based and then checked for appropriateness by a panel of clinical experts (Beck, 1979). Support for internal consistency, split-half reliability ($r = .93$), concurrent validity with clinical ratings and a range of other depression scales (r between $.55$ and $.76$), and construct validity, has been offered by the author (1979). The BDI was one measure used in concert with the CSQ to study two groups of CLBP patients (Reesor & Craig, 1988). Limitations of this tool include its moderate length and the need for high school reading ability. Williams (1988) and Williams and Richardson (1993) identified that the inclusion of some physical symptoms in the scale may reduce its accuracy with chronic pain patients.

Procedure

Prior to commencement of the study, a description of the study was provided to the physicians at the pain clinic and their written consent obtained for participation of their patients in the research investigation. Copies of the description of the study and the consent form given to the clinic physicians can be found in Appendices J and K, respectively.

New referrals to the pain clinic were the primary candidates for the study. Generally, these individuals have been receiving conservative treatment for their pain from their family physicians or orthopedic surgeons (patients often seek orthopedic surgeons, believing that surgery will be advised, which it typically is not). Because a conservative regime has been inadequate in providing pain relief, additional assessment and care from pain management specialists has been sought.

Typically, all new referrals to the clinic experience a four to eight week delay from time of booking the appointment at the clinic to the actual appointment date. It was during this initial waiting period that the study was conducted. All new referrals received a preliminary screening. This consisted of a confirmation of the diagnosis, relevant medical history, and authorization for potential patient participation by the clinic physician or his or her delegate (i.e. resident or clinic nurse but not the researcher) at one facility (see Appendix K), and the authorized chart review (by the researcher) of potential candidates at another institution. All potential subjects were then mailed a letter of invitation (see Appendix L). This explanation included: the study purpose, time commitment involved, the potential risks and benefits, assurance that they could discontinue their participation at

any time without penalty or threat to their care, confidentiality of their responses, the name and telephone number of the researcher and supervisor, and the method of feedback for providing study results. This letter was followed by a telephone call by the researcher (see Appendix M). If the client met the study criteria and was interested in participating, an appointment was made to meet with the researcher at the appropriate pain clinic two weeks prior to the first physician clinic visit. During this initial clinic interview, all individuals meeting the criteria were then invited to participate and provided with a copy of the consent (see Appendix N) and an explanation of the study (see Appendix J).

Participants were informed that the information gained from the assessments may be useful to their pain clinic physicians. On the consent form an opportunity was also provided for subjects to indicate whether he/she would like their pain clinic physician to receive a report of their pain and coping responses. All but one subject made this request.

Subjects were also informed that the interview would be audiotaped to help the researcher accurately record the history that the client provided, and that the tapes and written documentation would be kept safely under lock and key by the researcher. Time commitment was found to be approximately 30 to 80 minutes for the initial interview (30 to 40 minutes = unsupported coping; 40 to 80 minutes = supported coping), 30 minutes for the final interview, and 10 minutes daily for two weeks for the between interview period. No physical risk was anticipated as only coping strategies determined in the literature as therapeutic or assessed as nonthreatening to the clients' health were supported by the medical-surgical experienced nurse researcher. Obvious health threatening 'coping strategies', such as catastrophizing, were discouraged by the

researcher, and high depression scores and threatening behavior, resulted in immediate and appropriate therapy referrals. In addition, one individual appeared distressed by the interview because of severe pain and emotional distress. The research component was terminated and immediate and appropriate referral was made to the appropriate clinic nurse or attending physician. Potential subjects were informed that the researcher was unfortunately unable to provide remuneration for transportation and parking expenses.

Predicted benefits included the therapeutic effects of allowing subjects to express their pain and coping experiences, and for the treatment group, the therapeutic support of an individuals' own nonhealth threatening coping strategies for chronic back pain during a period when additional assistance with pain management is not offered. All subjects were in agreement with these conditions, and written consents were obtained.

All subjects were asked a number of basic demographic details, and were questioned about their level of fatigue, and past coping strategy and pain experience (see Appendix B). This descriptive data, together with that collected post-stimulus (see Appendix C), led to a richer, more valid, and more holistic evaluation of the subjects' pain perception/coping strategy experience. In addition, all subjects completed a Numerical Rating Scale For Pain, the McGill Pain Questionnaire (Melzack, 1975), the Coping Strategy Questionnaire (Rosenstiel & Keefe, 1983), and the Beck Depression Inventory (Beck, 1979) pre- and post-conditioning. A Daily Activity Diary was also completed by 18 of the 19 subjects, for two weeks during the treatment phase. Details of these measures have been provided in the section on measurement tools.

Another sampling consideration is the level of depression of potential participants. Depression is one variable that has been identified in the literature as relating to both pain severity or tolerance (Spinhoven et al., 1989; Turner et al., 1983; Turner & Romano, 1989; Watt-Watson et al., 1988) and coping behavior (McCaffery & Beebe, 1989; Spinhoven et al., 1989; Turner & Clancy, 1986; 1988). However, a 1994 prospective study of chronic musculoskeletal pain sufferers ($N = 2324$) suggests that depression increases pain and pain increases depression, but that both influences are small (Magni et al., 1995). Given these findings, stratification by depression level (i.e. mild, moderate, moderate-severe) could be considered a prudent methodological inclusion. Unfortunately, the small sample size made even the inclusion of depression as a covariant during statistical analysis impossible. An overview of the sampling design is found in Table 1.

A brief break was taken while the researcher determined the within institution subject assignment. Twenty (10 treatment and 10 control) sealed envelopes for each institution were used to randomize the subject condition assignments. Because the data collection was stopped before the conservative projected sample was obtained, unequal condition distribution resulted (see Table 1). One envelope (from the appropriate institutional set) was drawn by the researcher following the Pre-treatment Interview Schedule to determine the subject's condition. The assignment card and envelope were then discarded. Conditions for excluded subjects were reentered into the draw. By following this procedure, the researcher remained blind to the subject assignment during the initial interview period, reducing researcher bias. Once condition assignment was

determined, the treatment phase began for the supported inherent coping group and the interview with the control group was concluded.

Treatment Group — Therapeutic Support of Inherent Coping Strategies

The treatment condition consisted of a more detailed discussion of the client's own pain experience and coping methods, and the researcher's verbal and nonverbal support (i.e. via facial expression) of the client's nonhealth threatening inherent coping strategies. Support criteria, based on the pain, chronic pain, and CLBP literature, and appropriate to nursing care of individuals with CLBP, have been delineated in Appendix A. While the general meaning of support in nursing care is not always clear, the researcher was able to find eight theoretical, clinical or research-based nursing behaviors that are seen or inferred as supportive for care of CLBP clients. These criteria formed the basis of the treatment interaction with the supported inherent coping group and were incorporated into all treatment interviews. These criteria address: 1. validation of the patient's pain perception; 2. validation of the difficulty of coping with CLBP; 3. validation that a sense of reduced control is common among individuals with CLBP, and that this is stressful; 4. acknowledgement of coping attempts; 5. identification and encouragement of inherent coping strategies, as appropriate; 6. validation of the appropriateness of known coping strategies that meet the individual's unique needs, personality and lifestyle; 7. conveyance that pain management attempts are a positive step toward increasing their sense of control over the pain; and 8. reassurance that coping strategy effectiveness varies over time, and may therefore require individuals to utilize a number of known pain coping regimes over a period of time to achieve maximal pain control.

Because of the nature of a semistructured treatment interview format, it was predicted and found that the between subject discussions varied, and that the presentation order of the eight criteria also varied. However, all subjects received the same support treatment for their pain experience and management efforts, as appropriate to their unique situation. Once the researcher believed the criteria had been met, the interview was concluded. Pilot testing of the treatment procedure, and transcripts of these treatment interviews were reviewed by two members of an expert panel (Thesis Chair and a nurse clinician working in the area of pain). One hundred percent agreement with the support criteria was attained in the initial pilot test. To ascertain that the eight criteria had been consistently met during the investigation, the transcripts of the 8 treatment interviews were assessed by one of the expert reviewers familiar with the support criteria.

At the conclusion of the initial interview, subjects were thanked for their participation, provided with a 14-day Daily Activity Diary, and instructed on how to complete the diary. Subjects were reminded that three follow-up evening telephone calls (1st and 2nd evening and at 1 week post initial interview, as possible) would be made by the researcher at a mutually convenient time. These calls were helpful in reminding the subjects to complete the diaries and helped clarify any misunderstandings that the subjects had regarding diary recordings. The researcher's and the thesis supervisor's telephone number were provided to subjects to allow for additional assistance with the diary at any time. Convenient times for the telephone calls were arranged and the time of the next interview was confirmed.

The second interview took place two weeks after the initial interview and usually one hour prior to the clinic physician visit. Procedures and measures for this general post-treatment interview have already been presented. All subjects (treatment and control) were provided with a more detailed explanation of the general objectives of the study and provided with an opportunity to have their questions or concerns addressed or referred as appropriate. Finally, participants were thanked for their contributions to the study.

Control Group — Unsupported Inherent Coping Strategies

Immediately following the condition assignment break, control subjects were thanked for their participation and the initial interview concluded in the same manner followed for the treatment group. The control group therefore experienced all the same measures and procedures that the treatment group experienced with the exception of the additional (approximately 20 - 30 minute) therapeutic support of inherent coping strategies treatment session with the researcher. Following the conclusion of the second interview, all control subjects were offered and received the therapeutic support intervention.

In the control condition, it was anticipated that the subjects may use some degree of inherent coping. This was assessed at the post-treatment interview. There was an expected difference between therapeutically encouraged versus permitted inherent coping strategy use and effectiveness. The inclusion of a control group was used to help elucidate the effect of inherent coping strategy support. Furthermore, the control group helped guard against erroneous conclusions, resulting only from the effects of taking account of one's own pain experience and coping strategies, and the impact of researcher interaction.

Measurement Error Reduction

To reduce measurement error (Polit & Hungler, 1987) the following protocol was adhered to: the researcher administered all interviews and in as similar a manner as possible; all subjects engaged in conversation with the researcher; and the order of pre- and post-condition measure presentations was held constant.

Researcher bias was a notable concern. Finances limited the possibility of obtaining a paid trained assistant (naive to the predictions of the study) to perform the treatment intervention, however a number of strategies, previously outlined, helped reduce and account for this potential problem. The researcher administered the initial general interview and measures, prior to allocating the subjects to their respective condition groups. The pre- and post-interview and treatment condition sessions were audiotaped, and transcripts were checked by an external reviewer to determine potential bias and support criteria fulfilment, respectively. A log book of procedural methods and the researcher's personal assessment of the interview interaction (i.e. how receptive was the client in general; how were my interview skills) was maintained. The data were coded and the researcher remained blind to the condition assignment during analysis, as much as possible. Response categorization and thematic analysis of the qualitative data was checked by an external reviewer for coding accuracy and bias.

Social desirability was a threat to the validity of the research findings. To reduce this confound several techniques were employed: the use of an open, accepting interaction; the wearing of neutral coloured, conservative clothing; and the phrasing of the

informed consent so that a general and ethically appropriate understanding of the study was relayed, but that the predictions of the expected results were not revealed.

Information-Seeking by Subjects

Subjects asked for advice on additional (not inherent) coping methods or treatments. In response to such inquiries, the researcher politely reminded the client that she was unable to recommend additional pain management strategies at this time, but would be willing to discuss any questions, regarding additional coping regimes, with the client at the completion of the study.

Analysis

The integrated approach to the study demanded that the analysis be both deductive and inductive in nature. Analytic details for each format will now be presented.

Quantitative Data Analysis

Quantitative measures in the current study provided data primarily at the nominal and ordinal levels. Frequency distributions, measures of central tendency and variability, confidence intervals, Fisher's Exact Tests, Wilcoxon Signed-Rank Tests, Mann-Whitney U Tests, Kruskal Wallance Tests, and Kendall Tau *b* correlations were appropriate for these levels of nonparametric data.

Qualitative Data Analysis

Several methods are available for analyzing descriptive data. The most complementary and enriching approach in light of the very quantitative alternative component would be one with a qualitative format. For many questions, categorization of

data was appropriate. Analysis of nominal data included frequency tables and Chi Square Tests.

The transcripts also yielded more complex responses, such as the description of the pain experience. Thematic analysis of the data was selected as a more appropriate approach (Polit & Hungler, 1987). Unlike content analysis, which has a deductive approach to descriptive analysis, thematic analysis is an inductive method. It allows the researcher to organize and examine the relationships and themes found in qualitative data without demanding that the researcher be ignorant of the literature. Furthermore, it was predicted (Polit & Hungler, 1987) to be able to accommodate the responses in the projected subject data base ($N = 60$), and worked well on the actual study sample of 19. The stages of thematic analysis are presented in Appendix Q, and were followed in the study.

The inductive analytic approach of theme analysis appears to be more fairly assessed using Lincoln and Guba's (1985) four criteria of trustworthiness, namely: credibility, transferability, dependability, and confirmability. Although not all aspects of the criteria can be fully realized, the attempt to enhance trustworthiness is valuable. The following techniques were incorporated where possible: prolonged engagement, persistent observation, triangulation (between quantitative and qualitative data), peer debriefing, negative case analysis, referential adequacy, member checks, description of working hypothesis and their time and contextual constraints, and an audit trail (Lincoln & Guba, 1985).

Ethical Considerations

Details for the ethical considerations of the study have been included with the discussion of the procedural methods. A highlight of the salient considerations will now be provided. Attempt was made to provide subjects with a clear and informed consent for their participation. Although no risks were anticipated, time commitment and subject tasks were moderately demanding. The researcher considered making a home visit for the initial interview but this was discounted as the between subject treatment conditions and the between interview conditions would differ markedly, introducing undesirable extraneous influences on the data. Additionally, the researcher would have liked to have offered the clients compensation for travel and parking incurred because of the additional clinic visit. Unfortunately the financial limitations of this researcher did not permit this. Clients were made aware of this cost during the invitation to participate and the initial telephone contact.

Potential benefits of the study have been outlined, and an opportunity was also provided for subjects to relay their reports to their clinic physicians as they wished. Clients were clearly assured that their care would not be jeopardized if they decided not to participate or to withdraw from the study. Steps to secure anonymity were taken, including the labelling of data by code number, the transcription of audiotapes by the researcher with appropriate deletion of identifying words, the locking of consents, tapes, transcription notes, and log books, and the consideration of careful maintenance of anonymity of subject responses for future publication purposes.

The final ethical consideration related to patient comfort. During the interview, subjects were reminded that they need not answer any question that they did not feel comfortable with. Furthermore, subjects were encouraged to sit or move about (within the confines of the interview room) as their comfort dictated, to decrease the discomfort of prolonged sitting. In addition, subjects were offered a short break after the general interview and at any other time that one was required. When a subject was in considerable emotional distress or pain, the interview was terminated and immediate referral was made to the appropriate pain clinic staff.

Limitations

The findings generated by this study need to be considered within the context of its limitations. Internal validity, content validity and sampling issues are discussed. Internal validity of the study was potentially threatened by the influence that the researcher may have on client responses and by the researcher's interpretations of the qualitative data. To reduce this possible bias, structured and semistructured measures were used. Furthermore, specific therapeutic criteria were delineated for the treatment condition. All interviews were taped and the transcripts were checked by an external expert reviewer and found to be free of researcher bias (post-treatment interview), and found to have met all treatment criteria in 100% of cases. While both interviews were conducted by the researcher, group assignment occurred after the initial interview.

The retrospective nature of some of the response demands, and the fallibility of subject long term recall, was offset somewhat by comparative checks against the daily activity recordings. Social desirability was a potential threat to the study. The inclusion of

the control group helped to determine the degree of influence caused by researcher interaction and data collection.

Content validity of the study was increased by the use of several well established tools. Researcher-designed tools were analyzed by a panel of experts in the field (Doctor of Anesthesiology at a Pain Clinic; nurse clinician working in the area of pain; and a doctorally prepared researcher in the area of chronic pain and faculty member in the Department of Social Work) and were deemed appropriate.

The inclusion of standard measures and semistructured tools increased the reliability of the data collection process. The use of a criterion checklist, a personal procedural and interview log, and an external criteria check added to the reliability and criterion validity of the treatment condition.

The largest limitation in the investigation related to the small sample size ($N = 19$). This less than projected data base decreased the power of the study, making conclusions regarding statistical findings tentative. The integration of both qualitative and quantitative data components, and the use of scatter plot analyses helped to partially counterbalance the small sample limitations. Furthermore, validity checks with 9 case studies (data collected but subjects excluded) provided additional support of identified themes. It is recognized that the subjects sampled in the study may not be reflective of the CLBP population in general. Specific details regarding the representativeness of the sample are discussed in the quantitative results chapter.

Summary

Inherent coping is an important aspect of pain management for CLBP clients. The impact of supporting inherent coping regimes on pain and coping outcome measures has not been tested in a systematic way. Myers and Haase (1989) support the use of both quantitative and qualitative methods in nursing research as a more realistic, complete, “...valid, ... powerful, ...efficient and ...effective” (p. 299-301) means to conduct a scientific inquiry. This pilot study attempted to delineate the relationship of one fundamental role in nursing practice — support of inherent coping strategies — to treatment outcome measures, using this complementary methodological approach. The empirical knowledge gained will contribute to our understanding of a prevalent and debilitating spinal column disorder, and has important clinical applications for the nursing care of these patients.

Chapter IV — Quantitative Results

The following chapter provides an overview of the quantitative findings of the study. The sample representativeness is considered, characteristics of the sample are described, the relationship of demographic and health history variables to outcome measures are presented, and responses to the pain, coping, and depression measures are summarized. Major comparisons between the two pain measures and between the coping measures are made. The chapter includes an analysis of the relationship between the responses on the three outcome measures to a major qualitative component — study impact, and concludes with a brief chapter summary.

Sample Representativeness

The current study was designed as a pilot test to consider the impact of therapeutic support of inherent coping strategies on chronic low back pain. In order to conclude whether the study sample was appropriate for this task, considerations of the representativeness of the sample need to be addressed.

Although an original sample of 60 participants was planned, a number of factors precluded this, including a 5 month delay in access at one hospital, scheduling problems (Interview I held at least two weeks before subjects' medical appointment), difficulties in contacting potential subjects, and a smaller than expected subject pool. Over a 12 month data collection period, 50 prescreened individuals were verbally contacted to participate. Nonparticipation history was as follows: 2 not interested; 1 previous poor study experience; 1 currently participating in a research study; 17 did not meet all inclusion

criteria (1 age, 1 language, 6 other major health problems); 3 transportation problems; 2 very interested but too busy; and 4 appointment scheduling problems. One individual agreed to participate but did not show up. Based on possible inclusion candidates, the response rate was 84.8%. A total of 28 and 22 participants completed the first and second interviews, respectively. The initial interview was used as a pilot test and was considered in the case study examples only. One individual was later excluded because of a major health problem, one because the primary concern was neck rather than back pain, and another was excluded because of invasive medical treatment between interviews. Second Interview attrition rates were as follows: 1 interview was stopped because of subject distress; 1 forgot but had hoped to rebook the interview; 1 had a serious family illness, but telephoned the researcher for coping-related advice on two other occasions; and 1 was sick with a severe skin condition. This gave a study inclusion rate of 49.1%.

Transportation problems and high activity were distinguishing factors for nonparticipants meeting study criteria, and not excluded because of scheduling problems. A review of the qualitative data indicated that the study sample also included participants reporting transportation difficulties and highly active schedules, although it is expected that nonparticipant situations for both considerations were more extreme. In general, the study sample appeared to be fairly representative of the valid subject pool. It must be noted however, that many excluded individuals suffering CLBP were experiencing other major conditions, including heart conditions, gastric disorders, and total hip or knee replacement surgeries. While studying a condition such as CLBP in isolation may be easier, it may not be representative of reality. The closer examination of the study sample

found in Chapter V, supports this complex pain condition view, as few subjects had health complaints of CLBP only. Furthermore, as these individuals had sought assistance from a pain clinic, it may be assumed that they did not find their current medical therapy and/or own coping strategies effective — this may have been an artifact of a clinic-based population. It is also anticipated to some degree, that patients referred to the pain clinic had more severe or complex pain conditions, than those found in the general population, and/or that these individuals were more persistent in their efforts to receive treatment. Unfortunately, these predictions could not be confirmed with the available population statistics. With these conditions in mind, the representativeness of the sample to the general CLBP population is regarded as limited.

Characteristics of the Sample

Subjects ranged in age from 26 to 61 years, with an average age of 43.5 years. Fourteen of the subjects were male. Five subjects were single, thirteen were married, and one was divorced. Two subjects had one to eight years of education, four subjects had nine to eleven years, ten had secondary school diplomas, and three had received a college or technical school diploma. Nine of the eleven control group subjects had a secondary school diploma or higher, while only four of the eight treatment condition subjects met this classification. Six ethnic groups were identified: Canadian, English Canadian, French Canadian, German, Ukrainian, and Italian. Three participants were currently receiving disability payments, eight had disability, insurance, or legal claims pending, and the remaining eight subjects had no current or pending claims.

Participants had experienced chronic back pain for an average of 8.7 years, with a

range of 1 to 30 years. The current pain problem was reported to have lasted an average of 3.3 years, with a range of two weeks to 15 years. Seventeen of the 19 subjects were taking analgesics to help relieve their pain. Five participants reported taking three different kinds of pain relief medication on a regular basis. Eighteen different pain management medications were reported. The two most common analgesics were Tylenol #3 and Extra Strength Tylenol, and these were taken by eight and four subjects, respectively. The average daily analgesic consumption was 5.9 pills, with a range of 0 to 20 pills daily. Effectiveness of the pain medication taken had an average rating of 4.9, with a range of 0 to 6 out of 10, where 0 was considered 'not effective at all' and 10 was viewed as 'extremely effective'.

A comparison-wise alpha level of .05 was used for all statistical tests. This level was chosen to ensure a reasonable degree of sensitivity given the small sample size, while safeguarding against high Type I error generated by multiple analyses. Total number of analgesics taken per day and the total number of kinds of analgesics taken regularly were significantly correlated, Kendall's Tau $b(17) = 0.3771, p = .045$. Average current fatigue levels were 4.9 out of 10, with a range of 2 to 10, where 0 was considered 'well rested' and 10 was equal to 'exhausted'. Current fatigue ratings were positively correlated to daily analgesic medication consumption, Kendall's Tau $b(17) = 0.3860, p = .031$.

Mean differences between conditions were not statistically significant for interval level subject variables, as seen in Table 3. A Mann-Whitney U-Wilcoxon Rank Sum W Test indicated no significant difference between condition medians for fatigue level at interview I, $Mdntx = 4.50, Mdnc = 5.00, Z(17) = -0.0419, p = .967$.

Table 3
T-Test Analysis of Interval Level Subject Variables by Condition (N = 19)

Variable	Condition				<i>t</i> (<i>df</i> = 17)	<i>F</i> (equal variances)
	Treatment		Control			
Age	<i>M</i>	44.63	<i>M</i>	42.73	-0.3558	1.88
	<i>SD</i>	9.32	<i>SD</i>	12.78		
Yrs. chronic pain	<i>M</i>	5.89	<i>M</i>	10.75	1.2963	3.65
	<i>SD</i>	5.05	<i>SD</i>	9.65		
Yrs. current pain	<i>M</i>	3.21	<i>M</i>	3.28	0.0385	1.28
	<i>SD</i>	3.28	<i>SD</i>	4.34		
No./kind of med.	<i>M</i>	2.00	<i>M</i>	1.45	-1.1834	1.25
	<i>SD</i>	.93	<i>SD</i>	1.04		
Daily med. total	<i>M</i>	4.88	<i>M</i>	6.64	0.6656	4.46
	<i>SD</i>	3.27	<i>SD</i>	6.90		

Note. All *t* and *F* scores had *p* values > .05. A Fisher's Exact Test (2-Tail) also gave *p* values > .05 for all variables.

Resulting small cell sizes did not allow for reliable Chi-square analysis of descriptive variables. Instead, Fisher's Exact Tests were used, and revealed no significant differences between conditions for sex, marital status, education level, ethnicity, occupation, disability status, cause of pain, other pain, worst pain experience, or previous back surgery (all *p*'s > .200). Employment status was significantly different between groups, with 8 employed and 0 unemployed of 11 control subjects, compared to 2 employed and 5 unemployed of 8 treatment participants, *p* = .020. Of those unemployed, 2 were currently receiving disability compensation (both reported having difficulties with Workman's Compensation in regards to maintaining or extending current claims), and 2 had disability claims pending.

Based on a review of the qualitative data, subject responses for employment were

regrouped into either subject perceived 'acceptable' or 'unacceptable' employment status categories. Subjects conveyed a sense of feeling socially acceptable if working full or part-time or if they were retired. Those subjects who were unemployed, on sick leave, or were a homemaker, made comments that this employment status was not acceptable to them. Wilcoxon Rank Sum Tests revealed that responses on six subscales (NRS3, PRI-S, CSQ-CAT, CSQ-DECRSE, CSQO-T, and BDI) were significantly different between acceptable and unacceptable employment status categories (see Table 4). Specific statistical procedures were included to help correct for this extraneous influence in related analyses, and will be discussed within subsequent paragraphs.

Table 4
Wilcoxon Rank Sum Test Between Category Differences for Six Subscales by Perceived Employment Status

Subscale	Category				Z (df = 17)	p
	'Acceptable' Employment Status (n = 10)		'Unacceptable' Employment Status (n = 9)			
NRS3	<i>Mdn</i>	5.0	<i>Mdn</i>	4.0	-2.1129	.035
	<i>SD</i>	1.99	<i>SD</i>	1.36		
PRI-S	<i>Mdn</i>	10.0	<i>Mdn</i>	17.7	2.0004	.046
	<i>SD</i>	6.87	<i>SD</i>	4.17		
CSQ-CAT	<i>Mdn</i>	12.0	<i>Mdn</i>	19.0	2.1285	.033
	<i>SD</i>	6.74	<i>SD</i>	8.88		
CSQ-DECRSE	<i>Mdn</i>	1.0	<i>Mdn</i>	3.0	1.9659	.049
	<i>SD</i>	1.43	<i>SD</i>	1.41		
CSQO-T	<i>Mdn</i>	6.0	<i>Mdn</i>	9.0	2.0119	.044
	<i>SD</i>	2.91	<i>SD</i>	2.50		
BDI	<i>Mdn</i>	10.0	<i>Mdn</i>	20.0	2.8244	.005
	<i>SD</i>	5.69	<i>SD</i>	8.59		

Note. See Table 5 for subscale descriptions.

Table 5
 Total Sample Responses at Interview I for Pain, Coping, and Depression ($N = 19$)

Scale						
Subscale	Description	Range	Min.	Max.	<i>Mdn</i>	<i>SD</i>
NRS Numerical Rating Scale						
NRS1	current pain	0-10	1	10	6.00	2.18
NRS2	worst pain yesterday	0-10	4	10	7.00	1.92
NRS3	least pain yesterday	0-10	1	8	4.00	1.99
NRS4	avg. pain yesterday	0-10	2	10	5.00	1.94
NRS5	worst pain last week	0-10	4	10	9.00	1.84
NRS6	least pain last week	0-10	2	8	3.00	1.70
NRS7	avg. pain last week	0-10	3	10	5.00	1.71
MPQ-S McGill Pain Questionnaire-Semantic (weighted) — Pain Rating Index						
PRI-T	total	0-85.88	14.62	55.59	32.48	11.95
PRI-S	sensory	0-40.64	6.26	28.44	11.00	5.99
PRI-A	affective	0-23.47	1.74	15.55	5.94	4.85
PRI-E	evaluative	0-4.04	1.01	4.04	3.03	1.18
PRI-M	miscellaneous	0-17.73	1.97	13.43	5.70	3.58
NWC	no. words chosen	0-20	7.00	20.00	11.00	3.01
CSQ Coping Strategy Questionnaire						
DIVATTN	diverting attention	0-6	0.17	5.50	2.00	1.28
REINSEN	reinterpreting pain sens.	0-6	0.00	2.00	0.33	0.68
COPSELF	coping self statements	0-6	1.33	6.00	3.50	1.22
IGNORE	ignoring sens.	0-6	0.00	4.33	1.33	1.16
PRAYHOP	praying/hoping	0-6	0.00	5.67	2.33	1.45
CAT	catastrophizing	0-6	0.67	5.83	2.17	1.44
BEHACT	increase behav. activs.	0-6	0.50	5.00	3.50	1.26
CONTRL	control over pain	0-6	0	6	3.00	1.84
DECRSE	ability to decrease pain	0-6	0	6	2.00	1.58
CSQO Open Coping Strategy Questionnaire						
CSQO-EFF	overall effectiveness	0-10	0	9	4.00	2.66
CSQO-T	total no. strategies listed	0-10	2	11	8.00	2.98
BDI Beck Depression Inventory						
BDI	total	0-63	5	37	12.00	8.80

Findings from Pain, Coping and Depression Measures

Elementary statistics on total sample responses to the NRS, MPQ-S, CSQ, CSQO, and BDI at Interview I are presented in Table 5. These median scores approximated the comparable median Activity Diary Responses provided in Table 6.

Table 6
Average Total Sample Responses on Daily Activity Diary ($n = 18$)

Variable	Min.	Max.	<i>Mdn</i>	<i>M</i>	<i>SD</i>
Current pain	1.00	10.00	6	6.25	2.32
Worst pain	1.00	10.00	8	7.45	1.91
Least pain	0.00	10.00	4	4.51	2.56
Average pain	1.00	10.00	6	5.90	2.01
CSQO-EFF	0.00	10.00	4	3.79	2.21
Fatigue	0.00	10.00	7	7.11	2.22

Pain Measures

Total and subscale response scores of the semantic portion of the McGill Pain Questionnaire (Melzack, 1975) were weighted according to the values recommended by Melzack et al. (1985) and are summarized in Table 5. Descriptive subject variables were analyzed and regrouped, as needed, into two category responses (e.g. married/not married, receiving/not receiving disability, acceptable/unacceptable employment status, and high/low education level) to allow for Wilcoxon Rank Sum analysis with outcome measures (see Table 7).

Gender had no significant impact on total perceived pain scores for either pain measures. Married (legal or common-law) participants were shown to have significantly lower average pain last week scores (NRS4) than those who were not married.

Table 7
Significant Wilcoxon Rank Sum Tests for Pain Responses by Descriptive Category

Pain Subscale	Descriptive Category	<i>n</i>	<i>Mdn</i>	<i>Z</i>	<i>p</i>
NRS4	Married	13	5.00	2.522	.012
	Not married	6	7.00		
NRS5	Receiving disability	8	10.00	2.592	.010
	Not receiving disability	11	8.00		
NRS3	Acceptable employment status	10	5.00	-2.113	.035
	Unacceptable employment status	9	4.00		
PRI-S	Acceptable employment status	10	10.00	2.000	.046
	Unacceptable employment status	9	17.00		

Participants currently receiving disability insurance had significantly higher worst pain last week scores (NRS5) compared to those who were not currently receiving disability.

Those who considered that their employment status was 'acceptable' (i.e. working/retired status) had higher least pain yesterday scores (NRS3) but lower Pain Rating

Index-Sensory (PRI-S) ratings than subjects who described their employment status as 'unacceptable'. Both the NRS and the MPQ-S gave nonsignificant differences between median response ratings when participants were grouped according to low or high education level (i.e. at or lower than secondary school education versus higher than secondary school education).

A number of Kendall's Tau *b* correlation coefficients were calculated to determine what if any relationship existed between ordinal level health history variables and pain scale responses (see Table 8). Younger subjects were found to have higher weekly

Table 8
Significant Kendall Tau *b* Correlations Between Pain Responses
 and Health History Variables

Pain Subscales	Health History Variables	<i>b</i> (<i>df</i> = 17)	<i>p</i>
NRS7	Age	-0.352	.055
NWC	Age	0.367	.040
NRS1	Taking analgesics	-0.588	.002
NRS2	Taking analgesics	-0.527	.006
NRS4	Taking analgesics	-0.398	.039
PRI-E	Long history of CLBP	-0.407	.029
NRS2	Current fatigue level	0.365	.046
PRI-M	Current fatigue level	0.385	.027
NWC	Current fatigue level	0.373	.042

average pain scores (NRS7), yet lower scores on number of words chosen (NWC).

Subjects regularly taking a variety of analgesics reported significantly lower scores for current pain (NRS1), worst pain yesterday (NRS2), and average pain yesterday (NRS4).

Participants with longer histories of chronic back pain had significantly lower evaluative pain scores (PRI-E). As well, current fatigue ratings were significantly positively correlated to worst pain yesterday (NRS2), miscellaneous pain scores (PRI-M), and number of words chosen (NWC).

Pain and coping responses were significantly correlated in a number of instances (see Table 9). When the total sample was considered, individuals indicating higher current pain levels (NRS1) reported using fewer coping strategies (CSQO-T), Kendall's Tau *b* (17) = -0.469, *p* = .009 (see Appendix R for scatterplot). Diverting attention was negatively correlated with sensory pain (PRI-S), and number of words chosen (NWC),

Table 9
Significant Kendall Tau *b* Correlations Between Pain and Coping Responses

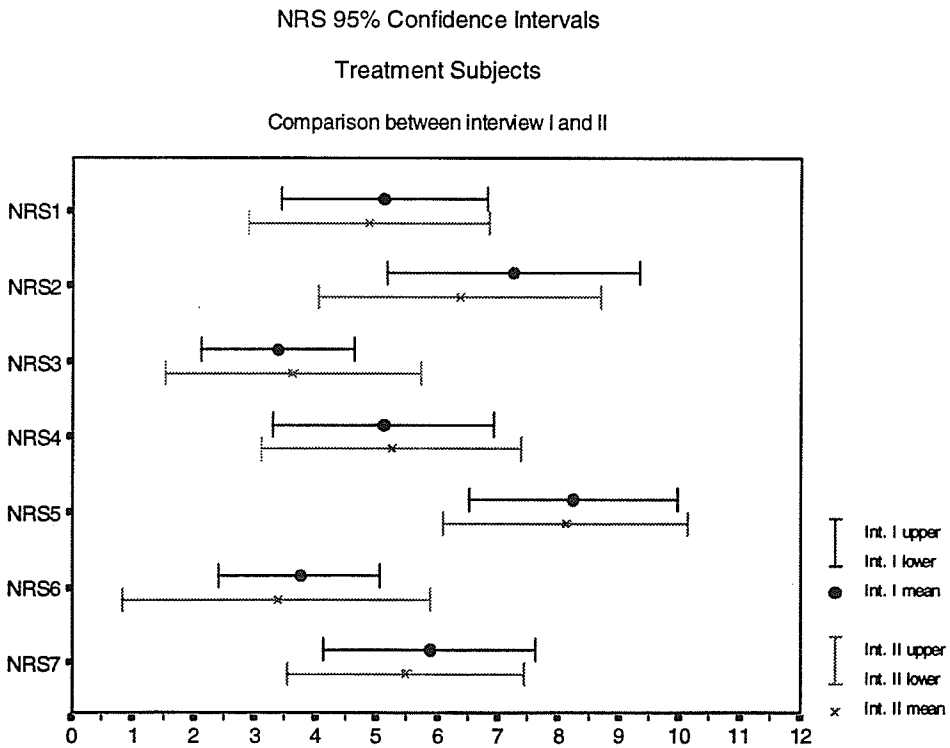
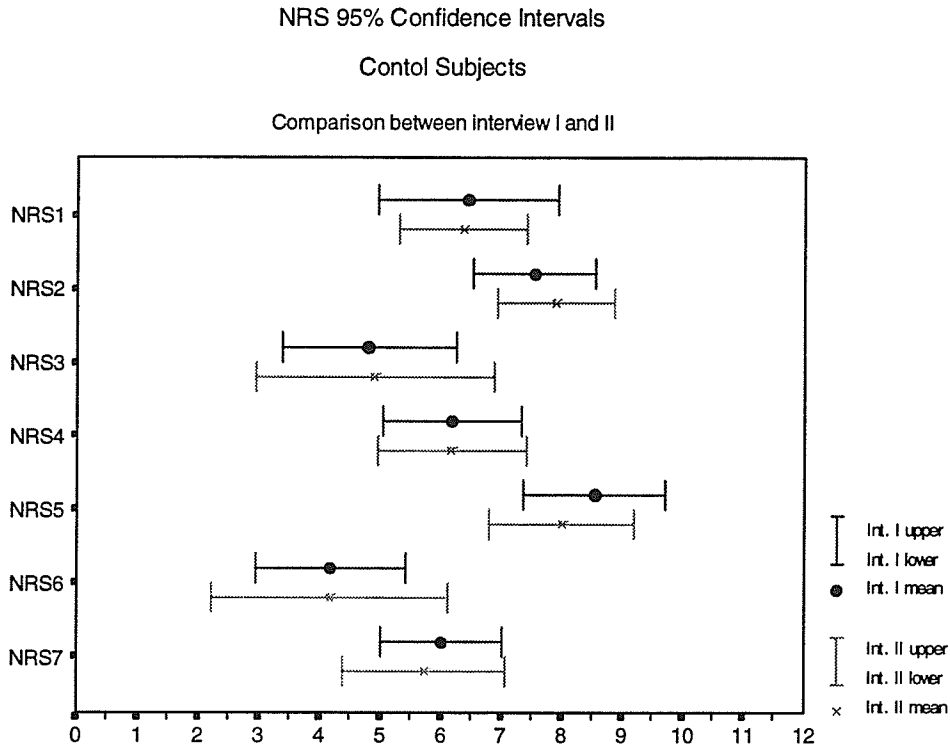
Pain Subscale	Coping Subscale	<i>b</i> (<i>df</i> = 17)	<i>p</i>
NRS1	CSQO-T	-0.469	.009
PRI-S	DIVATTN	-0.348	.041
NWC	DIVATTN	-0.355	.048
NRS2	REINSEN	0.443	.017
PRI-E	COPSELF	0.384	.041
NRS4	IGNORE	-0.397	.026
PRI-E	DECRSE	-0.524	.005
PRI-M	DECRSE	-0.378	.042
NRS6	DECRSE	-0.426	.026

when total sample scores were used. Reinterpreting pain sensations was positively related to worst pain yesterday (NRS2) (scatterplot found in Appendix S). Coping self statements increased with higher evaluative scores (PRI-E), while the reported use of strategies based on ignoring sensations was found to relate negatively to ratings for average pain yesterday (NRS4). Poorer perceptions of ability to decrease pain correlated significantly to higher scores for total sample evaluative pain (PRI-E) (scatterplot found in Appendix T), higher miscellaneous pain (PRI-M), and higher least pain last week (NRS6).

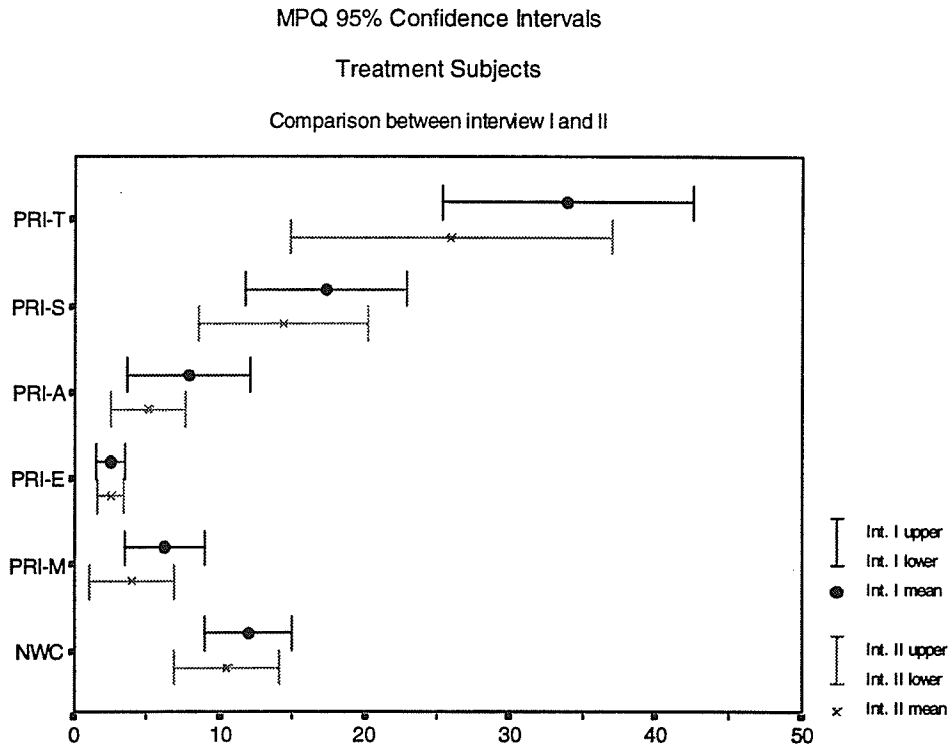
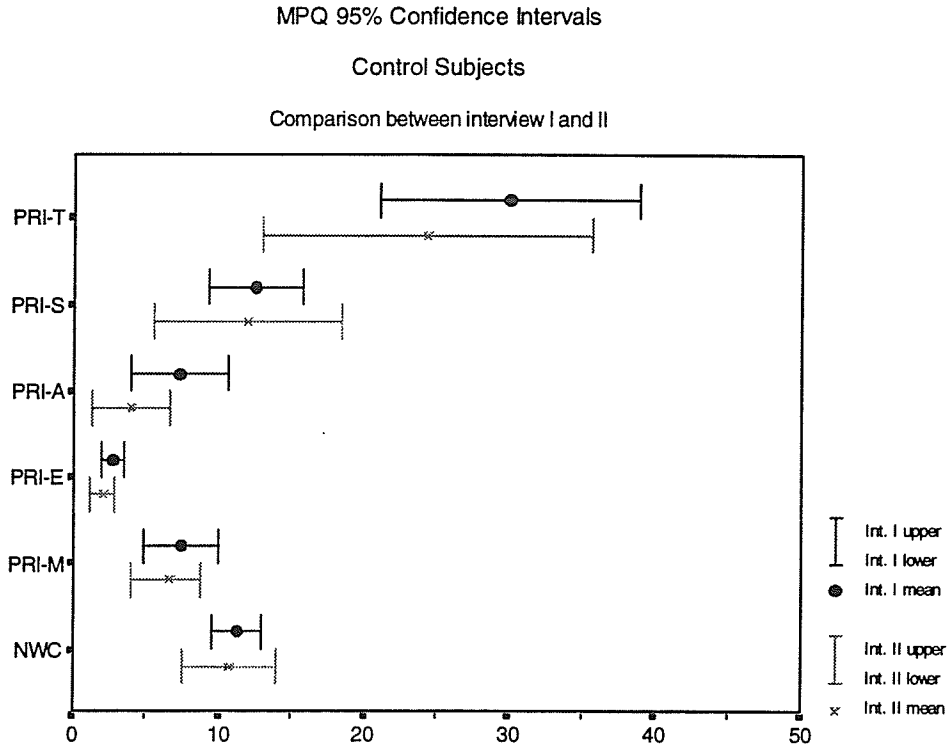
As previously noted, PRI-S, CSQO-T, and ability to decrease pain were all found to relate to acceptable employment status. For this reason, separate subgroup analyses were run for all related correlations. Although all tests gave reduced *p* values, correlation direction remained constant in all cases, and support the validity of the aforementioned total sample results. None of the subscales on either pain measure were significantly correlated to total sample depression scores.

Mean scores and 95% confidence intervals were calculated for pain outcome measures. The confidence graphs, shown in Figures A and B, depict relatively stable treatment and condition mean scores for Numerical Rating Scale components. Mean scores did drop slightly in five and three of the seven NRS subscales for treatment and control groups, in that order. A consistent positive but nonsignificant trend was seen for reduced mean Pain Rating Index responses (Figures C and D). Five and six out of six MPQ-S subscales decreased for treatment and control subjects, respectively. These findings suggest that study participation alone may have had a slight positive impact for both treatment and control groups with respect to perceived pain levels.

Further analysis using Wilcoxon 2-Sample Tests gave no significant differences between conditions on current perceived pain (NRS1), average pain last week (NRS7) and all MPQ-S subscales, when within subject rank scores were compared at Interview I and II (see Table 10). To test how well the two pain scales related to each other, Kendall's Tau *b* correlation coefficients were calculated on total sample scores at Interview I. Because the MPQ-S responses were supposed to be reflective of current pain, the NRS1 (current pain) score was of primary interest. However, scores for current pain (NRS1) and weighted Total MPQ-Semantic Scale score (PRI-T) were not significantly related, $b(17) = -0.322, p = .067$. Surprisingly, current pain ratings were negatively related, both to scores on the PRI-Sensory subscale (PRI-S), $b(17) = -.036, p = .041$, and to the total number of words chosen (NWC), $b(17) = -0.359, p = .052$. An attempt to partial out the effect of perceived employment acceptability for the PRI-S variable, indicated that this apparently significant total sample finding was misleading, as the direction of the



Figures A and B.



Figures C and D.

correlation differed between subgroups, $Z_{\text{acceptable}}(10) = -0.460, p = .070,$

$Z_{\text{unacceptable}}(9) = 0.279, p = .321.$ All other comparisons between these two pain

scales were also nonsignificant.

Table 10
Wilcoxon 2-Sample Test Analyses of Pain, Coping and Depression Scale
Difference Scores Between Conditions ($N = 19$)

Scale Subscale	Treatment <i>Mdn</i> ($n = 8$)	Control <i>Mdn</i> ($n = 11$)	<i>Z</i>	<i>p</i>
NRS				
NRS1	0.00	0.00	-0.044	.965
NRS7	-0.50	0.00	-0.302	.763
MPQ-S				
PRI-T	-2.90	-6.78	0.124	.901
PRI-S	1.66	-4.32	0.867	.386
PRI-A	-2.50	0.00	-0.826	.409
PRI-E	0.00	-1.01	-0.213	.832
PRI-M	-0.58	-1.42	0.000	1.000
NWC	-0.50	-1.00	0.500	.617
CSQ				
DIVATTN	-1.50	-1.00	0.000	1.000
REINSEN	1.00	-1.00	0.622	.534
COPSELF	0.00	1.00	-0.706	.480
IGNORE	0.00	-2.00	0.538	.591
PRAYHOP	-3.00	0.00	-1.202	.229
CAT	-4.50	-2.00	-1.283	.199
BEHACT	-0.50	-2.00	0.911	.362
CONTRL	1.00	-1.00	1.908	.056
DECRSE	-0.50	0.00	-0.981	.327
CSQO-EFF	-0.50	0.00	-0.501	.616
BDI	-1.00	-1.00	0.224	.823

Coping Measures

Median sample total coping, coping sub-category, pain control, and pain decrease response scores on the CSQ (Rosenstiel & Keefe, 1983) are summarized in Table 5. Median total average effectiveness ratings of coping strategies (CSQO-EFF) derived from the open format coping assessment tool were also calculated (see Table 5). Total subject example frequency charts of reported closed format (CSQ) and open format (CSQ-O) pain management strategies are provided in Figures E and F, respectively. Although overlap in identified categories is evident, highest reported frequency categories differed substantially. High scores were seen for all closed categories, while physically-related coping and increased behavioral activity scores were greatest for the open format tool. One of the highest closed format categories was filler items, even after medication use was dropped (score = 81).

Coping scale responses were analyzed for differences between subject variables. Again, using the binary category format for subject nominal descriptive variables, Wilcoxon Rank Sum Scores were calculated for coping measures, and median category differences were analyzed (see Table 11). Between group differences existed for three coping measures with respect to the perceived acceptability or unacceptability of present employment status. Wilcoxon Rank Sum scores were significantly greater for the unacceptable employed status subjects (e.g. unemployed, sick-leave, and homemaker, $n = 9$) regarding their perceived ability to decrease pain (DECRSE), their use of catastrophizing (CAT), and for their total number of coping strategies listed (CSQO-T).

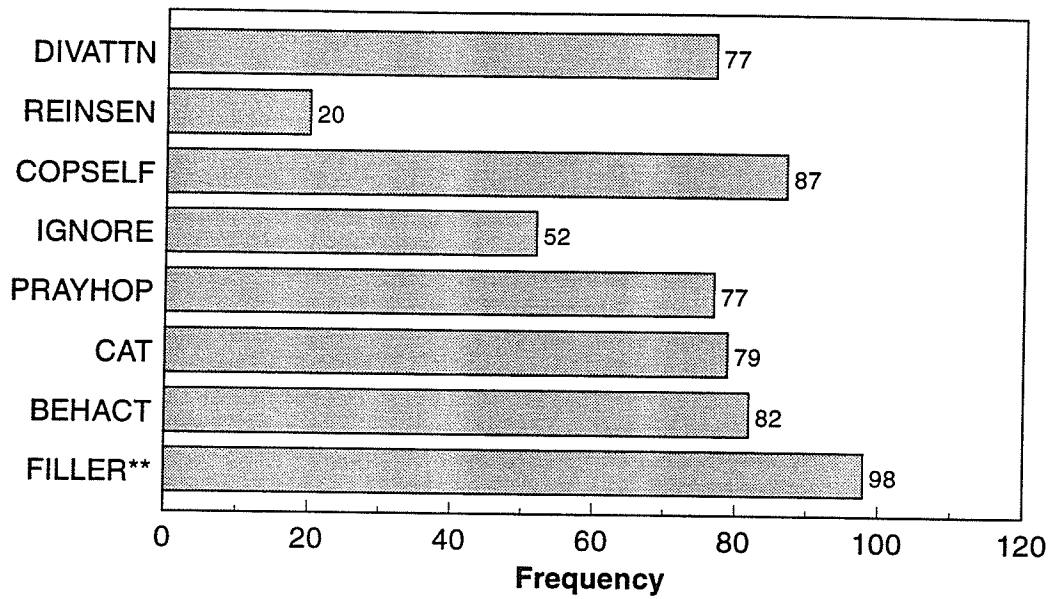


Figure E. Frequency of CSQ Items Reported by Strategy Category

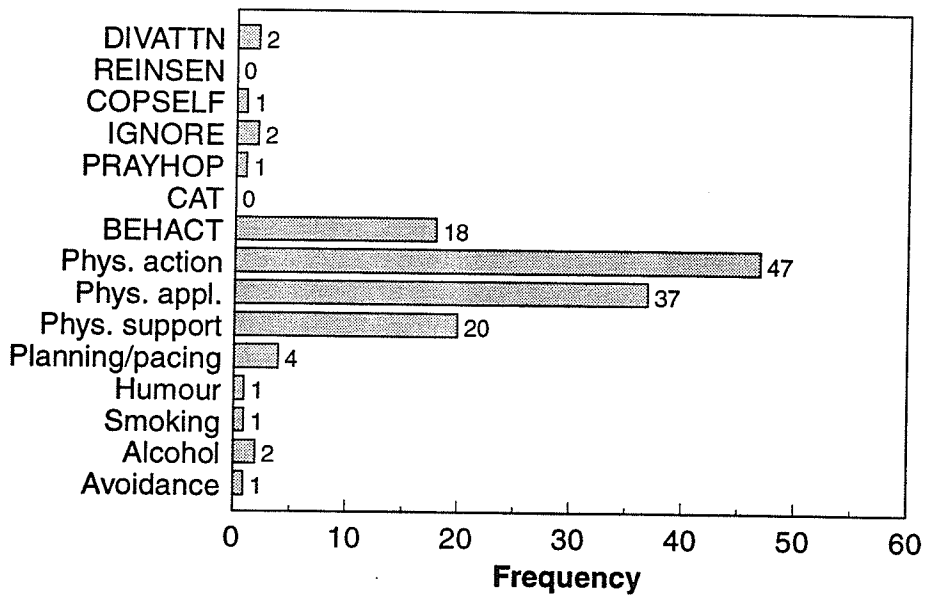


Figure F. Frequency of CSQO Items Reported by Strategy Category

Table 11
Significant Wilcoxon Rank Sum Tests for Coping Responses by Descriptive Category

Coping Subscale	Descriptive Category	<i>n</i>	<i>Mdn</i>	<i>Z</i>	<i>p</i>
DECRSE	Acceptable employment status	10	1.00	1.966	.049
	Unacceptable employment status	9	3.00		
CAT	Acceptable employment status	10	12.00	2.129	.033
	Unacceptable employment status	9	19.00		
CSQO-T	Acceptable employment status	10	6.00	2.012	.044
	Unacceptable employment status	9	9.00		
CONTRL	Female	5	5.00	2.212	.027
	Male	14	2.00		
DECRSE	Female	5	3.00	2.087	.037
	Male	14	1.50		
IGNORE	Female	5	17.00	2.367	.018
	Male	14	6.00		
IGNORE	< = high school educ.	13	10.00	-2.023	.043
	> high school educ.	6	3.50		
DIVATTN	Married	6	17.00	2.115	.034
	Unmarried	13	12.00		
CAT	Married	6	26.00	2.330	.020
	Unmarried	13	13.00		
COPSELF	Receiving disability	8	23.50	1.955	.051
	Not receiving disability	11	21.00		

Unlike the pain scales, gender did differentiate participants with respect to coping responses (see Table 11). When total sample scores were considered, female participants ($n = 5$) reported significantly higher perceptions of control over their pain than males, and

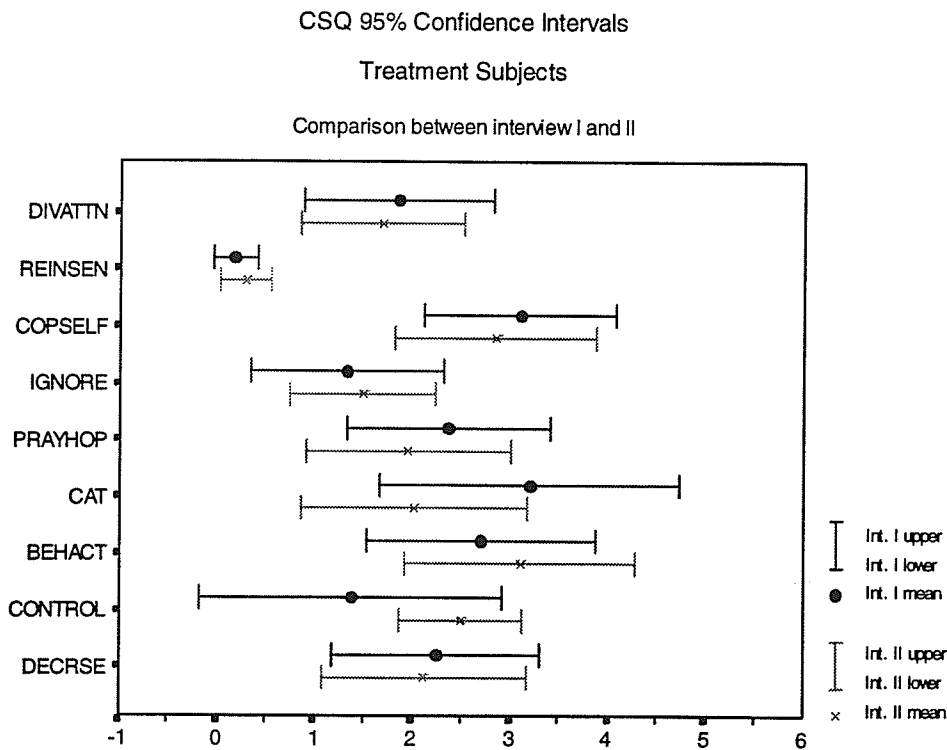
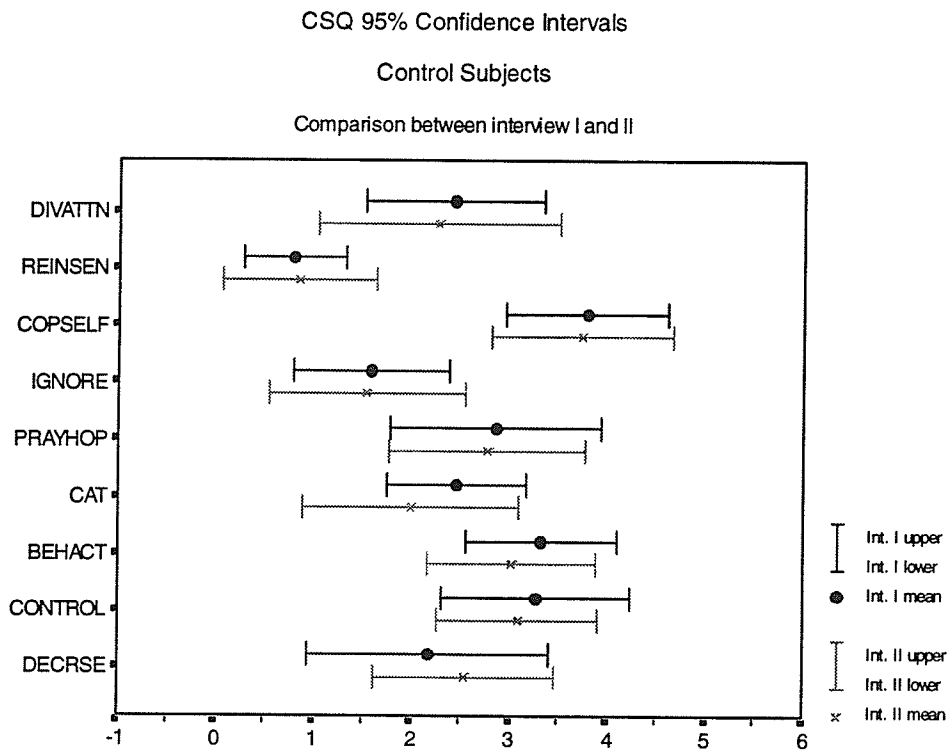
felt able to decrease their pain to a greater degree. With respect to the CSQ coping subscales, all responses were nonsignificant for gender except for Ignoring Sensations. Findings from this comparison indicated that female participants used ignoring sensations as a coping strategy more frequently than males. Ignoring sensations were also found to be used to a greater degree by subjects with at most a secondary school education, compared to those with more education. No other coping responses were significantly different between education levels.

Marital status had no significant impact on the ability to control or decrease pain, or on the total CSQ-O strategy frequency or general strategy efficacy ratings. Married subjects ($n = 6$) did report significantly higher use of diverting attention (DIVATTN), and catastrophizing (CAT). Wilcoxon 2-Sample Tests were also conducted between the coping measures and disability status. Only one strategy, coping self statements, gave a marginally significant between group difference, with participants currently receiving disability insurance ($n = 8$) using the strategy slightly more often than those not receiving disability. Using total sample scores, Kendall's Tau b correlation coefficients indicated that younger participants tended to catastrophize (CAT) more (see Table 12). Praying and hoping (PRAYHOP) were less favoured as duration of the current pain problem increased. The comparisons of coping measures to pain measures have been discussed in the previous section. Coping and depression measure reports were also analyzed and gave one significant result. Total sample use of catastrophizing as a coping strategy was significantly correlated to increased total depression scores (see Table 12).

Table 12
Significant Kendall Tau *b* Correlations Between Coping Responses and Health History and Depression Variables

Coping Subscales	Health History and Depression Variables	<i>b</i> (<i>df</i> = 17)	<i>p</i>
CAT	Age	-0.371	.031
PRAYHOP	Duration of current pain	-0.405	.021
NRS1	Taking analgesics	-0.588	.002
NRS2	Taking analgesics	-0.527	.006
NRS4	Taking analgesics	-0.398	.039
PRI-E	Long history of CLBP	-0.407	.029
NRS2	Current fatigue level	0.365	.046
PRI-M	Current fatigue level	0.385	.027
NWC	Current fatigue level	0.373	.042
CAT	BDI	0.464	.007

Calculations of outcome coping means and 95% confidence intervals indicated no significant treatment group differences (see Figures G, H and I). However, both control and treatment groups showed decreased mean responses in catastrophizing (CAT) at Interview II, with a larger but nonsignificant reduction seen in the treatment group. Structural partialling for employment acceptability for catastrophizing was not possible because of small subgroup size (< 5). As well, the treatment group showed small mean increases for reinterpreting sensations (REINSEN), ignoring behaviors (IGNORE), and increased behavioral activity (BEHACT), while the controls only increased marginally with respect to reinterpreting sensations. However, caution is in order as none of these mean changes fell beyond confidence limits. Means and confidence limits for total strategy use (CSQO-T), general coping strategy effectiveness (CSQO-EFF), perceived control



Figures G and H.

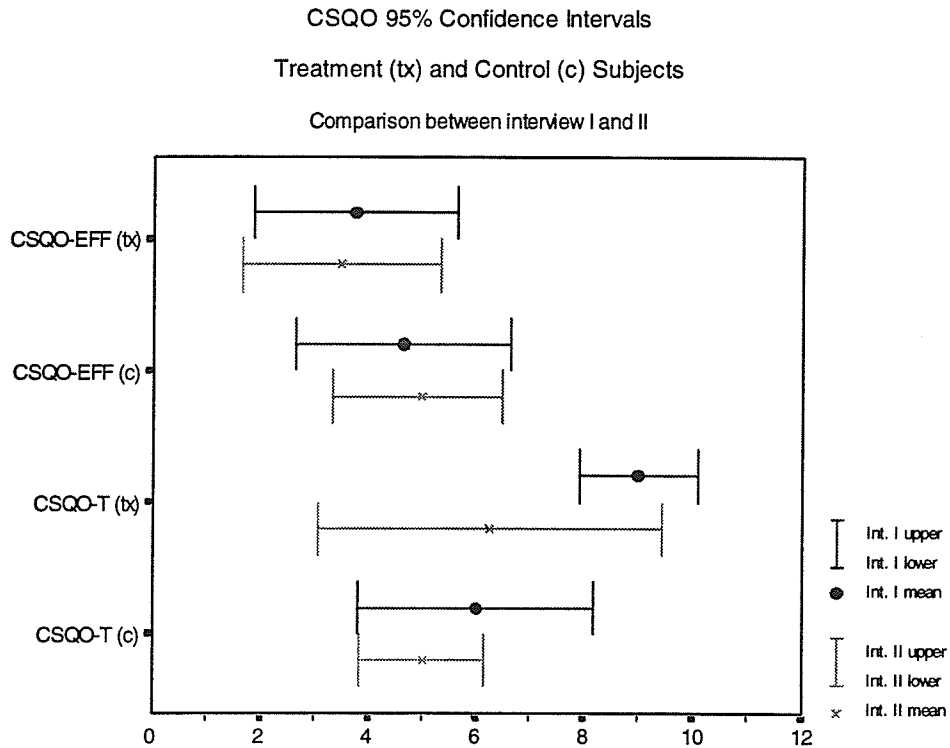


Figure I.

(CONTRL), and perceived ability to decrease pain (DECRSE) were also considered (see Figures G, H and I). While the treatment group appeared to show some improvement in mean perceived control, the differences were not significant. Thus, although there were some weak positive trends in the data, condition mean and confidence interval analyses did not produce statistically significant support that the treatment intervention had a therapeutic impact. As seen in Table 10, no significant condition differences were noted for within subject scores between Interview I and II using Wilcoxon Rank Sum Procedures.

Closed format (CSQ, Rosenstiel & Keefe, 1983) and open format (CSQ-O) coping measures were compared using Kendall's Tau *b* correlations. Overall coping strategy

effectiveness ratings were significantly positively related to perceived ability to decrease pain, $b(17) = 0.403$, $p = .029$, but had no significant correlation to perceived ability to control pain, $b(17) = 0.276$, $p = .129$. Similar control for the impact of perceived employment acceptability status on relevant (CSQ-DECRSE, CSQ-CAT, CSQO-T) analyses, decreased p values but remained directionally consistent, supporting the total sample findings. The total number of coping strategies suggested in the open coping measure gave nonsignificant results when correlated with coping strategy subscales, perceived ability to decrease pain, and perceived control over pain, using the Kendall's Tau b Correlation Procedure.

Depression Measure

The Beck Depression Inventory (Beck, 1979) was used to assess current level of depression. The median total depression score at Interview I (BDI) is provided in Table 5. Binary response formatting of the descriptive total sample data yielded significantly lower total depression scores for married subjects compared to unmarried participants. In order to determine the effect of employment on the depression by marital status analysis, separate Wilcoxon Rank Sum Tests were conducted and yielded same signed nonsignificant Z scores for both employment categories. Total depression scores (BDI) were significantly different between perceived acceptable versus unacceptable employment status. Age, duration of chronic pain, duration of current pain, number of kinds of medications taken, total daily consumption of medications, analgesic effectiveness, and fatigue level, were all nonsignificant when Kendall's Tau b Correlation Analyses were conducted.

As noted in the aforementioned pain measures section, total depression scores were not significantly correlated to responses on either pain measures. While most coping measures also gave no evidence of a significant relationship to total depression scores, the use of catastrophizing ($p = .007$) was noted to be highly positively related for total sample analysis.

Calculations of condition means and 95% confidence levels for total depression scores indicated that both control and treatment group depression levels decreased but that the differences within conditions from Interviews I to II were nonsignificant. As shown in Table 10, within-subject differences for total depression ratings were nonsignificant between conditions when Wilcoxon Sum Rank Analysis was performed.

Comparisons Between Qualitative and Quantitative Measures

An analysis of the qualitative data indicated that the study had a varying impact on participants. Three treatment and 6 control subjects voiced very positive feedback regarding the experience and offered comments that it was very cathartic, informative, and gave them a new perspective. Other subjects (treatment = 5, control = 5) had generally positive comments about the study and their participation in it, but felt that the experience had not helped them personally to any great degree. The fact that some controls perceived positive study impact, suggests that the assessment and or time spent with the researcher in and of itself, may have been beneficial. Based on these types of comments, subjects were identified as having high or low study impact. Quantitatively, the within-subject difference scores for the outcome measures should also be an indication of study impact. With this in mind, qualitative study impact was then compared to the

Table 13
Wilcoxon Rank Sum Test Difference Scores for Pain, Coping, and Depression by High and Low Study Impact and Condition

Condition	Category Difference Medians		Z (df = 6)	p
	High Study Impact	Low Study Impact		
Treatment	<i>n</i> = 3	<i>n</i> = 5		
NRS7	-2.00	0.00	-1.9735	.048
DECRSE	2.00	-1.00	1.9735	.048
CSQO-EFF	2.00	-3.00	1.9614	.050
Control	<i>n</i> = 6	<i>n</i> = 5		
PRI-A	1.11	-6.09	-2.0996	.036

within-subject difference scores for pain, coping, and depression outcome measures using Wilcoxon Rank Sum Tests (see Table 13). Significant differences between high and low impact groups were seen for the treatment group in difference scores for average pain last week (NRS7), efficacy of inherent coping strategies (CSQO-EFF), and perceived ability to decrease pain (CSQ-DECRSE). One significant difference was noted between high and low impact control participants. Difference scores for affective pain (PRI-A) were greater in the low impact control group. The treatment impact findings were in the predicted directions, while the control group findings were unexpected. Readers are cautioned to view findings as trends only, due to the small *n* for the high impact treatment group.

Chapter Summary

In summary, the findings in this chapter indicate that the sample was varied both with respect to demographic variables and health histories. Given this relatively small sample size, subject characteristic distributions appeared to be fairly normal between

conditions with the exception of employment status, which indicated that the treatment group included a significantly higher proportion of unemployed subjects. Further analysis resulted in attempts to partial out perceived acceptable employment status impact from six variables, and their respective related analyses.

Total sample pain scores were differentiated by age, duration of chronic pain, fatigue, and the number of kinds of analgesics taken. Gender, education level, and duration of the current pain problem had significant impact on coping measures for total sample scores. Disability status responses were significantly related to pain and coping scores, while marital status and perceived acceptability of employment status was significant for pain, coping, and depression measures. Pain and coping measures were related on several subscales when total samples were analyzed. Depression scores did not relate significantly to pain scores but showed a significant correlation to total sample scores for one coping strategy — catastrophizing. Analysis using condition means and 95% confidence levels yielded nonsignificant results. Trends in the confidence data suggested a study participation effect for perceived pain and gave weak support for a treatment effect for decreased catastrophizing and increased perceived control. Treatment effects were nonsignificant for pain, coping, and depression measure outcomes when Wilcoxon Sum Rank Scores were calculated for the subject difference scores. Comparisons between one qualitative and the three quantitative measures of study impact yielded mixed significant correlations between study impact and pain and coping responses. The next chapter will present the quantitative findings of the study.

Chapter V — Qualitative Results

The following chapter provides an overview of the qualitative findings of the study. Occupation, employment and health history variables are highlighted. The three major emergent themes derived from the thematic analysis of the qualitative data are presented. The chapter concludes with a brief chapter summary.

Occupation, Employment and Health History Variables

The 19 study participants came from a range of occupational experiences, with 11 of the subjects currently or previously involved in heavy physically demanding labour positions. Ten of the subjects were currently employed either full or part-time. Of the 7 subjects not working, 5 had previously been involved in heavy labour related occupations and 2 reported experience with frequent moderate lifting or driving.

Health history variables included perceived causes of CLBP, worst pain experience, and significant health habits. Fifteen participants perceived the cause of their CLBP as either a work related injury or as a result of a motor vehicle accident (MVA) (see Figure J). Multiple work injuries ($n = 4$), multiple MVA's ($n = 1$), multiple kinds of perceived causes ($n = 2$), and possible contributing causes ($n = 3$) of CLBP were also reported.

Current CLBP or a specific episode of CLBP was reported as the worst pain experience for 10 subjects, while 3 listed CLBP-related experiences and 6 responded with a variety of generally transient worst pain examples (i.e. migraine headaches, labour, a serious cut, and knee injuries). All participants were screened to exclude additional major

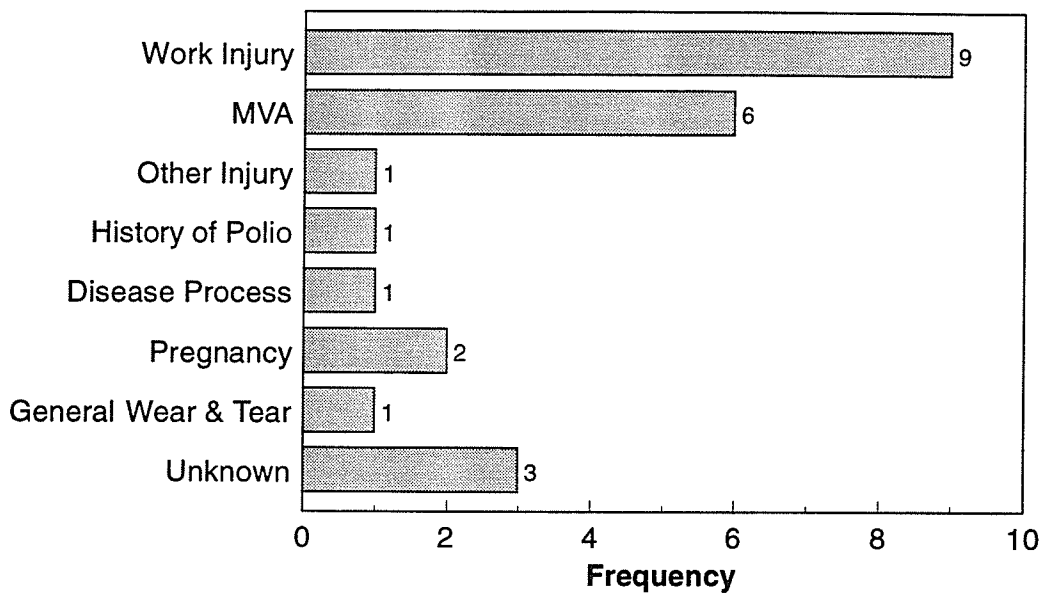


Figure J. Frequency of Perceived Causes of CLBP

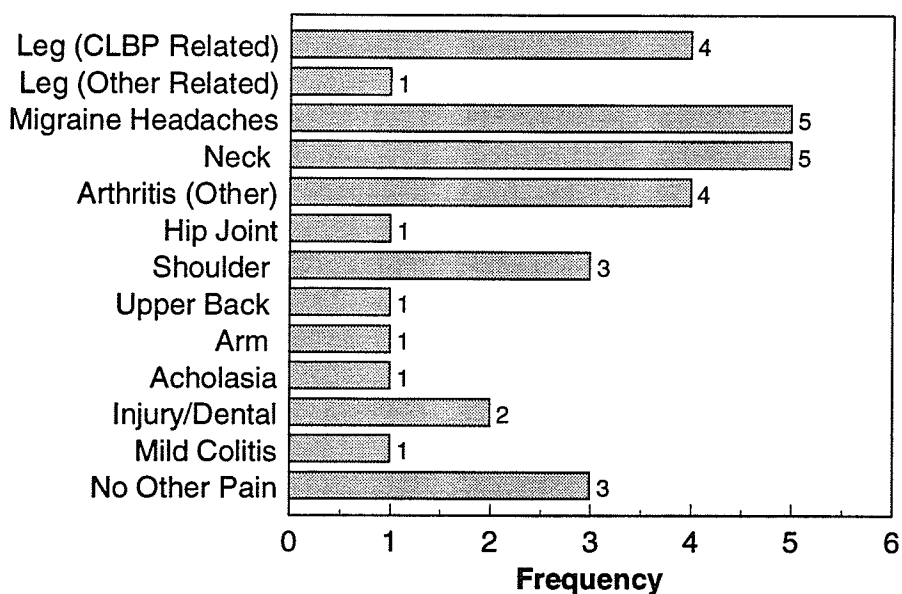


Figure K. Frequency of Other Pain Conditions

medical and psychiatric disorders. However, 16 participants listed other minor to moderate pain problems (see Figure K).

Frequently, interviews included discussions relating to the health habits of the participants. One individual appeared to be significantly (> 10 kg) underweight, 17 seemed normal to moderately overweight, and 1 presented as significantly (> 10 kg) overweight. Although the data did not allow for the evaluation of a balanced diet, it was noted that 10 subjects were attempting to limit their caloric intake. Caffeine ($n = 11$) and alcohol ($n = 10$) were included in at least some diets. Fourteen participants included regular exercise as part of their lifestyle. Eight subjects were smokers, while 3 had recently stopped and 1 occasionally used marijuana.

Impact of CLBP (Theme I)

The impact of CLBP on subjects appeared to focus on four spheres: physical, psychological, career and accommodation. Each sphere and its components are subsequently addressed.

Physical Impact

Physical aspects reported by participants included themes related to the descriptions about the pain experience and to other concomitant physiological occurrences. Pain descriptions conveyed not only similarities and variations within severity, chronicity and location patterns but also within the perceived qualities of pain itself. Concomitant physiological changes were related to general physical changes, loss of sensation, sleep, fatigue, and physical activity.

Descriptions about the Pain Experience

Daily pain levels could be described as consistent (severity stays at the same level), sporadic (severity changes unexpectedly), patterned (severity levels change in a

predictable manner), and/or constant (some degree of pain was experienced all the time). Patterned pain related to changes in activity ($n = 14$), time of day ($n = 4$), the weather ($n = 2$), and “Good days and bad days” ($n = 7$). The chronic and current back pain problem had been experienced for an average of 8.7 years and 3.3 years, respectively. Three patterns of chronicity were also seen — consistent ($n = 4$), gradual worsening ($n = 6$), and sudden worsening of the chronic condition ($n = 5$).

Although all participants had been diagnosed with CLBP, the exact location, pattern of location, and related pain conditions varied between subjects. Major location classifications were as follows: consistent (pain stays in the same place), sporadic (location changes unpredictably), patterned (location changes in a predictable manner), multisite-low back (pain is located in more than one area of the low back), and multisite-related (pain that is somehow related to CLBP but located in other areas of the body). For 6 subjects, sporadically located pain was related in a “shooting” or “radiating” fashion to a primary consistent location. Patterned location pain was predictable in either its location as a consequence of activity ($n = 3$) or the movement of pain along a particular tract ($n = 5$). One subject described it like this: “It feels like someone is holding their hand or arm on that area and you can feel it, not shooting out from there but just continuing like electricity from that one spot.”

All participants expressed their unique chronic pain experiences, however, descriptions included a number of common elements. (Descriptive selections from the MPQ-Semantic Scale (Melzack, 1975) were presented in Chapter IV.) Subjects used an average of 13 (Range 2 - 34) descriptors to convey their pain. Initially, 5 had difficulty

trying to capture in words what they were feeling; “Very, very hard to describe” and “Indescribable” were used. Two tried to define their CLBP by what it was not: “It’s not dull”, or “Not like sharp shooting pains in legs”. Initial descriptions of “just a pain”, “pain” or “painful” were given by 6 subjects.

Descriptions relating to the quality of the CLBP centred on elements of sharpness ($n = 9$), stabbing ($n = 5$) (5 subjects included the analogy of a knife), dullness/hurt/aching ($n = 10$), pulsing/throbbing/beating/pounding ($n = 7$), pinching/pressing/pressure/cramping ($n = 5$), tense/tight/numb ($n = 7$), tender ($n = 4$), shooting/blasting ($n = 5$), rubbing/grinding/scraping ($n = 3$), and spreading/radiates ($n = 5$).

Nine participants defined pain severity and chronicity in terms of “good” and “bad”. Gradations in severity, chronicity, and the aforementioned pain qualities were conveyed by 10 subjects using one or more of the following adjectives: “Not too”, “Pretty”, “Quite”, “Very”, “Really”, “Extremely”, and “Unbelievably” (i.e. pretty good or very, very tender).

Pain was described by 7 respondents in terms of the physical consequences of the pain. One subject stated it this way: “The pain makes me shaky and that too. It gives me the shakes, weakness. I fall over.” Feelings of immobility were voiced by 3 subjects: “Sometimes you feel you cannot move.”; and “... it’s like you’re being paralyzed.”

Seven participants relayed their perceived pain experience in terms of its psychological impact. One individual described it this way: “The pain has controlled me.”, while another stated: “The pain almost drives me out of my chair, right out of my mind.”

Concomitant Physical Impact

Five major areas of physiological change occurred because of the CLBP condition: general physical changes, loss of sensation, sleep, fatigue, and physical activity. Loss of muscle control, either in the form of muscle spasms or impaired balance, was experienced by 6 participants. Changes in appearance due to muscle wasting ($n = 2$), abnormal curvature of the spine ($n = 2$), premature aging ($n = 2$), and weight loss ($n = 1$) or gain ($n = 3$) were also reported.

Tingling and most often numbness were reported by 11 respondents. While one subject referred to occasional numbness in the lower back, 9 relayed at least occasional severe loss of sensation in part or all of one or both legs. One sufferer expressed it in this way:

Sometimes I'll be sitting and my toes will start twitching and once the toes start tingling then it spreads all the way up so that you can't even stand up, there's no feeling. No feeling at all. I can't even feel my leg touching the floor.

All subjects reported sleep disturbance. For 14 individuals, their CLBP contributed to moderate and even severe sleep deprivation. One individual gave this comment "I only sleep four hours because of this. I've been like this for a long time!" Another suggested that it was not the quantity of sleep received but rather the quality that was important.

I sleep about ten hours but I find that if I don't get a good sleep, I don't feel good when I get up. If I'm tossing and turning and up and down, looking at the clock, I feel worse when I get up. But if I find that I go to bed and have a nice long restful sleep I'm better in the morning ... my back's a little looser.

The disruption in normal sleep pattern and resulting exhaustion were often related to subjects' inability to fall asleep ($n = 8$). "I went to bed at eleven-thirty and the pain was so bad I got up, took some pills and the heating pad, and went and lay down on the couch and fell asleep about two o'clock in the morning." Fourteen participants found that their pain woke them up in the middle of the night, for example, if they happened to roll over. Ten were bothered by the inability to return to sleep again. Twelve experienced a combination of sleep disturbances.

Closely related to experiences of sleep disturbance were feelings of fatigue. This was experienced by 15 subjects with 5 remarking that they are "always tired". For 4 subjects their fatigue levels were incapacitating: "It makes you exhausted and you can't do anything!" Six subjects found that fatigue levels changed over the course of the day or with activity. While most fatigue was associated with the physical condition, one individual pointed out that it was mentally "Very, very tiring".

The final major theme relating to the physical impact of pain was centred on physical activities. In most cases strenuous physical activity had been discontinued as a result of the chronic pain condition.

There's lots of things I used to enjoy. I was very active in sports and all kind of things and now I won't attempt to play a game of baseball with my friends because I'm afraid. If I take a swing or something, it's going to jar me right out and I can't afford to let that happen.

Strenuous activities were continued however, when the subject felt they had no choice either because of responsibilities to others, resource limitations or because it was necessary for the individual's self esteem. The impact of pain was felt across a broad

range of activities. "It goes down maybe three points and then as soon as you get out, get dressed, sit on the bed, or go to pick up your running shoe or something ... that's it! Bam! You're done."

Five found getting up from a lying or sitting position was difficult.

In the morning I find it very, very difficult getting out of bed. I may have to mobilize myself first by moving my toes, my knees, until I can manage to get out of bed. That can take anywhere from five minutes up to an hour.

Activities relating to bending, lifting, or pushing were particularly problematic for 11, making everyday chores like laundry and shopping exhausting and excruciating experiences. For 11 individuals even walking, standing or sitting were extremely painful activities. Just walking across the street made one state: "I almost need to carry a little bed along with me to lay down," and "I lay down even driving, I'll pull over and lay down." Intimate sexual relations also suffered with a loss of interest as "No matter what you do, it's painful. It's not the same, it can't be."

The second major subtheme was the psychological impact which will be presented next.

Psychological Impact

This major subtheme dealt with twelve issues of a psychological nature. These topics were control, fear, stress, frustration, anger, concentration, boredom, guilt/punishment, depression, loss, self esteem, and isolation. Each of these topics will now be briefly addressed.

Issues of control were discussed with the respondents and centred around either control over the pain or a generalized sense of control in their lives. The ability to choose

between pain evoking activities also appeared to add to perceived generalized control. Variation existed in the degree of perceived control that subjects had over their CLBP. Eight respondents expressed feelings of having no pain control: "When it comes to pain I don't have control. I don't have control to stop it." Two participants described it as a loss of independent control: "I just about tried everything to be able to do it on my own to cope with this pain, nothing really works." Fluctuations in pain control were experienced by 5 and expressed by 1 participant as a daily and sometimes losing "battle". Limited control was perceived by 11 subjects and appeared to relate to the level of perceived pain with an increased loss of control as severity increased: "There are days where I can keep myself occupied and I can't feel the pain. I mean I know its there but my minds off it. And there's times when the muscles spasms hit me ..."

Four felt the presence of pain was not controllable but that the severity could be altered. Only one individual expressed feeling complete control over the pain, however, this total relief was time limited. "I know what to do in order to get better so you have control." This subject was able to integrate the pain into her life which gave her: "Complete relief, control and confidence." Individuals with sporadic pain faced additional control challenges as the pain "... is all over and you never know where its going to hit."

The other aspect of control that was discussed was the sense of a generalized control over their lives. CLBP contributed to feelings of a loss of control over life. Six expressed some and 4 expressed feeling a complete loss in this regard. Perceptions of generalized loss were reflected in an acceptance of uncertainty and unpredictability. "You can't look at the calendar and say OK two weeks from now we're goin' to go to the Lake

or something. We'll see what happens two weeks from now. There's no planning at all!" Five subjects who were able to continue in their careers or had achieved other life goals, despite poor pain control, remarked that they had complete control over their lives.

The power of choice was a recurring theme for 4 individuals. Perceived choice was closely related to a sense of control. "I have a choice. I can either sit at home and wallow in self pity and be in this great pity or I can get on with my life. And I just choose to get on with it." Participants with financial resources had more choice regarding their pain evoking activities. For 2 individuals, housekeepers and other labourers were hired to perform necessary and painful but unrewarding tasks, leaving them with more control over the value of their suffering.

Well I have two choices. If I'm going to do something that's going to aggravate it I'm going to do something that I enjoy rather than something that's mundane. I would rather have some enjoyment than be uncomfortable and be miserable as well.

Finally, 8 participants conveyed that a lack of choice greatly impacted on their coping behaviors. Lack of choice was the catalyst for one subject's increased self awareness and their integration of coping behaviors: "So ... this does not come with one year or two years. This comes over a long period of time when you have no choice."

Fear and worry relating to either known or unknown consequences of the pain condition were reported by 9 subjects. Known consequences that were fear provoking included being stranded while out on a walk, falling and looking old.

There are times when I have fallen. I guess the most scary incident that I had was during the winter. I drove into the driveway, got out of my car and I collapsed and I couldn't get up. It was pretty cold, so I dragged myself on my knees to the door. Fortunately I was able to get in. That is scary.

Unknown fears centred primarily around worsening prognosis and the chronicity of the condition. These two aforementioned fears were particularly strong in younger subjects.

What really bothers me is that say in another five years, what's really going to happen? Will I need an operation or if I do have an operation, will I be able to walk? Will I be paralyzed? That type of thing is what really bothers me.

One young participant with an unknown cause of severe CLBP gave these comments: "It's frightful because I'm scared. Fear, like I don't know what it is. What's going on. I don't know what the outlook is. I always worry. I worry about when the pain will end." The immediate pain problem was not always as disturbing as future unknowns, such as the long-range prognosis, the long-term effects of medication use, and the financial welfare of dependants.

CLBP was the cause of a variety of stresses for these participants. Subjects reported an average of 5 stressors while the range was 3 to 10. Stressful situations were often long-term, and frequently related to finances ($n = 10$), career ($n = 15$), medical interventions ($n = 14$), and the impact of CLBP on significant others ($n = 10$). "Dealing with compensation! Every time I talk about those guys I get upset. Tight, tight all the time and I find that doesn't help me either." One worker had these comments: "At work I've got my orthopedic chair and a lot of people say I don't really need it. My doctor told me I needed it. But my co-workers kind of harass me a little bit and say there's nothing wrong." Stressors related to medical intervention included medical examinations which aggravate the pain, the prospect of a new therapy, and nonsupportive healthcare professionals. CLBP was a stressor in the relationship between participants and their

significant others, creating sleep disturbances and changes in the division of household duties. "My husband's been very good up to a point but now I'm having a girl come and do some of the cleaning for me because its not worth the aggravation."

Frustration was experienced by all participants. The chronic pain itself was the cause of considerable frustration for 14: "It's a pain that's so frustrating. Sometimes you can't deny it you've just got to stop." For 11 subjects frustration was also based on the consequences of the CLBP condition: "I'm sick and tired of pain and everything and not being able to do anything and so I just do it anyways and suffer the consequences."

Another client sadly commented: "It is frustrating. Sure it is. It's changed the quality of my life. Of course it has." Five participants reported frustration from a loss of independence. As well, dealing with bureaucracy ($n = 11$) and other people's misperceptions about CLBP ($n = 9$) was aggravating, especially when people presumed that not working because of a bad back was a "Nice big holiday."

Seventeen subjects felt frustrated by the ineffectiveness of past and present treatment regimes. "Damn. It is frustrating pain because there's nothing that they have pharmaceutical-wise that does anything for it." Subjects attempted to deal with their frustration in different ways, from acceptance of their circumstances to more aggressive outlets such as throwing a phone against the wall.

Anger at the CLBP was experienced by 3 respondents. "I'm not worried about it. It pisses me off! No, I'm not worried about my health, I'm angry about it." Two others expressed this anger as a reaction to loss: "I'd like to go play golf. I used to play all the time. I went out and I tried it and it just didn't work! Then I was mad. Phssh! Mad at

my wife and everything.” Lastly, 2 subjects directed their anger at compensatory bodies and/or treatment providers. One saw a chiropractor twice or three times a week until he decided “Enough of that crap! Jesus! That’s enough of this! Then I go see this doctor who’s supposed to be some back specialist, I’ve seen so many doctors, and he said half my problem is because I went to a chiropractor!”

Five subjects reported decreased ability to concentrate because of the pain. Sedentary diversions were not enough to rid the boredom causing difficulty for 3 respondents who had reduced or given up a career and many physical activities.

Pain-related guilt was experienced by 2 subjects: “I don’t know, maybe there’s something I’ve done wrong or I could have done differently.” Three individuals felt the CLBP was “punishment” for unknown reasons.

Seventeen participants reported feelings of depression. “Some days you feel like you’re in a pile of shit and someone’s going to come along and throw rocks at you and see how fast you can duck!” For 7, these feelings were only occasional, occurring most often when pain levels were severe. Depressive thoughts were quite pervasive for 5 who felt that although it was still worth living, life was “so depressing”. Although not a current problem, 5 had experienced major CLBP-related depression with serious suicidal ideations, and one included an attempted suicide. While 5 participants had occasional suicidal ideations, none of the subjects in the study had any present wish to carry out these thoughts. Seven participants who indicated feelings of depression were strongly against suicide: “I notice some days you go a little crazy and depressed and you just can’t quit living! Good Lord!” While the chronic pain was generally the major cause of the

depression, other aspects of the pain, and frequently consequences of the pain condition contributed to their melancholy. Boredom, “Like literally I do nothing and that’s part of the depressing part too.”, and setbacks with treatment or pain control, surfaced as contributors to depression.

One of the strongest themes relating to the psychological impact of CLBP and expressed by 15 participants was a sense of loss. These losses almost always included a range of previously enjoyed physical activities — both strenuous and less demanding. As well, unemployment, forced early retirement, or disability leave often ended rewarding work experiences and interactions, and financial stability. Social interactions were often reduced because participation in many activities with family and friends was no longer enjoyable if not impossible.

All of a sudden things have changed. I’ve been successful at work since I’ve been about nine years old, doing something or other. I always had some kind of activity. I was in the reserves and a welder for fifteen years. You start thinking and sometimes thinking’s not very good because you dwell more on how things were and not the reality of how things are. You think back, you look through albums, this fishing trip, this skiing trip and we went canoeing here...

Three subjects also lamented future losses caused by their pain condition.

“Sometimes I cry because I am fifty-six years old, I do not feel old, but this thing ... I had so many things to do, so many things I was planning.”

Loss of hope, faith in God, and or health care professionals was reported by 10 subjects. In every case, respondents had previously used these strategies to no avail, and so had abandoned their use. Two subjects even remarked that hoping added to their pain.

“It’s the disappointment in people that adds to pain. You count on something, and when it doesn’t happen, you’re disappointed and have to start from square one again.”

Loss of self esteem was reported by 9. For 4 subjects, loss was related to changes in appearance, which included weight gain, postural changes: “Sometimes I’m bent over and I can’t straighten up, and yet I know I’m only forty-two”, and premature aging, particularly when told one is looking old. Severe back pain in 6 participants triggered “clumsy” movement or embarrassing falls: “Just a week ago, I collapsed in front of a client! That’s kind of embarrassing, you know. Then you feel like ... phff.” Four subjects were also disappointed with themselves in regards to the lack or quality of their achievements: “Like this morning, I lay down, and what did I accomplish?”, “I’m disappointed that I can’t do things the way I used to.”

The second focus under this theme was a great need to maintain and develop one’s self esteem. For one participant, this was an important learning process. “The first thing you have to learn is that you are as good as the next person, because the pain does demoralize you at times.” The need to maintain one’s self esteem impacted on the use of coping behaviors ($n = 5$), the expression of pain ($n = 2$): “I also have a thing where I don’t want people to know what shape I’m in.”, and on the continuance of pain-evoking activities ($n = 5$). Yard work was one such activity endured despite “Knowing damn well as soon as I get in the door, I’m going to hurt. But I’ve done something psychologically anyway. Hey! I’m still a person, I can still do these things.”

The final psychological theme to be presented relates to isolation ($n = 18$). This solitude stemmed in part, from the isolating situations previously discussed under

occupational and participation-related social losses. As one subject put it: "You feel alienated 'cause they're talking about all the good times that you can't have." Six respondents also conveyed that the perceived uniqueness: "You'd have to feel it.", and general invisibility of their pain condition ($n = 4$): "And mine is the pain no one can see except me.", contributed to their loneliness.

Furthermore, 10 clients expressed being hesitant to disclose their feelings about their condition or even show pain behaviors to others for fear of being a burden, being labelled a whiner, or to avoid showing weakness or unacceptable behavior to one's family, friends, or colleagues. Six subjects purposely isolated themselves as an undesirable but necessary coping strategy.

I wasn't myself. Even the people at work said 'You're not the same guy you were before like having fun with the people.' I don't do that no more. You want to be away from them. You don't want to have nothing to do with them.

Another respondent now avoided what used to be an annual social highlight:

We had a do and anyone who's been there gets to go and they have a dinner, dance, liquor. Everything's paid for. I've been going for eight years and this is the first year we didn't go. I would have been stuck there I bet you three quarters of the night answering questions. I just don't feel like doing it! I don't think I could handle it. I probably would have said something I would have regretted later.

Eleven subjects felt a sense of aloneness related to treatment or bureaucratic difficulties . As one participant stated: "You get to a point where there's nobody there to help you. Who do you turn to?"

Control, fear, stress, frustration, anger, concentration, boredom, guilt/punishment, depression, loss, self esteem, and isolation were the twelve subthemes that surfaced as

important psychological considerations for these respondents. The impact of CLBP on accommodation will be presented next.

Impact on Accommodation

The impact of CLBP on accommodation was very important for 6 individuals. Financial strain consequent to the pain condition forced undesired changes in living accommodation for one respondent. "I've had to bring two tenants into my house because I've had no income whatsoever." Four participants changed accommodations to lessen the physical demands of their CLBP. Increased pain and fatigue with stairs were the most common problems: "Before I moved, I was living in an apartment and the stairs were a killer!"

Another physiological consequence of CLBP with an impact on housing, was sleep disturbance. Two subjects would occasionally sleep on the couch, and 2 now routinely slept in a different bed or bedroom from their partners because of their sleep disturbances.

For the first two years, I slept in the basement nearly all the time. And when I didn't sleep I'd walk around ... I didn't come upstairs much. Finally, it was getting too hard to come upstairs so we just got another bed and put it in a first floor room we cleaned out and made into a bedroom. Once we went on a holiday and I had to get up and sleep on the floor because I couldn't sleep, I kept moving and she was getting angry.

This section revealed that both finances and physical consequences of CLBP impacted on subjects' accommodations. The final impact-related subtheme to be discussed focuses on subjects' careers.

Impact on Careers

CLBP had a major impact on the careers of 17 respondents.

I loved my job. I enjoyed the people. I was there thirty-three years. I'd love to get back at it. I really don't think I could go back and walk around for eight hours since I have trouble walking for fifteen minutes, five minutes. It is unrealistic to my mind anyway. Unless I could get a job shuffling papers, but I'm not really a desk person. Not a person to sit around if I can help.

In addition to the 7 subjects currently unemployed or on sick leave from work, 2 other participants conveyed that they were forced to change jobs because of their pain condition. One subject would have liked to discontinue working but felt financially unable to despite often debilitating pain levels.

For those able to maintain their chosen careers, flexibility, independence, a supportive work environment and a less physically demanding occupation facilitated this stability.

I can go sit down and do nothing. I can sit down for half an hour, twenty minutes an hour. I go for my walk anywhere in the plant or lay down which does help. And sometimes it'll get down to the point where I'll just want to get down and finish the job, do it. So I can get down or sit down, whatever I have to do. The bosses are pretty good.

The aforementioned paragraphs examined the impact of CLBP on the careers of the participants. Many subjects had lost or changed careers because of their pain condition. Occupational strengths supporting continued employment were presented. The next major theme presented is concerned with what it is like to live with CLBP.

Living with CLBP (Theme II)

The second major theme, Living with CLBP, focused on coping behaviors and the major influences shaping these behaviors. A discussion of the first subtheme, Coping Behaviors will now be presented and includes types of coping strategies reported, general

feelings towards strategy use, pain management effectiveness, and limitations of these pain control behaviors.

Coping Behaviors

Types of Coping Strategies

Participants reported using a wide variety of coping strategies for the management of their CLBP. Of the fourteen categories of pain management practices determined, by far the most prevalent type between and within subjects was based on pain relief using physical means. Physical coping behaviors included physical actions, physical applications, and physically supportive devices. All subjects had at least one physical action in their coping regime, and 13 used 6 or more. (Quantitative evaluation of inherent strategies is included in Chapter IV.) Actions included: walking (as physical relief rather than attentional diversion), lying down, elevation of the legs, sitting down, changing position, rest, sleep, conscious relaxation of the muscles, stretching, slow controlled movements, swimming, and other exercises.

If you catch it quick, like if it starts and I feel it and lay down almost immediately, then I can control it a little bit. But if I keep going, sometimes it only takes ten minutes ... and then I'm wiped.

Pain relief was also accomplished through the use of a variety of physical applications. Subsumed under this category were hot baths and Jacuzzi baths, hot showers, hot water bottles, heating pads, ice packs, massages with oils and rubbing compounds, TENS, vibrators, loose clothing, and cotton and wool bed linen. Lastly, physical pain relief was often brought about with the use of physically supportive devices such as pillows, stools, orthopedic chairs, beds or sofas, back braces, and athletic shoes.

“I sort of feel funny going to work in black sneakers and a suit but it absorbs the shock and it helps an awful lot.” Ten subjects reported or were observed using furniture to assist with getting up from a reclined or sitting position or to hold on to when the pain was severe.

The use of planning and pacing of activities as a coping strategy was also reported. While long range planning was often impossible, “No, I go day by day with this”, 7 clients relied heavily on short term planning and pacing. One client explained that pacing was necessary to allow you to do things on good days without pushing yourself so much that you become incapacitated the next day. Other coping behavior categories included isolation, forcing yourself, avoidance of potentially painful activities, and humour. All other major strategies identified could be classified under one of the seven coping behavior types provided by Rosenstiel and Keefe (1983). A detailed discussion of the CSQ (1983) score results is given in Chapter IV.

Seventeen reported taking medications for their CLBP. These included both narcotic ($n = 8$) and nonnarcotic ($n = 7$) analgesics, nonsteroidal anti-inflammatory agents ($n = 10$), muscle relaxants ($n = 3$), sleeping pills ($n = 1$), anti-depressive agents ($n = 1$), and anxiolytics ($n = 1$). While some medication was prescribed or at least suggested by subjects' physicians, the actual use of these medications was frequently determined by the client. In addition, much of the over the counter medication and all other coping related drug use (alcohol, cigarettes, and marijuana), appeared to represent inherent strategies.

Feelings Towards Strategy Use

In general, subjects agreed that their inherent coping strategies were “acceptable” to them. Furthermore, 13 respondents conveyed that several pain management practices easily fit into their lifestyles, and had become “routine”. However, 11 also reported that at least some of their coping behaviors were not easily integrated into their daily lives.

Despite their limitations, these particular strategies were viewed as necessities. One subject explained the use of inconvenient strategies this way: “It’s something I’ve got to do” in order to “try to cope with it the best that I can. I will do anything to reduce that little bit of pain.”

Even with no perceived physical relief, the use of inherent coping strategies provided psychologically positive rewards for 3 subjects: “Well, it makes me feel closer to being a normal person.”; “You try to decrease it but it just makes you feel good I guess.” Four others found at least some of their strategies emotionally unrewarding: “I’ll say I sort of feel shitty that I have to do this. Sometimes I feel like ‘Why me?’, when other people don’t have to.”

Another prominent psychological theme with regards to coping strategy use was a sense of desperation. Eleven participants conveyed either that they used these strategies because “You’ve got no choice” or that “I’m willing to try anything different or anything new that might work for me.”

The need for individualization of coping regimes was also recognized by 8 respondents. One participant provided this insight:

Somebody says “I meditated and I don’t have any pain.” Well, yah, sure! But to get there ... its time and things and you need method and you need this and what’s good for me is not good for you. I

could tell you about what I do but you would never understand. If you don't understand what I'm doing, or feel it, it would not help you or anybody else.

Effectiveness and Limitations of Coping Strategies

Fifteen participants reported changes in coping strategy effectiveness over time. "Some days it does work and some days it don't but then the next day it's OK and I can get it to work." Six subjects also found that some effective strategies could at some times aggravate their pain. All participants generally agreed with the value of having strategy options available to them. One respondent expressed it this way: "You've got to use different things. You can't use one thing all the time or it will get away on you."

Almost all inherent coping strategies appeared to have some limitations. For example, one of the most common and effective pain control strategies, relaxing in a hot bath, was impractical for most work, activity, or social situations. Participants appeared to weigh the cost of their perceived pain against the projected cost of potential pain reduction. 'Cost' considerations included: convenience, practicality, perceived social acceptability, and demands on resources (finances, time, energy, family, friends, and co-workers). One individual who had recently moved from a private to an open office space, shared these insights:

I used to take the heating pad to work and put it on my chair. I also used to open my belt and stick it down on my belt. I used to have a foam pad in the office and lay down on the floor with my feet up on a chair. I just moved and I don't like people walking in and seeing this idiot laying on the floor. I also have a thing where I don't want people to know what shape I'm in.

Many coping practices had very time limited effects:

I like to use the hot water bottle because it does relieve the pain, but when I take it away, it's not really helping me. I guess it's just

the heat itself, it feels good and then once I remove the heat, the pain comes back.

In addition, most coping regimes gave only partial pain relief. Furthermore, 6 participants expressed that the pain severity impacted on the effectiveness of their coping behaviors:

If its really bad you can't reduce it. Everything you try hurts so it doesn't seem like you're making any gains with it. But if its a two on the scale, you're not feeling that bad, so there's more things you can do to alleviate it.

The above paragraphs have provided an overview for the types of coping behaviors reported, the feelings towards their use, and their general effectiveness and limitations. The second subtheme under "Living with the Pain", deals with the major influences shaping coping behaviors and will now be considered.

Major Influences Shaping Coping Behaviors

In addition to the limitations of the coping strategies themselves, there existed a number of other influencing factors which effected CLBP coping behavior. These factors included: pain history variables, such as cause, severity, chronicity, and other pain conditions; the temporal focus (i.e. short-term or long-term coping and past, present or future thinking); philosophies related to life and pain; the resources and responsibilities of the client; past treatment experiences; and, the avoidance of medications. Each of these variables will now be briefly reviewed.

Influences on Coping Behaviors: Pain History Variables

For 5 subjects whose pain cause was unknown or perceived as potentially degenerative, managing the fear of the unknown was important. "I wish my appointment

was tomorrow ... just to know what you've got." One subject with clearly accident-related pain and one young respondent (excluded from the final analysis) with unknown upper back pain were fearful that the pain was cancer related. Finding a cause for their pain was important, and the emotional and physical energy spent in this pursuit was often substantial.

Increased pain severity appeared to limit the types of coping behaviors available. Strategies requiring any degree of concentration (i.e. reading) or physical activity (i.e. walking) were often impossible at the higher pain levels. Four subjects whose pain levels fluctuated, sometimes tried to pace their activities around periods of intense pain.

The chronicity of the CLBP impacted on the pain relief strategies of the participants in different ways. For 11 subjects, their need to "get on with their life" despite the pain, was in part, a reflection of the constant presence of the pain. Patterns in the pain chronicity, such as regular morning back pain, appeared to help 6 clients modify their routines to incorporate situation specific coping strategies (i.e. placing support furniture nearby). Lengthy pain experiences sometimes caused changes in coping behaviors over time, which will be discussed later. Eleven found that the presence or triggering of other pain conditions, such as migraine headaches or leg pain, limited inherent coping practices.

Influences on Coping Behaviors: Temporal Focus

The temporal focus of the pain control contributed to the management selection process. All subjects included short-term pain management strategies, such as lying down or having a hot bath, that gave a degree of immediate relief. Seven subjects also used middle range practices like planning and pacing the day's or week's activities. Thirteen

used long range strategies, including home or career changes or modifications, to promote less physically demanding environments, and financial and/or legal counselling for future resource needs.

Respondents tended to have either a past ($n = 3$), present ($n = 4$) or future ($n = 12$) life focus. This kind of temporal focus also seemed to be reflected in the types of coping strategies that were used. Frequent reflections on the past often appeared to be detrimental, evoking feelings of isolation and loss. Present and future thinking clients were seen to include both positive and negative approaches.

Influences on Coping Behaviors: Philosophies of Pain and Life

Three basic philosophies for pain emerged from the data. The first approach, followed by 4 subjects, reflected a more resigned perspective; pain was a reality to be endured. "I just have to live with it.", and "It's just suffer and whatever.", typified sentiments for this more passive pain coping attitude. The second philosophy expressed by 5 individuals, acknowledged the reality of pain but incorporated a perceived active role in pain management: "Pain is real. It's part of life. You deal with it". The third philosophy held by 4 subjects, reflected a defiance of the pain condition. In these instances pain was acknowledged but defied: "I just do it. If I'm going to cater to my pain I'm not going to get anything done around the yard, so I just keep on working. So its painful, so what?" Three out of the 4 identifiably 'defiant' participants also perceived themselves as having a "high pain tolerance" or "pain threshold", and thought themselves "strong-willed", "a pretty positive person", or a person who "doesn't scare easily".

Two financially secure individuals conveyed philosophies relating to pleasure. One subject felt that enjoyment in life was more important than money and the other respondent felt that pain should be incurred in pleasant rather than mundane activities. Eleven respondents relayed personal philosophies of conduct. These general philosophies — a striving for personal excellence, a perseverance despite adversity, a valuing of achievement and honesty, and a condemnation of self pitying behavior — were often reflected in the specific types of inherent coping practices used. Seven individuals with religious convictions sometimes used faith as a coping strategy, however, 4 of them said their faith gave them peace of mind rather than specific pain relief.

Influences on Coping Behaviors: Supportive/Nonsupportive Environments

Supportive and nonsupportive environments played major roles in the abilities of subjects to cope with their pain condition. Support from family, friends, co-workers, health care professionals and bureaucratic staff helped the client better manage their pain and the stresses related to their chronic pain condition. Empathizing, caring, listening, assisting with and integrating clients' inherent coping strategies into home and work routines, reinforcing positive coping attempts, contributing to the self esteem of the subject, being a source of pleasant distraction, and acting as an advocate and information source for the client all appeared to be supportive influences. Children and grandchildren were a particularly notable source of love, happiness, pride, distraction, and motivation for 10 participants (9 married, 1 single). Adult offspring were also seen as a valuable resource.

These same groups of individuals also had the power to increase the emotional strain placed on subjects and often limited the types of coping strategies that clients felt

comfortable performing. Nonsupportive activities included labelling, blaming, doubting, excluding participation by the subject, 'knowing all the answers', harassing, ignoring, deceiving, not taking time to listen or explain, controlling, and pressuring. While participants with other family members or friends suffering from illness ($n = 4$) or especially back pain ($n = 7$), appeared to experience greater support from these individuals, illness of other family members placed considerable stress on the emotional, labour, and financial resources of the family. Although it was not the focus of the study, it was noted that the pain condition had a negative impact on family members. Marital conflict, social isolation, financial and role stress, anger, resentment, and reduced sexual activity were commonly identified by the respondents.

One supportive example of the family came from a client who felt that despite present circumstances "They still love me.", while a nonsupportive relationship existed where one subject "ignored", but was mad at his wife's comment of "Boy you're a stumblebum!" Friends were supportive in their capacity to listen, and for those friends with back injuries, to put the subject's "mind at ease" by giving them "an idea of what's going on". For one woman, "the worst thing" was for nonsupportive friends to doubt her pain and suspect that her motives were for monetary gain. Supportive work environments allowed for flexibility, mobility and independence whereas nonsupportive work environments were those where the person was "criticized for walking around too much." or for "quitting work at two-thirty, three o'clock."

Supportive health care professionals were seen as open, honest, interested, and willing to admit their boundaries. Nonsupportive, were viewed as trivializing or explaining

away symptoms, requiring visual proof of injury, ignoring or doubting the insight and experiences of the patient, and assuming positions of authority over the client's lived reality. One subject suffering nerve damage from his back injury related: "For three and a half years they keep saying 'Oh, no. Its just a strain.' One doctor told me to lie on my back for half an hour and it should go away."

Supportive bureaucratic personnel were seen to help streamline paperwork and offer assistance should appeals need to be filed. Nonsupportive staff lacked empathy, were perceived as secretive and suspicious, and would dismiss the patient's current lived experience and pessimistic medical reports for more optimistic medical assessments.

Influences on Coping Behaviors: Resources and Responsibilities

The availability of resources appeared to strongly influence clients' coping loads, their selection of coping methods and to at least some degree, the success of their CLBP management practices. Reported resources included equipment, time, money and individuals with particular knowledge, skills, or abilities. "The car breaks down and I've got no money to get a tune up or that, so I end up doing it myself, but I work on the car for half an hour and I'm shit." Financial resources also appeared to relate to increased years of education. Financial security for 4 subjects permitted coping strategies that included regular golf with friends, Jacuzzi's, personal pools, and more physically accessible housing (i.e. no stairs).

For 11 participants, perceived responsibilities, particularly to family, played a major role in dictating the kind of stressors and life purposes felt, and in influencing the types of coping strategies that the subjects felt able to use.

There's many days I'll just break down in tears. It's like I don't go on. For the sake of my little boy, I have to. But, if it was just myself, I would never kill myself or anything, but I don't think I'd care about anything.

Another participant had this comment: "You've got children to go somewhere. You can't stop. You've got to take them somewhere and no matter how much pain you're in, you take them. That's it."

Influences on Coping Behaviors: Past Treatment

All participants had experienced some previous treatment for their back pain. The mean number of treatments tried was 5.4 with a range of 1 to 12. Examples included massage, visits to a chiropractor or reflexologist, acupuncture, spray and stretch, physiotherapy, occupational therapy, rehabilitation therapy, relaxational therapy, psychological counselling, rhizotomy, cortisone injections, epidural, "reverse epidural", hip and back braces, "shocks with heat pads", traction, exercise programs, hydrotherapy, TENS, surgery and pool therapy.

In most instances, pain relief was time limited at best and often unsuccessful. Back exercise regimes were recommended to 13 participants but were abandoned by clients if attempts met with no perceived benefit.

I don't do any exercises, simply because I've paid the price every time I've tried them. I figured either the bone specialist gave me the wrong exercises to do or that I should be supervised and told how to do them right. So I just ignored them.

Many past treatment experiences seemed to instil skepticism, "a negative attitude" and even fear in the participants. For one subject, however, one past temporary treatment success brought out this reaction:

He gave me cortisone shots. It was fantastic, for a week the pain was gone. Can't have it all the time, but to know that you can have

a week of relief, I tell you that was great. Great!...It's like a week's vacation from the pain.

Influences on Coping Behaviors: Medication Avoidance

The final influence on coping behavior to be discussed relates to the desire to avoid the use of medication. For 13, an incentive for practising noninvasive pain management regimes stemmed from feelings that reliance on medication was both a nuisance or an unwanted label:

I have tried so many medications and I want to get away from it. I'd sooner try to put up with some of the pain compared to being a pill popper. It gets to be unreal! They hand you stuff and stuff and stuff!

For 3 others, taking medication instead of using inherent strategies made them feel less in control. "I know I can live with the pain. I know I can handle the pain. If I depend on medication too much, I lose control." Finally, 10 subjects saw pharmaceuticals as a last resort for pain control:

I'm sick of pain killers. I hate what they do to your body. If I'm at work, I'll say to hell with it and go home. If I'm at home, I'll lay on the heating pad or in the hot tub or go for a walk, and if I really can't fight it, I'll take a pill.

This section has covered the major categories under the second theme "Living with CLBP". Two significant subthemes emerged, namely: coping behaviors and factors influencing coping behaviors. Next, the third and final major theme presents the changes observed during the pain experience.

Change Through the Pain Experience (Theme III)

Specifically, Theme III change categories reflect post CLBP onset changes rather than the pre to post onset differences seen in Theme II. These post-condition changes

were found in a number of facets of the participants' lives, including: coping strategies, self awareness and relationships, attitudes toward life, knowledge, and changes in health habits. Seven subjects recognized that their pain management practices had changed over time: "I used to ignore the pain but not anymore." For one subject the pain condition was a catalyst for increased self awareness and a tuning into her "inner power" while two respondents recognized an increased awareness of their impact on others: "I'm probably more cognisant of what I do and say now. Before I might have flown off the handle and said something hurtful, but now I think about it. In fact, this pain has made me a better person." One person recognized a shift in her attitude toward life from past losses to future abilities, while two had become more sympathetic toward people with "invisible" pain conditions.

Four subjects reported learning new coping strategies or acquiring more information about used strategies. Based on their knowledge of their pain, 3 subjects could predict future pain patterns and severity levels: "Right now the pain is low but in an hour or two, I'll be in very bad pain." Subsequent to their back injury, 2 participants had learned that excessive body weight adds to back strain and were dieting. One subject reported that he had started smoking because of CLBP, while another attributed a past history of alcohol abuse to the pain condition. Both chronicity and pain severity appeared to impact the number and degree of changes experienced by the participants.

Chapter Summary

This chapter has provided an overview of the qualitative findings. Occupation, employment and health history data summaries were presented. Perceived causes of CLBP

varied. Most participants incurred other pain conditions, although back pain was the primary concern. The three major study themes — Impact of CLBP (Theme I), Living with CLBP (Theme II), and Change Through the Pain Experience (Theme III) — and their respective subthemes have been outlined. Each pain condition was unique, and resulted in major, and typically negative influences, on physiological and psychological parameters. Alterations in sleep and activity were common, and feelings of fear, frustration, depression, loss, and isolation were often experienced. Participants reported changes in both living accommodations and careers based directly and indirectly on their pain.

Inherent coping strategies, such as walking or reading, were methods used to help live with the painful condition. Feelings towards the management approaches reflected a range of emotions, including desperation. Almost all strategies had situational limitations, and many were short-lived in their effectiveness. Pain history, temporal focus, philosophy, supportive and nonsupportive environments, resources and responsibilities, past treatment, and medication avoidance were all seen to influence coping behaviors. Lastly, several respondents experienced changes in areas such as coping and self-awareness since the onset of their pain condition. The next and final chapter, will discuss the qualitative and quantitative findings in light of the four study questions and the theoretical framework.

Chapter VI — Discussion of the Findings

In this chapter, the quantitative and qualitative findings presented in Chapters IV and V will be analyzed within the context of the four research questions, the related pain, coping, and depression literature, and the Neuman Health-Care Systems Model. Chapter VI concludes with a discussion of the implications of the study for nursing practice, education, and research.

Comparison of Findings to the Four Study Questions

1. What inherent coping strategies do CLBP patients identify, and what is the frequency and general efficacy of this use?

Participants identified a wide range of pain management strategies, consistently used more than one strategy type, and frequently more than one variation within a particular coping category. All subjects identified using at least one example from each of the six CSQ subscales (Rosenstiel & Keefe, 1983) at Interview I or II. As seen in Figures A and B, the most frequent types of inherent coping strategies identified were physical action, physical application, physical support device, and increased behavioral activity for the open format questionnaire, and coping self statements and increased behavioral activity for the closed format (CSQ) measure, respectively. As shown in Table 6, frequency means for CSQ subscales found in this study approximated those reported by Rosenstiel and Keefe (1983) (diverting attention = 2.46, reinterpreting sensations = 0.97, coping self statements = 3.51, ignoring sensations = 2.05, praying and hoping = 3.59, catastrophizing = 2.27, and increasing behavioral activities = 2.82).

While there was considerable overlap in the types of strategies identified by these two coping measures, it is interesting to note that significant differences did exist. Rosenstiel and Keefe (1983) originally included increasing pain behavior as a subscale, but because of poor internal consistency, that particular subscale was dropped. Items in this subscale (I take my medication*, I walk a lot, I relax, I lie down, take a shower or a bath, use a heating pad) were similar to physically-related strategies, with the exception of medication use, which was not included by the researcher under physical categories. In this study, physically-related strategies were the only universally identified subject suggested (open format) strategy and the most frequently identified open format category of coping. These strategies fell into three specific groups: physical actions, physical applications, and physically supportive devices. Based on these findings, it would seem that physically-related coping strategies are an important classification of pain management and that re-examination of this category, and the examples that define it is warranted. Otherwise, an important facet of coping behavior may be overlooked, resulting in incomplete and erroneously low coping strategy assessments.

General effectiveness of inherent coping strategies was measured within the CSQ-O and found on average to be fairly effective. Coping strategy effectiveness was reflected indirectly within other qualitative themes. All subjects agreed that their inherent coping strategies were acceptable to them, although some strategies were not easy to do, but were performed because the individual had no choice. By contrast, four subjects viewed similar potentially limiting situations as filled with opportunities for choice, even if this choice was between "wallowing in self pity" or just "getting on with life". Similar

positive views of choice in chronic illness situations have also been cited by Schaefer (1995).

In support of earlier research (Broome, 1986; King, 1985), coping strategy effectiveness was found to change over time. Most pain management practices were only partially effective. As well, the beneficial effects of many coping practices were time limited, while others were impractical because of the situation. Davis (1992) described impractical situations for coping strategies as being “compartmentalized by activities” (p. 79). Some coping practices were avoided because of the presence or triggering of other pain conditions, or were impossible to perform because of increased pain severity. It is the latter observation, reported by 6 participants, that this author suggests may account for part of the fluctuation in strategy efficacy.

Lastly, subjects readily identified the need to use a variety of coping strategies to manage their pain, thus supporting the eighth therapeutic support criteria, based on the work by Broome (1986) and King (1985). In the present study, current pain scores significantly increased as the number of coping strategies used decreased. This finding would also lend support for the beneficial effects of using a variety of pain management strategies.

2. How do demographic variables and pain and coping history variables relate to the three identified outcome measures (perceived pain, coping efficacy, and depression level)?

Gender, age, marital status, education level, duration of chronic pain, duration of current pain, perceived acceptability of employment status, disability, cause of the pain, fatigue, and the number of analgesics taken were all related to at least one of the three outcome measures. The implications of each of these findings will be briefly discussed.

Gender was significantly related to expectations regarding coping abilities. Female participants reported significantly higher perceived control and perceived ability to decrease pain, and used more ignoring sensation related strategies. Although there were only five women in the study, which limits the strength of the conclusions, it did appear that these women had reflected more carefully than most male subjects regarding the pain experience in relation to their life philosophies. This reflection led to the discovery of inner strength from religion or increased self awareness, and appeared to have increased their perceived control. Gender difference for perceived control was not found by Wells (1995). However, in a grounded theory study of women in chronic pain, Howell (1994), also described a "development of a strong sense of their spiritual selves" (p. 112), while Schaefer (1995) reported a "dawning awareness" (p. 69), "discovering of personal strength" (p. 72), and a "turning to a higher power" (p. 72) in female chronic pain sufferers. Two women in particular were especially strong in their ability to focus on work or goals, with the result that they could forget about their pain, and thus decrease their pain for extended periods of time. This ignoring ability was particularly impressive in light of the high pain levels reported when they allowed themselves to think about the pain.

Younger participants reported higher weekly average pain scores yet chose fewer words to describe their pain. Does one learn the language of pain with experience, or is it that younger participants had fewer pains to describe? Although subjects were screened for major medical conditions, it may be that older clients suffer more combined pain, such as degenerative disc diseases and arthritis, and that their more varied descriptions were reflective of these complex pain experiences. As well, younger subjects were seen to use more catastrophizing behaviors. This is understandable in light of the longer expected suffering, the greater impact on their career paths (older clients were nearing retirement or had often built up enough seniority to allow for greater job flexibility), and the more dramatic change in physical and social activities (younger subjects had previously been more physically active, and social activities had previously centred more on physically-related events, such as hockey versus card games). What is more, catastrophizing examples, such as "It's terrible and I feel it's never going to get any better" and "I worry all the time about whether it will end", were indirectly and sometimes directly supported by health care professionals. Subjects reported that their physicians gave diagnoses that held no promise of relief, and in fact many had been told by physicians and or psychologists that they "would have to learn to live with it". It is no wonder that many young clients found the prospect of "taking medications for the rest of their lives just to make it through the day" fear-evoking and depressing. As well, it seemed that some elements of catastrophizing were based in professionally-supported reality, and this has implications for assessment and intervention.

This study contrasted to findings by Pellino and Oberst (1992), that showed higher education level was related to lower pain levels and increased control, but concurred with results by Wells (1994). Participants with more education were less likely to use ignoring sensations as pain management strategies. While the explanation for this is not evident, a review of the qualitative findings did provide one interesting observation. It was noted that individuals with more education also tended to have more financial resources. These resources were frequently deciding factors for the types and prevalence of strategies practiced — Jacuzzis and personal pools were available for the financially sound, while others feeling monetary strains struggled with purchases of adequate footwear. Ignoring sensation strategies, such as ‘I don’t think about the pain’, and ‘I tell myself it doesn’t hurt’, are not monetarily constrained. Thus it may not be education per se that impacts coping, but the close apparent relationship of education to financial resources. Income was not a component on the questionnaire but could be a useful consideration for future coping-related studies.

Individuals with longer histories of chronic pain showed significantly lower evaluative pain scores, and had no significantly higher pain responses. These pain results contrast to those found by Rosenstiel and Keefe (1983) and the predictions based on the endorphin research by Kosten and Kleber (1987), but are supported by the work of Turner and Clancy (1986). Increased duration for the current pain problem was related to reduced use of praying and hoping strategies — a finding that runs counter to that of Turner and Clancy (1986), but is predicted by Rosenstiel and Keefe (1983). The qualitative data clearly indicated that this finding was a phenomena of duration and not

cohort based. Ten subjects reported losing their faith and or hope because of the perceived futility of past praying and hoping efforts. Two respondents tried to reduce their hopes, knowing that disappointment would follow, and only add to their suffering. The lack of significant changes in depression over pain duration seen in this study, was also supported (Turner & Clancy, 1986). Although depression is strongly related to chronic back pain, it may be that the level of depression does not change dramatically once pain chronicity (i.e. pain \geq 6 months) has been established.

Although some unmarried participants lived in a supportive and caring home environment, and some spousal relationships appeared more stress-provoking than therapeutic, in general, married subjects appeared to receive more emotional support and had more physical and financial resources on which to draw. A lack of support and decreased resource base may have been at least partially responsible for the significantly higher depression levels seen in subjects who were not currently married. Other possible explanations are that individuals who were suffering from more depression may have been less attractive as marriage prospects, or that depression had contributed to or resulted from marriage breakdown (1 divorce). Only one of the 6 unmarried subjects had children, while at least 9 of 13 married participants had children and some had grandchildren, that they spoke of fondly. Although children were seen as a financial strain for some, they were also a source of love, happiness and pride, a motivator for activity, a distraction, and when older, a valuable resource. The thematic analysis of the data also indicated that CLBP had a major impact on the family. Similar to findings by Snelling (1994), "chronic pain caused social isolation, role tension, marital conflict, reduced sexual activity and

feelings of anger...(and) resentment...in other family members” (p. 543). Although the focus on this study was the individual client, it is apparent that the influence of the condition, and therefore its treatment, may be better served using a family-centred perspective.

Those receiving disability insurance had significantly higher worst pain last week scores than those who were not currently receiving disability. Further analysis indicated that individuals with pending disability claims did not give higher pain scores than those who had not applied for disability or who had already received disability. This more specific analysis supports other research that suggests that compensation (Melzack et al., 1985) and litigation (Schofferman & Wasserman, 1993) are not the positive reinforcers for pain behaviors often presumed by the public and reported in earlier studies (Block et al., 1980; Chapmen & Brena, 1982; Rosenstiel and Keefe, 1983; Spinhoven et al., 1989).

Participants who appeared satisfied with their employment status (i.e. employed or retired) had significantly different responses on pain, coping and depression measures than others unsatisfied with their employment status (unemployed, sick leave, homemaker). Although it is difficult to explain the mixed pain responses, coping and depression results are more predictable. For many individuals, being unemployed was a demoralizing and stressful condition with major negative impact on financial security and self esteem. These individuals may be at particular risk for decreased feelings of self efficacy, which could decrease perceived ability to decrease pain. Their sense of control over their lives had decreased, with some ‘unsatisfied’ subjects reporting a complete loss of control over their life. Depression is a natural reaction to any loss, including loss of one’s career. These

unemployed/sick leave/homemaker subjects faced numerous losses, were frequently more socially isolated, and had fewer opportunities to regain self esteem. It has also been found that depression and catastrophizing are different but positively related (Geisser et al., 1994). The findings in this study also supported a positive relationship between depression and catastrophizing. Thus, the increased levels of catastrophizing seen in this unsatisfied employment status group are predicted. Catastrophizing may also reduce the chances of regaining employment.

The need to identify the cause of the pain, surfaced as an important subtheme and has support in the CLBP literature (Bowman, 1994). Not knowing the cause of the pain created added coping pressures as subjects had to manage not only the pain, but the fear of the unknown. Even a known benign cause could easily become questioned as a source of potential life-threatening illness. Reassuring clients, where appropriate, that the cause of their pain is nonlife-threatening should be a priority. Attention to patient concerns and prompt referrals for investigation of changing symptoms would help relieve some of the fears surrounding non-specific CLBP. Physically demanding occupations, like those involving heavy lifting, appeared to be related in a high proportion of causes for chronic pain, followed by motor vehicle accidents. The increased prevalence of injury in labour intensive jobs is supported by recent Workmen's Compensation statistics (1993). Current fatigue was predictably related to worst pain yesterday and also related to higher miscellaneous pain scores and the number of words chosen, supporting earlier findings (Sandstrom, 1986). All subjects reported sleep disturbances, and 14 of the 19 participants described moderate to severe sleep deprivation. Poor sleep contributes to fatigue and

would result in higher perceived pain levels. A lack of quality sleep is expected to cause poorer coping and problem solving and would contribute negatively to pain management. While disturbed sleep was a prevalent problem, treatment appeared relatively ineffective. The sleep disturbance findings in this sample were complicated by a number of factors including pain, medication and health-related side effects, sleep hygiene habits, and stress. Considering the potential impact on the pain experience, and on the general well-being of individuals in chronic pain, investigations in this area are needed so that the sleep problem can be better understood, and more effective pharmacological and nonpharmacological interventions can be offered.

Better pain control was realized by clients using more coping strategies, as well as by those regularly taking a variety of medications. However, increased daily medication consumption was not indicative of improved pain management. As well, the number and variety of medication use was also not related to total coping strategies. It may be argued that patients taking a variety of medications had better pharmacological effect, and participants did report fewer side effects with medication variety. Individuals using different medication also frequently decided for themselves when to use one medication over another, and this may have also increased feelings of efficacy, adding to improved pain control.

3. How do feelings of control and perceptions of coping mastery relate to these outcome measures?

Perception of control over pain was not found to significantly relate to pain responses or to scores for general coping strategy effectiveness. This contrasted to findings for perceived ability to decrease pain, which was found to significantly relate to decreased scores for evaluative pain, miscellaneous pain, and least pain last week, and correlate positively to assessments of general coping effectiveness. Pellino and Oberst (1992) found a positive relationship between high internal locus of control and reduced pain. Neither perceived control nor ability to decrease pain related significantly to depression, findings not predicted by Ferington (1986). Responses for ability to decrease pain and perceived control over pain, produced mean scores that fell slightly less than midline ($Md = 2.21$, $Mc = 2.47$) although the range was again very marked, (0 - 6 of 6). These findings compare to those by Rosenstiel and Keefe (1983), who reported frequency means for the perceived ability to decrease and control pain of 61 CLBP patients as $Md = 2.38$, and $Mc = 2.37$.

Qualitative data analysis indicated that control, or more specifically the lack of control, was felt with respect to the pain and in a generalized sense of loss of control over their lives. The lack of ability to plan in chronic pain conditions has been cited elsewhere (Davis, 1992). With regard to pain, control surfaced more as a facet of pain, than a reflection of poor coping. In other words, participants reported that it was not so much that the coping strategies were ineffective once in place, but that the onset and severity of pain was often unpredictable, and thus uncontrollable. Therefore, the question of perceived pain control may be more reflective of the perceived preventative efficacy of coping behaviors, than the 'active' coping strategy efficacy.

Continued careers and goal achievements appeared to relate to a sense of generalized control, even despite identified poor pain control. This would imply that pain itself was not the only perceived control issue, and that the impact of pain on other spheres in the individual's life may be an additional and more powerful control modifier. Asking clients to rate their perceptions for pain control, and control over their lives, may provide a more illuminating assessment with regard to feelings of self efficacy. Ferrington (1986) suggested that congruence between three proposed levels of control were important. Wells (1994) outlined differing aspects of control (lack of control, ability to cope, and negative outcome expectancy) and suggested that "knowledge of the specific control beliefs that a patient holds can guide the types of interventions that are used." (p. 300). The inclusion of these varied facets of control within the coping assessment could help therapists build on efficacy strengths within the individual, and focus clinicians on client-centred priorities.

4. What is the impact of a treatment of therapeutic support versus no support on perceived pain, coping efficacy ratings, and depression on CLBP patients?

Analysis of condition means and 95% confidence intervals exhibited somewhat positive but nonsignificant trends with regard to study impact. In particular, the greatest changes were seen in treatment subjects, and specifically for increased perceived pain control and decreased catastrophizing, providing weak support for the treatment effect. Wilcoxon analysis of the between condition difference scores also yielded nonsignificant results, although the values that most closely approached significance were also perceived

control ($p = .056$) and catastrophizing ($p = .199$) (see Table 8). Average NRS measures also decreased somewhat for both control and treatment groups, suggesting that discussion of the pain and coping experience with an attentive listener may in itself be therapeutic, or that social desirability was an influence. These trends are viewed cautiously however, as the compared confidence levels overlapped in all cases. Increasing the power of future studies by using larger sample sizes will help to determine the validity or insignificance of these trends.

Further analysis of subjects by study impact (assessed using qualitative reports of impact, discussed below) yielded significant differences between high and low impact groups for both conditions. High impact treatment respondents showed significantly reduced average pain last week, increased efficacy of inherent coping strategies, and increased perceived ability to decrease pain. The low impact control group had unexpectedly higher affective pain scores. These findings suggest that the treatment intervention had a varying impact on subjects, but that for treatment subjects reporting a high impact, the therapeutic support had positive impact on some outcome measures. Conversely, high perceived study impact for controls was related to poorer outcome for pain. These conclusions are cautiously drawn however, as it must be noted that subgroup sizes were small.

Qualitatively, two considerations emerged regarding the impact of the study on the subjects. These areas were: previous discussion of pain perceptions and coping strategies, and the overall impact of study participation. Five participants stated that they had never discussed or had no recollection of ever discussing their pain and coping

behaviors with anyone other than the researcher. Nine other subjects commented that they had held conversations concerning their CLBP with their physicians, significant other(s) and/or friends. These discussions were reported as generally very limited, and almost always focused on the pain, sometimes the psychological impact, and rarely the coping management strategies. These findings are important for nurses and other health care professionals working with chronic pain clients. Active listening in a caring, compassionate, and nonjudgmental manner to chronic pain sufferers is an important contribution to their care. Furthermore, pain management should be more holistic with discussions of coping practices and psychological impact included as standard components of the assessment and care regimes.

In regards to the overall impact of the study, a few general observations and considerations need to be highlighted. Subjects were offered to have a report of their assessment findings sent to their physician and with one exception all participants eagerly made this request, with two subjects also requesting copies for lawyers or compensatory boards. This suggested that the participants felt that the assessments were valuable components for future care and compensation (subjects were told during the consent procedures that a research-based assessment would not be considered legally valid.) All subjects requested copies of the overall findings of the study, indicating a high degree of interest in the topic.

For some treatment participants, especially those in severe pain, a support session immediately following their assessment may have reduced the effectiveness of the intervention, because of increased fatigue and pain severity. While one interview was

stopped (researcher's digression), and the subject excluded from the study because of severe pain, other clients completed the session, preferring to 'tough it out'. In a clinical setting, spacing the assessment and intervention may reduce fatigue and discomfort, promoting increased learning for the subject. As well, the added time would allow a more thorough review of the assessment findings by the clinician.

At the completion of the study, subjects were asked to comment on the study experience and encouraged to ask questions or voice concerns. The following paragraphs reflect what has previously been identified as qualitative study impact. While the participants were divided into high and low impact categories for test purposes, four categories were found: little or no impact; helping others impact; moderately positive impact; and major positive impact.

Two subjects voiced feelings that talking about their pain and coping practices had not really helped them. Both of these lowest impact subjects were in the treatment condition. Eight (tx = 3, c = 5) respondents appeared to enjoy discussing their CLBP condition with the researcher. They commented that they found the study interesting and were glad to be of help to others suffering from CLBP, but gave no definite negative or positive response regarding their personal participation benefits. One of these individual's commented that it was "Nice to talk, and tell all my problems", but thought it wasn't helpful because "... you told me nothing for pain". Reflecting on this, it appears that for some clients, offering alternative coping suggestions in addition to reviewing and supporting inherent pain management practices, may be especially beneficial. Four control subjects were considered to have had a moderately positive study impact. In addition to

exhibiting satisfaction related to the discussion of their condition, these individuals voiced positive changes in at least one of these three areas: awareness in their pain experience, feelings of control, and/or a decreased sense of isolation. Five (tx = 3, c = 2) participants (and three clients who were excluded from the final analysis), expressed that their involvement in the study had a profound positive impact. These subjects all voiced sincere appreciation for the discussion and most identified it as cathartic: "I thought it was great! Great therapy to get it out, for one thing. I thought that was great!" Significant positive changes occurred in feelings of control and the understanding of self and/or the pain experience. Subjects often remarked that they felt a decreased sense of isolation and perceived a qualitatively significant improvement in pain management. For one subject, the Daily Activity Diary was particularly helpful for reflecting on the efficacy of coping strategies, and allowing self-determined modifications to pain management approaches.

I've changed a lot of habits ever since I started the diary. Before, I thought I'd try to read and it would take my mind off the pain, or I thought I would do this. I think that diary was certainly of great value. I could look back and say oh, oh, maybe I should do this, maybe I should do that. I'm very, very appreciative of what you did. This weekend was a very, very good example because whenever I experienced some pain, I lay down and the pain did subside!

The positive effects of a holistic approach to assessment and intervention were brought out in this subject's perception of the study experience, held four years after the pain-related accident:

I wish I could have talked to you when I'd had my accident! I found out something from you I didn't know before, and that was relating my fear after the accident to the tension I'd felt every time I got into the car. I was like that for about two years afterward. I think that made it worse. Nobody ever asked me how I was doing here (*S touches head*), it was only here (*S touches back*). I think

that has come out of it, the problem from that time on. It was always "How is your back?", but not "How are you?" "How is the rest of you?" Nobody ever discussed that before.

Taken collectively, the qualitative and quantitative findings indicate several things. Strong statistical support for the benefits of the therapeutic support of inherent coping strategies was not found. It did appear however, that the study intervention resulted in generally positive trends in the quantitative and qualitative data, but that the degree of impact and effect on outcome measures varied considerably between subjects and within and across measures. The qualitative findings suggest that participation in the study may have been beneficial for some and slightly more beneficial for high impact treatment subjects. While the support of inherent coping may be helpful, the benefits of venting frustrations and sharing pain experiences with an attentive listener may have somewhat overshadowed predicted treatment effects. Other considerations are that the clinically significant differences may be less than statistically significant ones, or that the impact felt by participants is not accurately captured by the measurement tools used in the study. The long-term impact of the intervention was not assessed in this study. Some authors have reported time limited effectiveness of CLBP interventions (Heinrich et al., 1984; Strong et al., 1989; Twomey & Taylor, 1995). Thus, a repeated study using a larger sample size and multiple outcome measurements (i.e. post-treatment, 3 months, and 6 months) would be helpful not only to determine the validity or insignificance of these trends, but to evaluate the long-term implications for pain, coping, and depression.

Comparison of Findings to the Neuman Health-Care Systems Model

The Neuman Health-Care Systems Model (Neuman, 1982), served as the theoretical framework for the current research study. The model assisted the researcher in delineating the four questions for investigation and helped to guide and provoke questions and reflection during the thematic data analysis phase. While several aspects of the model were supported by the study findings, the focal intervention-related premise did not receive significant statistical support. Qualitative findings were more positive in this regard.

The individuality and complexity of the pain experiences, as reflected in both the qualitative and quantitative chapters, supported Neuman's (1982) conjecture for the uniqueness of clients and the idea that intra-, inter-, and extra-personal forces impact to upset a person's normal equilibrium. Thematic analysis of the data resulted in three major themes: Impact of CLBP, Living with CLBP, and Change Through the Pain Experience. Within the qualitative themes and the quantitative findings, physiologic, psychological, sociocultural, and developmental variables were identified and a number of variables were related to, if not determined the "nature and degree of the stress reactions" (p. 12), as predicted in the model (1982).

Neuman's model suggests that strengthening a client's flexible line of resistance, normal lines of defence, and flexible lines of defence should lead to reduction of actual and additional stressors (1982). Therapeutic support of the inherent coping strategies was offered as one way of strengthening these lines for client's suffering from chronic low back pain. As discussed under question four, the quantitative data yielded reasonably

positive trends but nonsignificant results for within subject difference scores on the three outcome measures. Only recategorization by qualitative impact yielded significant treatment effects, and these are regarded cautiously because of small subgroup sizes. Weak and mixed statistical findings were somewhat balanced by the more positive participant reports. Still, these findings do raise questions regarding the validity of the intervention-related aspects of the Neuman Model.

However, the problem may not be the model, but the intervention itself. Further modification to the therapeutic support intervention may need to be performed to enhance the positive impact felt by CLBP clients. In retrospect, several issues relating to sleep hygiene (alcohol and nicotine use, sleep/wake patterns) were not optimally addressed by the researcher. As well, it appeared that individuals were interested in coping strategies used by others in chronic pain, and that in one instance, felt that the intervention was not helpful because alternative strategies were not provided. While the author still contends that support of inherent coping strategies may be an important, and primary part of care for these clients, education regarding other pain management approaches may be useful for broadening the available coping base. In order to maximize the appropriateness of strategies for clients, and to enhance control, it would be important to provide clients with a number of strategies to choose from, and to keep the use and integration of these techniques patient-driven. A family-centred approach to therapeutic support may enhance client pain management, and client and family coping. In summary, the Neuman Health-Care Systems Model (Neuman, 1982) was useful for providing a holistic framework for a complex health problem. Further testing of the model and refinement of

this particular support intervention are recommended before conclusions regarding the validity of the model are drawn.

Study Recommendations

Recommendations for nursing practice, nursing education, and nursing research will now be presented.

Recommendations For Nursing Practice

This study indicated that chronic low back pain is a complex health problem, influenced by and impacting on numerous aspects of the client's life. Current treatments for CLBP are limited in their success, with patients often experiencing debilitating pain for many years. A holistic approach to CLBP assessment and care is essential and should include not only pain but psychological and coping issues. Family, friends, co-workers, compensatory staff, and health care professionals, were viewed by some as valuable sources of support, motivation, and self-esteem, and by others as contributors to loss, humiliation, frustration, and hopelessness. Therefore active listening, caring, and a nonjudgmental attitude appear to be especially important, as these chronic pain sufferers often feel unable to express their feelings for fear of becoming a burden, and or being negatively labelled.

The therapeutic support criteria tested in this study appeared to provide some benefit to at least some individuals. Some clients also wanted or appeared to need education in alternative coping management practices. In these instances the support of inherent strategies should continue as a foundation with additional client and clinician negotiated strategies introduced, tested and incorporated as appropriate for the needs and

abilities of the participant. Clients need to be provided with understandable explanations for their practices and offered as much control in decision-making practices as they desire. Furthermore, the strong influence of and impact on the family with respect to CLBP suggest that a family-centred approach to intervention may be optimal.

While further testing of the outcome instruments and refinement of the intervention may be needed, it must also be noted that the success of the intervention depends a great deal on the interviewing skills and the clinical expertise of the therapist. Without a sound understanding of the mechanisms for pain, the psychological factors, the underlying anatomy, pharmacological effects, and a broad range of coping approaches, the nurse clinician will be very limited in the depth and quality of therapeutic support offered. Chronic low back pain clients are in great need of interventions that improve their pain management and increase control and self esteem. Nursing, with its holistic approach to health care, can play an important part in responding to this challenge.

For Nursing Education

Greater emphasis needs to be placed on the complexity of pain and pain management. Teaching students and nursing staff about the many facets of a chronic pain experience, and the numerous impacts resulting from it, will help to promote more comprehensive assessments, and as a result, more effective interventions. The categories developed in the thematic analysis of the data may be useful for helping students and nursing staff better understand this complex chronic pain condition.

Because of the higher incidence of back-related injury in labour intensive occupations, back safety education, targeted to high risk occupations, such as truck

driving, construction, and nursing, needs to be continued and improved upon. As well, attention needs to be given to bettering the ergonomics of lifting and moving apparatus so that risk of injury is decreased, and consistent and correct usage of machinery is promoted.

For Nursing Research

Further refinement of the Therapeutic Support of Inherent Coping Strategies criteria is required. Particular attention needs to be paid to differentiating realistic acceptance of one's chronic pain condition and negative catastrophizing ideations. Criteria also should include mention of related sleep disturbances and the impact of this condition on coping and relationships. A discussion of health habits and their contribution to the impact of CLBP and coping abilities would be beneficial.

Further testing of the impact of Therapeutic Support of Inherent Coping Strategies using a larger sample size is needed to confirm or dispute the weak trends found in this study. Home visits and the use of a multisite approach could also be incorporated to increase participation and generalizability, respectively. As well, a longitudinal study, with evaluations post-treatment, and three and six months post-treatment, would help to determine the long-term impact of the intervention. Development and testing of the Therapeutic Support intervention for other chronic pain conditions, would also be beneficial. The current investigation has already lead to some preliminary testing by one nurse clinician in the area of chronic renal failure (M. Redekopp, personal communication, February 1994). As well, continued development and testing of pain measures and coping scales, and empirical testing of the Neuman Health-Systems Belief Model (1982) is in order.

Research is needed in the area of sleep disturbance related to chronic low back pain. Understanding the extent of the normal sleep pattern disruptions and the ways to better manage these sleep anomalies in this population will enable nurses to provide sound and specific support for inherent management practices. Particular attention should be paid to sleep hygiene-related variables such as alcohol, caffeine and nicotine consumption, exercise, sleep environments, and the impact of prescribed and over the counter medications. This area of investigation is the focus of the researcher's proposed doctoral dissertation.

Lastly, the use of an integrated methodological approach is highly recommended for nursing research. A complimentary qualitative and quantitative design can lend support or clarify less than significant trends as well as help explain and expand upon significant findings. It allows researchers to breathe life into the deductive findings so that the unique human being is not lost beneath the statistical tables. As well, the quantitative perspective enables the researcher to step beyond the individual client situation to determine how the patterns of experiences relate on a global level.

Summary

Chronic low back pain is a prevalent and debilitating condition. This study of 19 CLBP sufferers has given insight into the complexity of the CLBP experience, and the kinds of inherent coping strategies that are practiced to manage it. The relationships between pain, coping efficacy, coping strategy type, depression, and a number of demographic and health history variables were considered, and a number of significant associations were found and supported by the qualitative data. Quantitatively, the

therapeutic support of inherent coping regimes did not produce significant outcome measure differences between the treatment and control groups. Repeated studies with larger samples will help to confirm or refute the positive trends in the data. Qualitatively, the intervention was helpful for some individuals, although it appears that participation in the study itself may have had some beneficial effect.

For many participants, the interview with the researcher was their first opportunity to discuss the details of their pain experience and its impact, and to reflect on the kinds of pain management regimes that they followed. Not surprisingly, most subjects expressed strong feelings of isolation. Nurses, with their holistic approach to assessment and care, can play a key role in assisting CLBP clients to better manage their pain, and to reduce the additional stresses that are caused by the chronic condition.

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Appendix A

CLBP Support Criteria and Source

Support Criteria	Criteria Source
<p>1. Validate the patient's perception of his/her pain.</p> <p>e.g. "I see from the pain ratings that you have made this morning that your current pain is a 7/10 and throbbing, drilling, gnawing, hot, aching, tiring, and miserable."</p>	Fordyce, 1976; McCaffery & Beebe, 1989.
<p>2. Validate with the patient that it is difficult to cope with chronic pain.</p> <p>e.g. "You must find it difficult to deal with this constant pain."</p>	McCaffery & Beebe, 1989.
<p>3. Validate that a sense of reduced control is typical and very stressful for CLBP patients.</p> <p>e.g. "Individuals with chronic low back pain often feel that at times, they have little control over what is happening to them, and they find this very stressful. Do you ever feel like this?"</p>	Bowman, 1991.
<p>4. Acknowledge attempts to manage the pain problem.</p> <p>e.g. "I can see from my notes of our discussion earlier this morning that you have a number of ways to try to manage your pain. That's good."</p>	McCaffery & Beebe, 1989.
<p>5. Identify patient's own attempts to control their pain. Some individuals can identify effective coping strategies but still convey they have absolutely no control over their pain.</p> <p>Encourage the use of these coping strategies, as appropriate.</p>	Watt-Watson, Evans & Watson, 1988. Bowman, 1991; Hall, 1980; Hurst, 1990, McCaffery & Beebe, 1989; Rosenstiel & Keefe, 1983; Spinhoven, Ter Kuile, Linssen & Gazendam, 1989; Turner & Clancy, 1986; Turner & Romano, 1989.

Support Criteria	Criteria Source
<p>e.g. "Let's review the ways you have listed for managing your back pain. (Briefly discuss each identified coping strategy, providing positive verbal and expressive feedback for use of coping regimes, such as relaxation, pacing activities and religious practice, that are not detrimental to the client's health. Discourage the continued use of health jeopardizing management tactics, such as catastrophizing, alcohol abuse and smoking)."</p>	
<p>6. Support the use of an individual's own coping attempts (if not harmful to their health). These methods are well known, match the client's own coping style, and are already acceptable and seen as appropriate by the client.</p>	<p>Copp, 1974; McCaffery & Beebe, 1989; Miller, Garrett, McMahan, Johnson & Wikoff, 1985.</p>
<p>e.g. "From what I have read and seen clinically, there appears to be no 'right way' of coping with CLBP. What does seem to be important is that you use something that you feel comfortable doing, that you know how to do, and that meets your own lifestyle and personal style needs."</p>	
<p>7. Validate that their attempt to manage pain is a positive step toward increasing their control over the pain.</p>	<p>Braden, 1990; Giloth, 1990; Smith, Airey & Salmond, 1990; Upton, 1988; Walker, Akinsanya, Davis & Marcer, 1989.</p>
<p>e.g. "I am glad to see you are using a number of pain management techniques. These are all positive ways for you to regain some control over your pain."</p>	
<p>8. Convey that not all coping strategies will work all the time.</p>	<p>Broome, 1986; King, 1985.</p>
<p>e.g. "I can see from the rating you made of your own coping management practices, that their overall effectiveness is a 5/10. That's not bad, but I'm sure you hope to improve that. Don't be too discouraged if the coping strategies you try don't always work. That is common. You may want to try something else that works for you and go back to the other strategy at a later time."</p>	

Appendix B

Pre-treatment Interview SchedulePERSONAL HISTORY

1. Age _____
2. Male _____ Female _____
3. Marital Status: _____ Unmarried
 _____ Married/Common Law
 _____ Divorced/Separated
 _____ Widow/Widower
4. a) What ethnic group do you identify with? _____
 b) How strongly do you identify with this group:
very little fairly strongly very strongly
5. Highest level of education:
 _____ 1 to 8 years
 _____ 9 to 11 years
 _____ Secondary School diploma
 _____ College/Technical School diploma
 _____ University undergraduate degree
 _____ University graduate degree
6. Occupational Group:
____ Homemaker
____ Managerial, Administrative & Related Occupations
____ Occupations in Natural Sciences, Engineering &
 Mathematics
____ Occupations in Social Sciences & Related Fields

- ___ Occupations in Religion
- ___ Teaching & Related Occupations
- ___ Occupations in Medicine & Health
- ___ Artistic, Literary, Recreational & Related Occupations
- ___ Clerical & Related Occupations
- ___ Sales Occupations
- ___ Service Occupations
- ___ Farming, Horticultural & Animal Husbandry Occupations
- ___ Fishing, Trapping & Related Occupations
- ___ Forestry & Logging Occupations
- ___ Mining & Quarrying Including Oil & Gas Field Occupations
- ___ Processing Occupations
- ___ Machining & Related Occupations
- ___ Product Fabricating, Assembling & Repairing Occupations
- ___ Construction Trades Occupations
- ___ Transport Equipment Operating Occupations
- ___ Material Handling & Related Occupations
- ___ Other Crafts & Equipment Operating Occupations
- ___ Occupations Not Elsewhere Classified
- ___ Persons Not Classifiable By Occupation

7. Employment Status: ___ Working Full Time
 ___ Working Part Time
 ___ Homemaker
 ___ Unemployed
 ___ Retired
8. Disability Status: ___ No current or pending
 disability claims
 ___ Currently receiving disability
 ___ Pending disability claims

PAIN HISTORY

9. Describe your current back pain. _____

10. Do you have any other pain problems besides your back?

11. Duration of chronic pain problem? _____
12. Duration of current back pain problem? _____
13. What caused your low back pain problem?

14. If you have had back surgery, when was your most recent
surgery? _____
15. Number of back pain related surgeries. _____

PAIN MANAGEMENT HISTORY

16. What medications are you taking to help you manage your pain?

	Medication	Dose	Frequency
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____
D.	_____	_____	_____

17. How effective are these medications in reducing your pain?

0	1	2	3	4	5	6	7	8	9	10
not effective at all				fairly effective			extremely effective			

18. Please list any other medications you are currently taking.

	Medication	Dose	Frequency
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____
D.	_____	_____	_____

19. What kinds of things do you do/use to help reduce/control your pain besides taking medications? For each activity, you list I want you to indicate, using the chart below, 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 it when you are experiencing pain. Remember, you can choose any point along the scale.

0	1	2	3	4	5	6
never do that			sometimes do that			always do that

Frequency

When I feel pain I...

_____	A.	_____
_____	B.	_____
_____	C.	_____
_____	D.	_____
_____	E.	_____
_____	F.	_____
_____	G.	_____
_____	H.	_____
_____	I.	_____
_____	J.	_____

20. How effective are your own pain coping methods in reducing your pain?

0	1	2	3	4	5	6	7	8	9	10
not effective at all					fairly effective					extremely effective

21. How tired are you right now?

0 1 2 3 4 5 6 7 8 9 10
well rested moderately exhausted
tired

22. Describe the situation that has caused you the most
physical pain. _____

Appendix C

Post-treatment Interview Schedule

1. How tired are you right now?

0 1 2 3 4 5 6 7 8 9 10
 well rested moderately exhausted
 tired

2. What kinds of things did you do/use to help reduce/control your pain over the past two weeks? For each activity you list, I want you to indicate, using the chart below, how much you engaged in that activity over the past two weeks when you felt pain, where 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 it when you are experiencing pain. Remember, you can use any point along the scale.

0 1 2 3 4 5 6
 never sometimes always
 do that do that do that

Frequency When I felt pain during the past two weeks I

- _____ A. _____
- _____ B. _____
- _____ C. _____
- _____ D. _____
- _____ E. _____
- _____ F. _____
- _____ G. _____
- _____ H. _____
- _____ I. _____
- _____ J. _____

3. If you used your own pain coping methods, how effective were they in reducing your pain over the past two weeks?

0	1	2	3	4	5	6	7	8	9	10
not effective at all					fairly effective					extremely effective

4. How did you feel about using your own pain relief strategies? What was it about these methods that helped you? Were they easy for you to use?

E) Rate the average pain you experienced today.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

F) Briefly describe your day noting activities and medications taken.

12 midnight to 7 AM _____

7-8 _____

8-9 _____

9-10 _____

10-11 _____

11-12 _____

AFTERNOON

12-1 _____

1-2 _____

2-3 _____

3-4 _____

4-5 _____

5-6 _____

EVENING

6-7 _____

7-8 _____

8-9 _____

9-10 _____

10-11 _____

11-12 _____

G) How effective was (were) these medications in reducing your pain (if applicable)?

0 1 2 3 4 5 6 7 8 9 10

not effective fairly extremely
at all effective effective

H) What kinds of things did you do/use to help reduce/control your pain today? For each activity you list, I want you to indicate, using the chart below, 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 it when you are experiencing pain. Remember, you can choose any point along the scale.

0 1 2 3 4 5 6

Frequency	When I felt pain I
_____	A. _____
_____	B. _____
_____	C. _____
_____	D. _____
_____	E. _____
_____	F. _____
_____	G. _____
_____	H. _____
_____	I. _____
_____	J. _____

I) How effective were your own pain coping methods in reducing your pain?

0	1	2	3	4	5	6	7	8	9	10
not effective at all					fairly effective					extremely effective

J) Did anything happen to you today to make your pain worse?

If so, please describe. _____

Appendix E

Numerical Rating Scale For Pain

1. How much pain are you in right now?

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

2. Rate the worst pain you experienced yesterday.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

3. Rate the least pain you experienced yesterday.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

4. Rate the average pain you experienced yesterday.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

5. Rate the worst pain you experienced last week.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

6. Rate the least pain you experienced last week.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

7. Rate the average pain you experienced last week.

0	1	2	3	4	5	6	7	8	9	10
no pain										pain as bad as it could be

Appendix F

McGill Pain Questionnaire (Semantic Scale, Melzack, 1975)What does Your Pain Feel Like?

Some of the words below describe your present pain. Circle ONLY those words that best describe it. Leave out any category that is not suitable. Use a single word in each appropriate category -- the one that applies best.

- | | | | | | | | |
|---|-------------|---|-----------|---|-------------|---|-------------|
| 1 | | 2 | | 3 | | 4 | |
| 1 | Flickering | 1 | Jumping | 1 | Pricking | 1 | Sharp |
| 2 | Quivering | 2 | Flashing | 2 | Boring | 2 | Cutting |
| 3 | Pulsing | 3 | Shooting | 3 | Drilling | 3 | Lacerating |
| 4 | Throbbing | | | 4 | Stabbing | | |
| 5 | Beating | | | 5 | Lancinating | | |
| 6 | Pounding | | | | | | |
| | 5 | | 6 | | 7 | | 8 |
| 1 | Pinching | 1 | Tugging | 1 | Hot | 1 | Tingling |
| 2 | Pressing | 2 | Pulling | 2 | Burning | 2 | Itchy |
| 3 | Gnawing | 3 | Wrenching | 3 | Scalding | 3 | Smarting |
| 4 | Cramping | | | 4 | Searing | 4 | Stinging |
| 5 | Crushing | | | | | | |
| | 9 | | 10 | | 11 | | 12 |
| 1 | Dull | 1 | Tender | 1 | Tiring | 1 | Sickening |
| 2 | Sore | 2 | Taut | 2 | Exhausting | 2 | Suffocating |
| 3 | Hurting | 3 | Rasping | | | | |
| 4 | Aching | 4 | Splitting | | | | |
| 5 | Heavy | | | | | | |
| | 13 | | 14 | | 15 | | 16 |
| 1 | Fearful | 1 | Punishing | 1 | Wretched | 1 | Annoying |
| 2 | Frightful | 2 | Gruelling | 2 | Blinding | 2 | Troublesome |
| 3 | Terrifying | 3 | Cruel | | | 3 | Miserable |
| | | 4 | Vicious | | | 4 | Intense |
| | 17 | | 18 | | 19 | | 20 |
| 1 | Spreading | 1 | Tight | 1 | Cool | 1 | Nagging |
| 2 | Radiating | 2 | Numb | 2 | Cold | 2 | Nauseating |
| 3 | Penetrating | 3 | Drawing | 3 | Freezing | 3 | Agonizing |
| 4 | Piercing | 4 | Squeezing | | | 4 | Dreadful |
| | | 5 | Tearing | | | 5 | Torturing |

Appendix G

Coping Strategy Questionnaire (Rosenstiel & Keefe, 1983)

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 are a list of things that patients have reported doing when they feel pain. For each activity, I want you to indicate, using the chart 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 it when you are experiencing pain. Remember, you can use any point along the scale.

0	1	2	3	4	5	6
never do that			sometimes do that			always do that

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 the house and do something, such as going to the movies or shopping.
- ___ 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's 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 medication.

- ___ 10. I count numbers in my head or run a song through my mind.
- ___ 11. I just think of it as some other sensation, such as numbness.
- ___ 12. It's 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.
- ___ 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 a 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 household chores 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.

0	1	2	3	4	5	6
no control			some control			complete control

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.

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

Appendix H

Coping Strategy Questionnaire Score Key
(Rosenstiel & Keefe, 1983)

DIVERTING ATTENTION	3 + 10 + 13 + 30 + 31 + 43
REINTERPRETING PAIN SENSATIONS ..	1 + 4 + 11 + 18 + 34 + 46
COPING SELF STATEMENTS	6 + 8 + 23 + 26 + 36 + 37
IGNORING SENSATIONS	20 + 22 + 24 + 27 + 35 + 40
PRAYING/HOPING	15 + 17 + 21 + 25 + 32 + 41
CATASTROPHIZING	5 + 12 + 14 + 28 + 38 + 42
INCREASE BEHAVIORAL ACTIVITIES ..	2 + 7 + 39 + 44 + 45 + 47
FILLER ITEMS (NOT SCORED)	9, 16, 19, 29, 33, 48

Appendix I

Beck Depression Inventory (Beck, 1974)

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. () 0 I do not feel sad.
1 I feel sad.
2 I am sad all the time and I can't snap out of it.
3 I am so sad or unhappy that I can't stand it.
2. () 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel that the future is hopeless and that things cannot improve.
3. () 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.
4. () 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.
5. () 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.
6. () 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. () 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.
8. () 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.
9. () 0 I don't have any 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. () 0 I don't cry anymore than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.
11. () 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.
12. () 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
13. () 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.

14. () 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
15. () 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
16. () 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.
17. () 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.
18. () 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.
19. () 0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds.
2 I have lost more than 10 pounds.
3 I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less.

Yes___ No___

20. () 0 I am more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems, that I cannot think about anything else.

21. () 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 J

Explanation of the Study

As an individual suffering from chronic low back pain, and a new referral to either the Health Sciences Center or the St. Boniface General Hospital pain clinic, you are invited to participate in this study. The research study looks at the pain experienced by people with chronic low back pain and the approaches that may assist them in coping with that pain.

The investigation will be conducted by Diana McMillan, a medical-surgical nurse and Masters student in the Faculty of Nursing, University of Manitoba. Her thesis supervisor is Dr. Erna Schilder. Your doctor at the pain clinic has approved of your participation in the study, should you be interested in being involved. Your doctor also indicates that the assessments involved in the study of pain and coping abilities may be useful to your treatment. You do not have to participate. If you decide not to, it will not affect the care you receive at the pain clinic.

If you do wish to participate, you and I (Diana McMillan) will conduct two interviews at the pain clinic. The first will begin following your consent and will take no more than 60 minutes. The second will be about 30 minutes long and will be held two weeks later, and approximately 45 minutes prior to your first appointment with the physician

at the clinic. Both sessions will be taped using a tape recorder to enable the researcher to more accurately record your comments. The tape will be used only by Diana McMillan and all oral and written records will be kept confidential and locked safely in her possession. Your data will be identified by code number and the information you provide will remain anonymous for reporting purposes.

You will be asked several questions about your pain history and coping methods and abilities. The two interviews will involve both verbal and written responses, including four brief questionnaires. You may refuse to answer any questions you do not feel comfortable with. You will also be provided a pain and pain management diary and will be asked to make nightly records of your pain, activities, and pain management strategies for a period of two weeks. This will take approximately 10 minutes to complete each evening, and will be used to give a more accurate picture of your pain experience. The researcher will call you at a prearranged time convenient to you, on the first and second evening of the study and approximately 1 week into the study, to answer any concerns or questions you may have regarding the completion of the diary. You will also be given the telephone number of the researcher and the thesis supervisor should you have any additional questions at any time.

If you decide to participate, you can withdraw at any time and without any threat to your care at the clinic. Your name will not be revealed and any information that you give to me would be kept confidential unless you would also like a report sent to your doctor at the pain clinic. Should you wish to inform your doctor of the findings, you will indicate this on the consent form, and a copy of your report will be provided to your doctor. If you are interested in participating but would rather not disclose the findings, then the information will remain confidential and only I will know that you have made those comments.

You may explain the study to your family or to others significant to you, but I ask that you not discuss this with other patients at the pain clinic so that responses are not influenced.

To be able to participate in the study you must meet the following criteria:

1. Have made an appointment with a physician at either the Health Sciences Center or St. Boniface General Hospital pain clinics.
2. Be 18 years of age or older.
3. Have a diagnosis of chronic low back pain.
4. Have had your chronic pain problem for 6 months or longer.

5. Have no other current major medical or psychiatric problems.
6. Be able to read and speak English comfortably.
7. Currently receive only conservative treatment for your back pain (i.e. medication, rest, exercise).
8. Have not had surgery for your back pain within the past year.

Thank you for taking the time to meet with me today.

I, Diana McMillan, can be reached at telephone number

. Dr. E. Schilder, the thesis supervisor of the study can be reached at

Appendix K

Consent Form for Pain Clinic Physicians

This is to certify that I, _____
(name of physician or delegate)

authorize the participation of designated pain clinic
patient _____
(name of patient)

in the chronic nonmalignant back pain thesis-related study
conducted by Diana E. McMillan, R.N., B.N.Sc., M.N.

(Student), Faculty of Nursing, University of Manitoba.

This patient meets the following criteria:

- ___ diagnosis of chronic nonmalignant low back pain
- ___ no current additional major medical or
psychiatric disorder
- ___ 18 years of age or older

Signature of Physician: _____
or Delegate

Signature of Witness: _____

Date: _____

Appendix L

Chronic Low Back Pain Study Invitation to Potential Subjects

Dear Sir/Madame:

My name is Diana McMillan. I am a medical-surgical nurse interested in how people manage their pain and what nurses can do to assist them in pain management. I have written to you because I understand you have recently made an appointment with the Health Sciences Centre or St. Boniface General Hospital Pain Clinic because of back pain. I am writing to all new referrals to these pain clinics with back pain problems. The medical director at the pain clinic has given me your name and address.

I am a Masters student in the Faculty of Nursing at the University of Manitoba. For my thesis, I am doing a study that looks at the pain experienced by people with chronic low back pain and ways used to manage that pain. My thesis supervisor is Dr. Erna Schilder. Your doctor also feels that the measures that I will be taking of pain and pain management practices may be useful to your treatment.

If you are interested in being in the study, I would like to meet you at the pain clinic two weeks before your appointment for about one half hour to one hour and again one hour before your doctor's appointment for about half an hour. On your first visit, I would ask you questions about your general background, your pain and pain management practices and I would ask you to complete four short questionnaires that help me to understand what your pain is like and how you are managing with your pain. This should take no more than 45 minutes. Also for some participants, I would like to talk about pain and pain management practices in a little more detail to find out if talking about this is helpful. This would take about an extra 15 minutes. During the two weeks between our first and second visit, I will be asking you to keep a very brief diary of your pain, activities, and pain management practices. This will take about 10 minutes of your time each evening before you go to bed. This will be useful in giving a more complete picture of your pain over a longer period of time. During the second interview, we will discuss your pain experience over the past two weeks and you will be asked to complete four more short questionnaires that measure your pain and how you have been managing with it. The second interview is not expected to take longer than 30 minutes.

If you decide to participate, you can withdraw at any time. If you decide not to be in the study, or to withdraw from the study, please know that you will receive the same care and attention by the clinic staff that you normally would. I would also like you to know that I am not delaying your appointment with the clinic physician. If you are interested in participating, and want to inform your doctor of the findings, I will be happy to give him or her a copy of your report. Your name will not be revealed and any information that you give to me would be kept confidential, unless you would also like a report sent to your doctor at the pain clinic.

You may benefit from this study by gaining a better understanding of your pain and pain management practices. The results of the study may be helpful to nurses caring for patients with chronic low back pain. Although there are no risks involved with being in the study, you will have to pay your own way to the clinic for the first interview. Unfortunately, I am unable to pay you for being in the study.

I will be calling you in the near future to answer any questions you may have regarding this study and to ask if you would be interested in participating. I would be happy to answer any immediate questions or concerns that you have regarding my research project. Thank you for taking the time to consider your participation. I look forward to speaking with you soon.

Sincerely,

Diana E. McMillan,
RN, BScN, MN(student)
Tel.

Thesis Supervisor:
Dr. Erna Schilder,
Faculty of Nursing
University of Manitoba
Tel.

Appendix M

Telephone Introduction to Potential Subjects

Hello. My name is Diana McMillan. I am a medical-surgical nurse interested in how individuals manage their pain and what nurses can do to assist people in pain management. I have called you today because I understand you have recently made an appointment with the (Health Sciences Center/ St. Boniface General Hospital) Pain Clinic because of back pain. I am contacting all new referrals to the pain clinics at the Health Sciences Center and the St. Boniface General Hospital with back pain problems.

I am currently a Masters student in the Faculty of Nursing, University of Manitoba. To fulfill my thesis requirement, I am conducting a research study that looks at the pain experienced by people with chronic low back pain and approaches to coping with that pain. My thesis supervisor is Dr. Erna Schilder. Your doctor at the pain clinic has approved of your participation in the study, should you be interested in being involved. Your doctor also indicates that the measures that I will be taking of pain and pain management practices may be useful to your treatment.

Would you be interested in hearing about the explanation of the study? You do not have to decide whether to participate until you have had more time to consider the explanation of the study.

I understand that you have made an appointment with the (name of facility) pain clinic for (date and time of appointment). Is this correct? If you are interested in participating, I would like to meet with you at the pain clinic two weeks before your appointment for about one half hour to one hour and again on the day of your appointment for about half an hour before your appointment with the doctor. On your first visit, I would ask you questions about your general background, your pain and pain management practices and I would ask you to complete four brief questionnaires that help me to understand what your pain experience is like, and how you are currently managing with your pain. This should take no more than 45 minutes. In addition, for some participants, I would like to discuss pain and pain management practices in a little more detail to find out if talking with you about these practices is helpful to you. This would take an additional 15 minutes. During the two weeks between our first and second visit, I will be asking you to keep a very brief diary of your pain,

activities, and pain management strategies. This will require about ten minutes of your time each evening before you go to bed. This will be useful in giving a more precise picture of your pain over a longer period of time. During the second interview, we will discuss your pain experience over the past two weeks and you will be asked to complete four more brief questionnaires that measure your recent pain and pain management experience. The second interview is not expected to take longer than 30 minutes.

If you decide to participate, you can withdraw at any time. If you decide not to participate in the study, or to withdraw from the study, please know that you will receive the same care and attention by the clinic physicians that you normally would. I would also like you to know that I am not delaying your appointment with the clinic physician. If you are interested in participating, and want to inform your doctor of the findings, I can provide him or her with a copy of your report. If you are interested in participating but would rather not disclose the findings, then the information will remain confidential and only I will know that you have made those comments.

I wish to stress that your name will not be revealed and any information that you give to me would be kept confidential unless you would also like a report sent to your doctor at the pain clinic. You may explain the study to your family or to others significant to you, but I ask that you not discuss this with other patients at the pain clinic, as it may influence their responses.

You may benefit from this study by gaining a better understanding of your pain and pain management practices. The results of the study may be helpful to nurses caring for individuals with chronic low back pain. Although there are no physical risks involved with your participation, there will be a cost for your transportation for the initial visit. Unfortunately, I am unable to pay you for your participation. Do you have any questions at this time?

In order to confirm that you would be eligible for the study, I need to ask you a few questions.

1. Are you 18 years of age or older?
2. Do you have chronic low back pain?
3. Have you had your chronic pain problem for 6 months or longer?
4. Do you have any other major medical or psychiatric problems?
5. Are you able to read and speak English comfortably?

Appendix N
Consent Form

This certifies that I, _____,
(PRINT FULL NAME)
agree to participate in the research study that looks at the pain experienced by people with chronic low back pain and approaches to coping with that pain. The study is conducted by Diana McMillan, R.N., B.N.Sc., a Master of Nursing student at the University of Manitoba. Her thesis supervisor is Dr. Erna Schilder, Faculty of Nursing, University of Manitoba. I have been given a copy of the written explanation of the study, and have had a chance to ask questions to my satisfaction. I am aware that I may ask additional questions at any time.

My participation is voluntary. I am aware that I may withdraw from the study at any time without affecting the care I receive at the pain clinic. I may benefit from gaining a better understanding of my pain and pain management practices. The results of the study may be helpful to nurses caring for individuals with chronic low back pain. I am aware that there are no risks involved in the study but that there is a transportation cost involved with the initial interview. I am also aware that I will not be paid for my participation.

I am aware that my physician at the pain clinic has consented to this study and to my participation, if I so

choose. I agree not to discuss this study with other patients in order that our responses will not be influenced.

I have been informed that the researcher will be conducting two interviews of no more than 60 minutes and 30 minutes, respectively. During this time I will be asked questions about my general history, my pain history, and the ways I manage my pain. I will complete four short questionnaires (at each interview) that examine my pain and how I am managing with this pain experience. In addition, for some participants, the researcher will discuss pain and pain management practices in a little more detail to find out if talking about these practices is helpful to the patient. This would take an additional 15 minutes. I will also be asked to complete a 14 day activity diary at home that will take approximately 10 minutes to complete each evening.

I understand that all data pertaining to my participation will be identified by code number and that my identity will remain confidential unless I indicate that I would like my findings shared with my physician. I am aware that the interview will be taped and transcribed by the researcher, and have been assured that all oral and written records will be kept by the researcher under lock and key and that I will not be identifiable from the study for

public reporting purposes. Transcriptions of the audiotapes will not contain my name or identifying references.

I understand that I may receive a copy of the results of this study upon request.

Signature of Patient: _____

Signature of Witness: _____

Date: _____

Please check if you would like to have your report sent to your physician at the pain clinic: _____

Please print your name and address if you wish to receive a copy of the results of this study:

Name: _____

Address: _____

Researcher: Diana E. McMillan Tel. No.

Supervisor: Dr. Erna Schilder Tel. No.

Appendix O

Rationale for Questions in Interview I and II

Interview I	Interview II	Rationale	Support
Q. 1, 2, 3, 5, 6 (demographics)		Provide a clearly defined sample to allow for better comparisons between studies.	Wilkie, Savedra, Holzemer, Tesler & Paul, 1990.
Q. 6 (occupational categories)		Used occupation categories by Statistics Canada (homemaker category added).	Personal communication, Grant Panbery, Statistics Canada Advisory Services, Manitoba Office, April 30, 1992.
Q. 7, 8 (employment/ disability status)		Some research indicates that employment and disability status may have an impact on treatment outcome measures.	Block, Kremer & Gaylor, 1980; Chapman & Brena, 1982; Rosenstiel & Keefe, 1983; Spinhoven, Ter Kuile, Linssen & Gazendam, 1989.
Q. 9 (description of current pain)		Open response format will act as a validation of selected semantic MPQ (closed choice format) descriptors.	
Q. 10 (additional pain)		Determine if additional pain problems are contributing to the current pain experience.	Personal communication, Dr. R. Roy, S.B.G.H. Pain Clinic & Dept. of Social Work, University of Manitoba, April 27, 1992.
Q. 11, 12 (duration of chronic and current pain problem)		Duration of chronic and current pain problem may relate to current perceived pain.	Rosenstiel & Keefe, 1983.

Interview I	Interview II	Rationale	Support
Q. 13 (cause of pain)		Patient's beliefs about chronic pain have been shown to relate to frequency of use and perceived effectiveness of coping strategies.	Williams & Keefe, 1991.
Q. 14, 15 (most recent surgery/no. of back related surgeries)		Patients recovering from very recent surgery (<1 year) may be suffering from post-operative related pain. No. of back surgeries has been related to increased pain.	Rosenstiel & Keefe, 1983; Spinhoven, Ter Kuile, Linssen, & Gazendam, 1989.
Q. 16, 17 (pain medications and efficacy)		Determine what pharmacologic methods the client is using to reduce pain and medication efficacy.	McCaffery & Beebe, 1989; Melzack, 1975.
Q. 18 (other medications)		Monitor additional potential pharmacological influences on perceived pain and depression levels.	
Q. 19 (coping strategies)	Q. 2	Open-ended format permits identification of all possible inherent coping regimes and their perceived frequency of use when in pain.	Frequency format based on scale developed by Rosenstiel & Keefe, 1983.
Q. 20 (perceived efficacy of coping strategies)	Q. 3	Efficacy of coping strategy used may be a better indication of perceived regime-related pain control than use frequency.	Keefe & Dolan, 1986.

Interview I	Interview II	Rationale	Support
Q. 21 (current fatigue level)	Q. 1	Current fatigue level may be an important influencing variable for treatment outcome.	Sandstrom, 1986.
Q. 22 (describe worst pain)		The description of worst pain provides the researcher with a relative anchor for the client's pain problem.	Melzack, 1975.
	Q. 4 (feelings about using own coping)	Using open ended questions, probing and clarification, the researcher will attempt to assess the client's perceived coping strategy mastery and to assess for issues relating to matching coping regimes to lifestyle.	Jensen, Turner & Romano, 1991.

Appendix P

Procedural Time Line: Measures and Procedures by Condition

Measures & Procedures	Treatment (Therapeutic Support)	Control (No Support)
1.	Preliminary screening Physician consent	Preliminary screening Physician consent
2.	Telephone introduction -- book interview if willing to participate	Telephone introduction -- book interview if willing to participate
3.	Explanation of the study	Explanation of the study
4.	Subject consent -- as appropriate	Subject consent -- as appropriate
5.	Pre-treatment Interview Schedule	Pre-treatment Interview Schedule
6.	Break and random condition assignment	Break and random condition assignment
7.	Therapeutic support of inherent coping strategies	
8.	Conclude initial interview <ul style="list-style-type: none"> • thank participant for coming • provide and discuss procedures for completing Daily Activity Diary • arrange convenient telephone times for that evening, the next evening, and in one week's time confirm time and date of final interview 	Conclude initial interview (same as Treatment)
9.	Two week assignment period using the Daily Activity Diary	Two week assignment period using the Daily Activity Diary
10.	Post-treatment Interview Schedule	Post-treatment Interview Schedule
11.	Conclude final interview	Conclude final interview

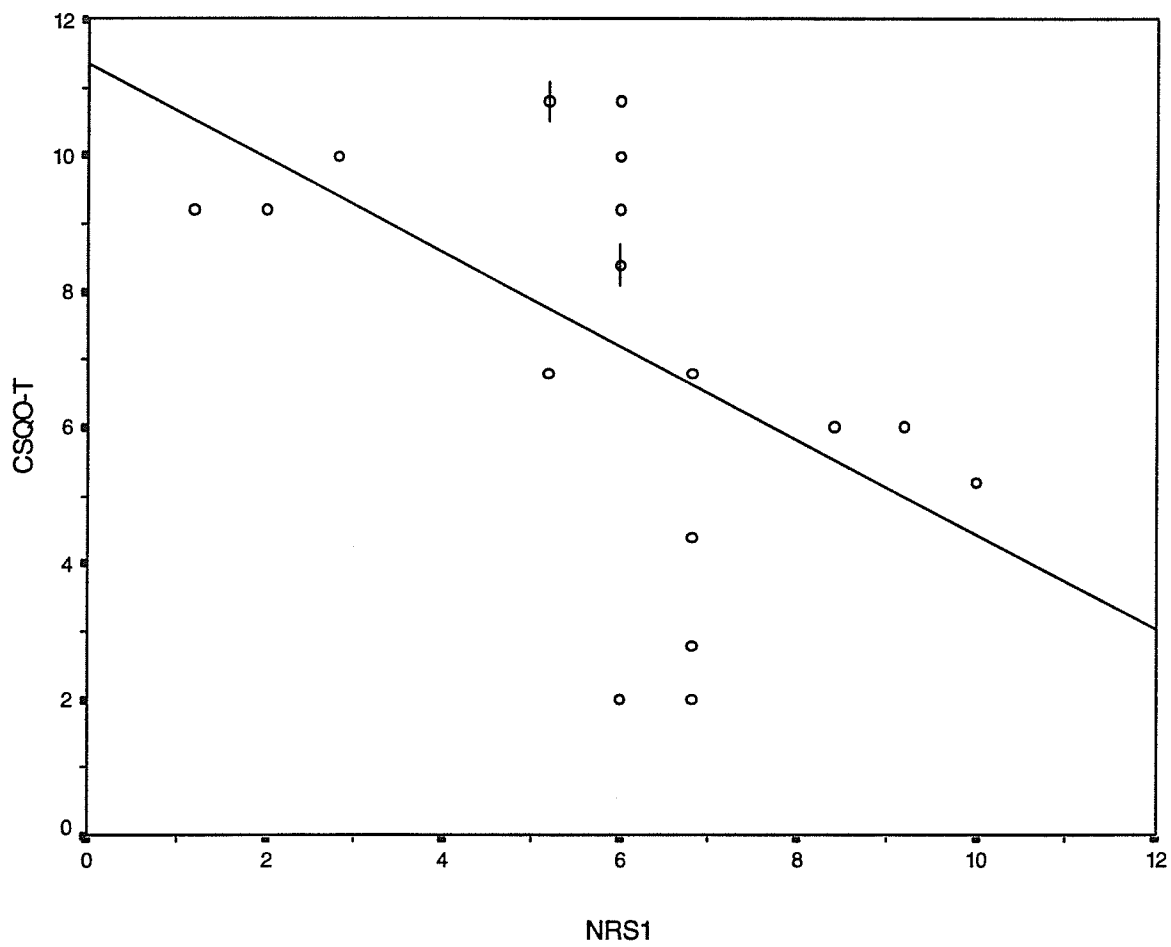
Appendix Q

Stages of Thematic Analysis

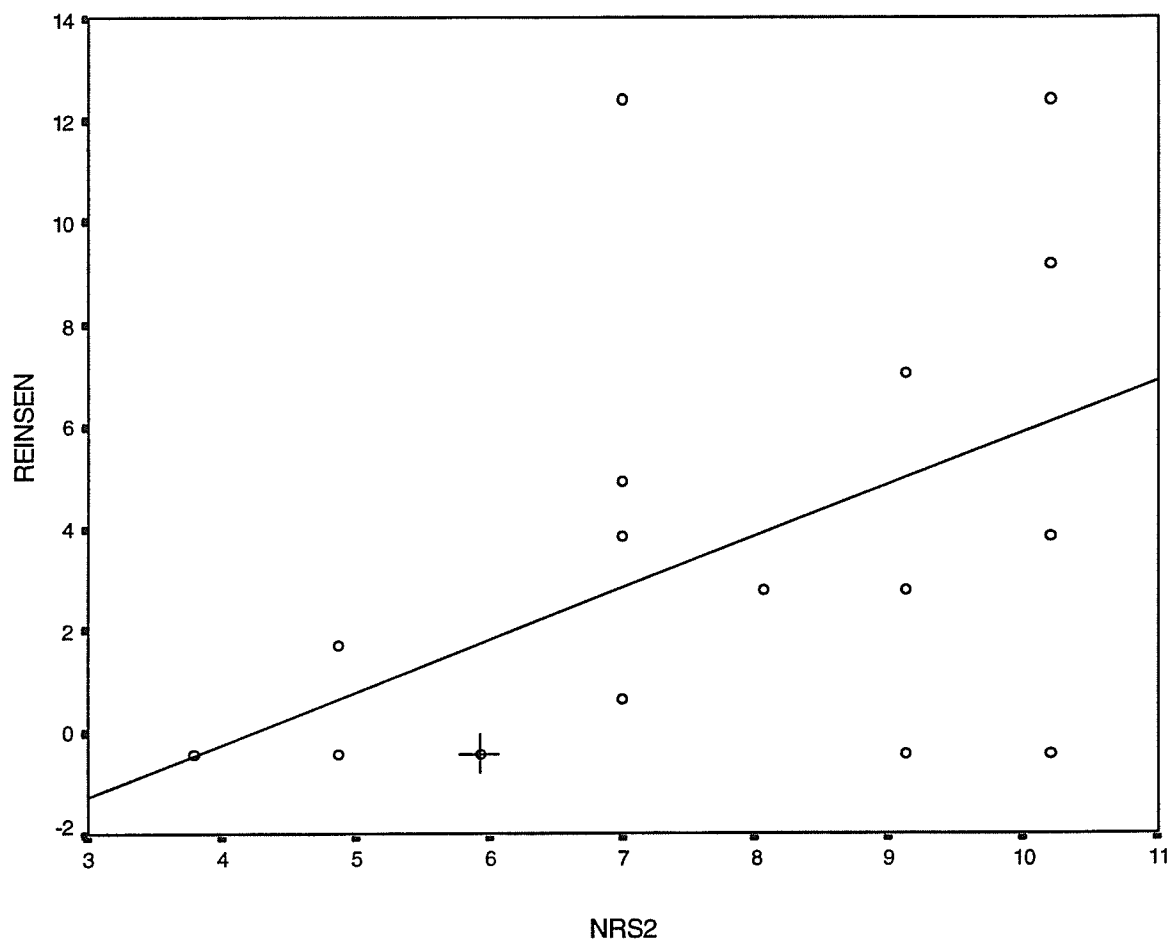
(Based on 7 stages of thematic analysis outlined in Polit and Hungler, 1987, pp. 360-361).

- Stage 1
 - outline research problem
 - outline major concepts
 - outline specific research questions
 - develop semi-structured interview
 - outline biases, expectations and limitations to method
 - clearly identified biases, assumptions and the production of a decision trail may help to identify erroneous conclusions
- Stage 2
 - code data throughout data collection period
 - add new categories as they emerge from the data
- Stage 3
 - reread all data after all subjects have been tested
 - consider all data sources collectively for each subject
- Stage 4
 - organize data for analysis
 - use colleagues and experts to aid and confirm derived categories (peer debriefing and member checks)
- Stage 5
 - develop an indexing system
- Stage 6
 - check preliminary patterns and interrelationships using quasi-statistical procedures
- Stage 7
 - incorporate the relationships of the major topics into a general model
 - compare with the conceptual framework
 - compare major relationships within the quantitative and qualitative data bases

Appendix R

Scatterplot of CSQO-T by NRS1

Appendix S

Scatterplot of REINSEN by NRS2

Appendix T

Scatterplot of PRI-E by DECRSE