INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Human patterning and chronic pain

Rapacz, Katherine Emily, Ph.D.

Case Western Reserve University (Health Sciences), 1991

Copyright ©1991 by Rapacz, Katherine Emily. All rights reserved.
HUMAN PATTERNING AND CHRONIC PAIN

by

KATHERINE EMILY RAPACZ

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

Thesis Advisor: Joyce J. Fitzpatrick

Frances Payne Bolton School of Nursing
CASE WESTERN RESERVE UNIVERSITY
May, 1991
CASE WESTERN RESERVE UNIVERSITY
GRADUATE STUDIES

We hereby approve the thesis of

Katherine Emily Rapacz
candidate for the Ph.D.
degree.*

Signed:

(Chairman)

May Wykle

Date 18 December 90

*We also certify that written approval has
been obtained for any proprietary material
contained therein.
I grant to Case Western Reserve University the right to use this work, irrespective of any copyright, for the University's own purposes without cost to the University or to its students, agents and employees. I further agree that the University may reproduce and provide single copies of the work, in any format other than in or from microforms, to the public for the cost of reproduction.

Katherine E. Rapasy
HUMAN PATTERNING AND CHRONIC PAIN

Abstract

by

KATHERINE EMILY RAPACZ

Chronic pain is a disabling health problem which affects 75-80 million Americans. Pain is one of the most common concerns demanding nursing attention and action among patients. Current success in the management and/or alleviation of chronic pain ranges from 50-85%.

Rogers' science of unitary human beings served as the theoretical basis for the study to offer a new perspective on chronic pain. The study was descriptive and exploratory. Its purpose was to test the notion of unitary field patternning as the basic unit of observation for studying holistic human beings. The research questions asked if there were differences in pattern
manifestations between a group with chronic pain and a group without chronic pain.

The chronic pain group consisted of individuals seeking treatment for chronic pain from a pain management program or individual health care practitioners in the San Francisco, Phoenix, and Cleveland areas (N = 113). A comparison group matched on age, sex, race and residence was recruited from community groups and public gathering places (N = 113). The sample was predominantly female (61%), white (96.5%) and age 19-49 (80%). Pain characteristics of interest included severity, frequency, duration, and event of onset. Pain related variables included occupation, medication use, compensation and litigation. The main variables of interest were pattern manifestation measures developed within Rogers’ abstract system. Pattern measures included Ference’s Human Field Motion (HFM) test (alpha = .94) and Barrett’s Power as Knowing Participation in Change (PKPC) test (alpha = .94).

Multivariate analysis of variance (MANOVA) revealed significant differences between groups on pattern manifestation measures (p < .001). Age, sex, race, and place of residence were controlled through the matching procedure. MANOVA revealed group membership to be the only variable significantly related to patterning differences.
The findings of this study support the notion of pattern as the unit of observation in nursing research. The group with chronic pain was found to have lower frequency patterning, as measured by HFM and PKPC, than the matched comparison group. Recommendations include replication and extension, incorporating treatments such as light, sound, and imagery and the use of HFM and PKPC as outcome measures.
DEDICATION

This work is dedicated to all those with chronic pain in the hope that greater understanding of your experience will lead to discoveries that will eliminate the problem forever.

Pain

I cry out
   Who hears?
      Too many fears

Not knowing
   Which way:
      The dawn of each day

Change me
   Forever
      Or end it never

Pain
   My companion
      Residing champion

Katherine Rapacz
9/4/88
ACKNOWLEDGMENTS

It seems hard to believe that one endeavor could touch lives of so many individuals and groups. Among them are family and friends, colleagues and peers, clinicians and patients, teachers and mentors, and community groups.

Without the support of my husband, children and parents, this undertaking could never have begun. They all took on additional responsibilities during the days and weeks of my absences. Thank you to Dr. Walter, Amy, Ilsa, and Mason Rapacz, Georgia and Joseph Matas and Irene Rapacz.

The faculty of Frances Payne Bolton School of Nursing provided an excellent basis and ground for budding nurse researchers to move with their ideas. Special thanks go to Dr. Joyce Fitzpatrick, Dr. Karen Budd, Dr. May Wykle, and Dr. Stephanie Nagley. Thank you also to Dr. Jennifer Kriegler, of the School of Medicine and University Hospitals Pain Program who provided valuable insight and expertise.

I gratefully acknowledge the privilege I have had to work with Rogerian scholars in the various stages of this work. Included are Dr. C. Richard Cowling, Dr. Elizabeth Barrett, Dr. Helen Ference, the "Dreamers Think Tank," and members of Society of Rogerian Scholars. Dr. Martha E.
Rogers has generously given her time throughout all stages of my doctoral work for which I will always feel honored.

One of the most heartening experiences of conducting the research was the warm response and enthusiastic support I received from the chronic pain clinicians and programs. Special thanks go to Dr. Sandra Pinkerton, Elaine Buxton-Moorehouse, Clarissa Doss, Dr. Jennifer Kriegler, Dr. Kent Pomeroy, Dr. John Reed, Dr. Gary Harnett, Dr. Richard Cohen, Pam Caviness, Dr. Raymond Huger, Cathy Mulligan-Geis, Ray Holtzapfel, and their staffs who also assisted.

To colleagues, friends, and co-workers who have provided support in so many innumerable ways my gratitude is deep. Thanks to Dr. Janelle Krueger, Dr. Patricia Moore, Karen Pace, and Dr. William Mermis of Arizona State University; to Phyllis Ethridge, Dr. Cathy Michaels, Dr. Gerri Lamb and the Nurse Case Managers at St. Mary's Hospital; to Bobbie Evans, Bevely Hays, Pam Lawrence, Erica Goodman, Dianna Morris, fellow candidates at Case Western Reserve University and to special friends along the path Stephanie, Don, and Joshua Hamilton, Alonzo Flores, and my husband, Wally (the wind beneath my wings).

Thanks to my statistical consultant, Dr. Sue Wilkinson, whose expertise and patience were greatly appreciated and to Virginia Smith whose
skilled work on the final manuscript provided the final polish and perspective needed.

Finally, thanks to all the study participants, whose time and efforts will perhaps assist many, hopefully, some day soon.

This finished work is but a beginning. To those whose work it built upon and to those who will continue the work, I say this simple Native American blessing: Waste lo! Ah-ho! (It is good! Thank you!)

This study was supported in part by a grant from Beta Upsilon Chapter, Sigma Theta Tau, Arizona State University and by the Faculty Fellowship Program of the Division of Nursing, DHHS, 1A 23 NU00046-01.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>xii</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Introduction</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Purpose</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>5</td>
</tr>
<tr>
<td>Theoretical Rationale</td>
<td>7</td>
</tr>
<tr>
<td>Significance</td>
<td>9</td>
</tr>
<tr>
<td>II</td>
<td>Related Literature</td>
</tr>
<tr>
<td>Pattern</td>
<td>11</td>
</tr>
<tr>
<td>Disciplinary Context</td>
<td>11</td>
</tr>
<tr>
<td>Conceptual Structure</td>
<td>14</td>
</tr>
<tr>
<td>Human Field Motion</td>
<td>18</td>
</tr>
<tr>
<td>Power as Knowing Participation in Change</td>
<td>21</td>
</tr>
<tr>
<td>Pain</td>
<td>23</td>
</tr>
<tr>
<td>Pain Theory</td>
<td>23</td>
</tr>
<tr>
<td>Pain Definitions</td>
<td>27</td>
</tr>
<tr>
<td>Nature of Pain</td>
<td>28</td>
</tr>
<tr>
<td>Summary</td>
<td>38</td>
</tr>
<tr>
<td>III</td>
<td>Methodology</td>
</tr>
<tr>
<td>Design</td>
<td>42</td>
</tr>
<tr>
<td>Sample Size</td>
<td>43</td>
</tr>
<tr>
<td>Sample</td>
<td>43</td>
</tr>
<tr>
<td>Demographic characteristics</td>
<td>46</td>
</tr>
<tr>
<td>Pain characteristics</td>
<td>50</td>
</tr>
</tbody>
</table>

ix
<table>
<thead>
<tr>
<th>III</th>
<th>Methodology (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instrumentation ........ 56</td>
</tr>
<tr>
<td></td>
<td>Human Field Motion Test 56</td>
</tr>
<tr>
<td></td>
<td>Power as Knowing Participation in Change Test 59</td>
</tr>
<tr>
<td></td>
<td>Pain and related variables 61</td>
</tr>
<tr>
<td></td>
<td>Data Collection .......... 61</td>
</tr>
<tr>
<td>IV</td>
<td>Results .................. 63</td>
</tr>
<tr>
<td></td>
<td>Reliability of the Instruments 63</td>
</tr>
<tr>
<td></td>
<td>Validity of Human Field Motion 64</td>
</tr>
<tr>
<td></td>
<td>Research Questions ....... 66</td>
</tr>
<tr>
<td></td>
<td>Related Analyses ........ 71</td>
</tr>
<tr>
<td>V</td>
<td>Discussion of Findings ... 79</td>
</tr>
<tr>
<td></td>
<td>Theoretical Rationale .... 79</td>
</tr>
<tr>
<td></td>
<td>Research Questions ....... 81</td>
</tr>
<tr>
<td></td>
<td>Methodology .............. 85</td>
</tr>
<tr>
<td></td>
<td>Instruments .............. 87</td>
</tr>
<tr>
<td></td>
<td>Related Analyses .......... 89</td>
</tr>
<tr>
<td>VI</td>
<td>Summary, Conclusions, Recommendations .......... 92</td>
</tr>
<tr>
<td></td>
<td>Summary and Conclusions .... 92</td>
</tr>
<tr>
<td></td>
<td>Recommendations .......... 95</td>
</tr>
<tr>
<td>LITERATURE CITED .................. 97</td>
<td></td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>PAIN PROGRAM &quot;A&quot; DESCRIPTION .............. 110</td>
</tr>
</tbody>
</table>
APPENDICES (Continued)

B  PAIN PROGRAM "B" DESCRIPTION .......................... 113
C  HUMAN FIELD MOTION TEST .............................. 116
D  VALIDITY QUESTION ....................................... 118
E  POWER AS KNOWING PARTICIPATION IN CHANGE TEST .......................................................... 119
F  DEMOGRAPHIC INFORMATION FORM COMPARISON GROUP .................................................. 122
G  DEMOGRAPHIC INFORMATION FORM CHRONIC PAIN GROUP ............................................. 126
H  CONSENT FORM ............................................... 132
I  MATCHED GROUP MEDICATIONS ............................. 133
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rogers’ Postulated Manifestations of Patterning</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Differences on Pattern Tests by Pain Severity (N=90)</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Matched Sample Demographic Information</td>
<td>47</td>
</tr>
<tr>
<td>4</td>
<td>Chronic Pain Characteristics (N = 113)</td>
<td>51</td>
</tr>
<tr>
<td>5</td>
<td>Comparison Group Pain Related Variables</td>
<td>55</td>
</tr>
<tr>
<td>6</td>
<td>HFM Validity Question Score and HFM Test Score (N = 296)</td>
<td>65</td>
</tr>
<tr>
<td>7</td>
<td>Mean HFM and PKPC Scores (N = 113 pairs)</td>
<td>68</td>
</tr>
<tr>
<td>8</td>
<td>Self-Rated Health in Matched Groups</td>
<td>73</td>
</tr>
<tr>
<td>9</td>
<td>Substance Use in Matched Groups (N = 113 pairs)</td>
<td>74</td>
</tr>
<tr>
<td>10</td>
<td>Background Variables Matched Sample (N = 113 pairs)</td>
<td>76</td>
</tr>
<tr>
<td>11</td>
<td>Analysis of Variance for Selected Background Variables (N = 113 pairs)</td>
<td>77</td>
</tr>
</tbody>
</table>
Chapter I

Introduction

The focus of this study was to explore chronic pain within the context of unitary human patterning (Fitzpatrick, 1987; Newman, 1983, 1986; Rogers, 1970, 1980, 1983, 1986, 1990). For greater understanding of health as it relates to the individual in process with the environment, chronic pain is a pattern manifestation needing investigation.

The conceptual frameworks of Rogers (1970, 1980, 1983, 1986, 1990), Fitzpatrick (1983), and Parse (1981, 1987) as well as Newman’s theory of health (1986) postulate energy field pattern as the basic human dimension, the primary unit of observation for nursing science. Pain studies conducted from this theoretical perspective require reconceptualization of the problem and may provide new insight and direction for research and health care. According to the above nursing theorists, manifestations of field pattern should be the focus of systematic inquiry for questions probing the nature of unitary human beings and their environments in health and illness.

The pain literature reflects efforts to construct a model of pain sufficient in scope to capture its complex multidimensional nature. The Institute of Medicine Committee on Pain, Disability and Chronic Illness Behavior (1987) suggested new approaches to the study of chronic pain are necessary. At a recent meeting of the American Academy of Pain Medicine,
experts in the field of chronic pain spoke of the ontology and epistemology of current conceptualizations of pain and suggested a new paradigm may be necessary in order to more fully understand, explain and predict about the phenomenon of chronic pain (Black, 1987; Cassel, 1987; Williams, 1987).

The nature of chronic pain was investigated as a manifestation of patterning of the human and environmental energy fields. Although chronic pain has not been investigated as pattern manifestation previously, Rogers has proposed other more general manifestations of field patterning. These manifestations are experiential, for example, time experienced as dragging, time experienced as racing, time experienced as timelessness (Table 1).

Table 1

<table>
<thead>
<tr>
<th>Rogers’ Postulated Manifestations of Patterning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lower frequency</td>
</tr>
<tr>
<td>higher frequency</td>
</tr>
<tr>
<td>seem continuous</td>
</tr>
<tr>
<td>longer rhythms</td>
</tr>
<tr>
<td>shorter rhythms</td>
</tr>
<tr>
<td>seem continuous</td>
</tr>
<tr>
<td>slower motion</td>
</tr>
<tr>
<td>faster motion</td>
</tr>
<tr>
<td>seem continuous</td>
</tr>
<tr>
<td>time drags</td>
</tr>
<tr>
<td>time races</td>
</tr>
<tr>
<td>timelessness</td>
</tr>
<tr>
<td>sleeping</td>
</tr>
<tr>
<td>waking</td>
</tr>
<tr>
<td>beyond waking</td>
</tr>
<tr>
<td>less diverse</td>
</tr>
<tr>
<td>more diverse</td>
</tr>
<tr>
<td>visionary</td>
</tr>
</tbody>
</table>

(Rogers, 1990, p. 9).
From descriptions in the literature, it appears that the experience of chronic pain includes manifestations of both higher and lower frequency patterning. For example, chronic pain "as experienced" by individuals includes descriptions such as slower motion, time dragging, waking, less imaginative, and more diverse (Ball, 1984; Bonica, 1985; Dossey, 1982; LeShan, 1964; Sternbach, 1968, 1984). Descriptions of these pattern manifestations include vegetative states, time experienced as dragging, sleep disturbances, inactive fantasizing, inability to remember dreams, and greater diversity expressed in the common experiences of polysurgery and polypharmacy. Chronic pain patients also experience feelings of dependency and helplessness. As Barrett (1983, 1988) has conceptualized power within Rogers' science of unitary human beings, dependency and helplessness may manifest as less powerful. Exploration of the relationships of pattern manifestations of chronic pain may lead to greater understanding of the phenomenon itself and, more generally, of the patterning process of unitary human beings.

Individuals experiencing the field pattern of chronic pain may have pattern manifestations similar to each other but different from those of individuals who are pain free. Two instruments have been developed to date that are reliable and valid measures of human-environmental field pattern manifestations (Barrett, 1983; Ference, 1979). Barrett developed a measure of
power, defined as the capacity to participate knowingly in the nature of
change characterizing the continuous patterning of the human and
environmental fields. The capacity to knowingly participate (power) is
conceived as manifesting from lower frequency pattern to higher frequency
pattern. Ference developed a measure of motion as a field index and defines
human field motion as an experiential, multidimensional position. Human
field motion is reflective of the continuously moving position, flow, and
frequency of human field pattern (Barrett, 1983). These constructs of power
and motion have relevance to the phenomenon of chronic pain as experienced
and as described in the literature and because they are theoretically derived
from the science of unitary human beings.

Because the chronic pain literature describes both higher and lower
frequency pattern manifestations, and since this is a new area of research, it
would have been premature to design this study to test hypotheses.
Therefore, this study was descriptive and exploratory in nature.

**Purpose**

This study sought to describe human-environmental energy field pattern
manifestations of chronic pain. The relationship between human field motion
and power in a group of persons with chronic pain and a group without
chronic pain was explored. Specific research questions asked:
1. Is there a difference in human field motion between a group experiencing chronic pain and a group without chronic pain?

2. Is there a difference in power between a group experiencing chronic pain and a group without chronic pain?

3. What is the relationship of human field motion and power of the group experiencing chronic pain?

4. What is the relationship of human field motion and power of the group without chronic pain?

Based on the results in answer to the first four questions, further analysis was undertaken to explore the relationship of human field motion to power between the chronic pain group and the group without chronic pain. The fifth question was posed as, is there a difference in the relationship of human field motion and power between the chronic pain group and the group without chronic pain?

**Definition of Terms**

**Pattern** is defined as the distinguishing characteristic of an energy field perceived as a single wave (Rogers, 1986). It undergoes continuous change, manifesting both health and disease processes and awareness of human potentials (Fitzpatrick, 1983; Newman, 1986; Rogers, 1986). Pattern is that which defines the field and is dynamic in nature. Pattern manifestations were measured by Barrett’s (1983) Power as Knowing Participation in Change Tool,
Version II (PKPCT, VII) and Ference's (1979) Human Field Motion test (HFM).

**Human Field Motion (HFM)** is "experiential, multidimensional position" (Ference, 1979, 1986b) and an index of unitary human development that manifests the continuously moving position and flow of human field pattern (Barrett, 1983). Human field motion is measured by bipolar adjective scales which rate the connotative meaning of "my motor is running" and "my field expansion." For this study human field motion is operationally defined as the total score obtained when values for each scale are summed (Ference, 1986a).

**Power** is the capacity to participate knowingly in the nature of change characterizing the continuous patterning of the human and environmental fields. Power is conceptualized as a manifestation of human and environmental field pattern. The instrument is structured in a semantic differential style and consists of four concepts which are different field behaviors that characterize power: "awareness", "choices", "freedom to act intentionally", and "involvement in creating changes". For this study power is operationally defined as the total score obtained when values for each scale are summed (Barrett, 1983; Trangenstein, 1988).

**Pain** is an evolutionary emergent expression of human-environmental field patterning (M. E. Rogers, personal communication, December 18, 1987). The capacity to experience oneself and the world and to make sense out of one's
experience is an emergent of the life process that is continuously evolving (Rogers, 1970). Pain, a manifestation of field patterning, is experienced as hurt. Chronic pain is defined by the individual as hurt that has been present for 6 months or longer.

**Theoretical Rationale**

Rogers (1970, 1980, 1983, 1986, 1990) has proposed the abstract system of the science of unitary human beings. Deriving from this abstract system, the Principles of Homeodynamics postulate the process of change in human and environmental fields. Change is characterized by movement from lower to higher frequency wave patterns of continuously innovative, unpredictable, and increasingly diverse non-repeating rhythmicities. Human and environmental fields are integral with each other and are defined as irreducible, pandimensional energy fields identified by pattern. Pattern is the distinguishing characteristic of an energy field perceived as a single wave. All reality is postulated to be pandimensional, i.e., a non-linear domain without spatial or temporal attributes (M. E. Rogers, 1990, personal communication, December 1, 1990).

The life process possesses its own unity and is inseparable from the environment. Health and illness are expressions of this unitary field pattern. The goal for individuals is greater understanding and awareness of their field
patterning and the process by which the pattern changes for realization of health potentials.

It is proposed here that the essence of health lies in the notion of pattern. Health and illness are viewed as manifestations of the patterning process of unitary human beings and their environments. Every human energy field is integral with its environmental field. However, expression of the patterning process gives us clues for understanding the process and nature of change for an individual, and ways we may assist her/him in that process. The primary goal of nursing is to assist individuals to become aware of their unique human-environmental pattern and to become knowledgeable of the nature of pattern process so that well-being can be maximized. To this aim, an assessment is made of the presenting pattern manifestations and strategies to assist the individual client discover meaning and realize health potentials are initiated.

Since the energy field is postulated to constitute the fundamental unit of human beings, and pattern identifies the field, knowledge concerning the characteristics, qualities, and major themes or rhythms of the field pattern is fundamental to assisting individuals. It is through explicating the individual's understanding of their own field pattern in relation to the principles of helicy, resonancy and integrality that meaningful nursing actions can be designed to assist individuals in the realization of health potentials.
Significance

Chronic pain is a disabling health problem which affects an estimated 75-80 million Americans. The annual cost of chronic pain is estimated to be between $65 and $70 billion when lost work days, health care costs and payments for compensation, and litigation are summed (Bonica, 1985). As many as 80% of all patients who consult physicians do so for pain-related problems (Bresler, 1979). Pain is one of the most common concerns demanding nursing attention and action among patients (Locsin, 1981; McCaffery, 1979) and has been identified among research topics with the greatest potential value to the profession (Lindeman, 1975).

Chronic pain has been described as a malefic force (Bonica, 1985) which is resistant to current efforts to measure and diagnose it. Its elusive and intractable nature is reflected in the numbers of chronic pain patients unable to find relief (National Institutes of Health (NIH) Consensus Development Conference, 1987) and in those whose pain is exacerbated by iatrogenic affects of polysurgery and polypharmacy (Institute of Medicine [IOM] Committee on Pain, Disability and Chronic Illness Behavior, 1987).

The reconceptualization of chronic pain within Rogers’ science of unitary human beings offers a new perspective from which to study the phenomenon from a nursing science base. This is the first study to explore the nature of chronic pain in this way. Building upon the earlier works in
instrument development (Barrett, 1983; Ference, 1979) and studies exploring
the nature of unitary human beings in the general population (Conner, 1986;
Cowling, 1983; Macrae, 1982; Miller, 1984; Raile, 1982) this study is among
the first to explore the nature of a clinical phenomenon of concern to nursing
using this theoretical perspective (Dzurec, 1986; Gueldner, 1986; Ludormirski,
1984; McDonald, 1981). This study will also add to the understanding of
pattern manifestation as measured by the PKPC tool and the HFM test,
building upon the work others have already completed (Butcher, 1986;
Dzurec, 1986; Gueldner, 1982; Gueldner & Ference, 1988; Ludormirski, 1984;
Macrae, 1982; Trangenstein, 1988).

Results of this study will contribute to nursing science knowledge
development at a basic level, by extending knowledge within Rogers’
conceptual system and exploring the nature of the ostensive phenomenon of
chronic pain. Results will also serve as foundation for further research with
the goal of identifying therapeutic modalities to assist people experiencing
chronic pain. Investigations of this nature are necessary for development of
the nursing science knowledge base and for the development and testing of
interventions directed toward human field patterning for the realization of
health potentials.
CHAPTER II

Related Literature

The literature about field pattern and its related body of research will be reviewed first. The current status of knowledge relating to pain theory and chronic pain will then be reviewed.

Pattern

Disciplinary Context

Many nursing scholars are calling for conceptual clarity and focus in nursing science and suggest that the core of nursing knowledge is focused on the nature of life processes of unitary persons. Morris et al. (1987) define the content of nursing as a science as "the study of unitary persons whose life processes and interaction with the environment are manifested by patterns which can be interpreted, measured, and related to the person's meaning and quality of life" (p. 8). The nurse theorist group of the North American Nursing Diagnosis Association calls for the conceptual framework for nursing diagnosis to be based on the concept of pattern (Kirk, 1986). Successful nursing care is defined as care which "influences or supports the natural process and direction of change toward new situations of increased complexity and diversity within the client's singular life pattern" (p. 52).

Fitzpatrick (1987) recognizes the need to more fully and consistently develop the theme of human patterns as a basic unit of observation and
Reeder (1984) calls for a new language supportive of pattern seeing. Approaches to pattern recognition are suggested by Wilson and Fitzpatrick (1984), Reeder (1984), and Newman (1986). It is evident that exploration of pattern in unitary human beings is supported by many within the discipline and further, that this approach may provide a key that will unlock ever deeper and more meaningful problems along the path of nursing’s quest to discover new knowledge.

As a science develops, terminology must become specific (Rogers, 1970). Promotion of health has been identified as a phenomenon of primary concern to the discipline of nursing and many definitions of health have been proposed by nursing theorists (Fitzpatrick & Whall, 1983; Meleis, 1986; Smith, 1983). Formal inquiry to further knowledge about the phenomenon of health has been limited (Engle, 1984; Leininger, 1985; Parse, Coyne & Smith, 1985; Smith, 1983; Therkettle, 1985). Nursing scholars (Allen & Hall, 1988; Chinn, 1987; Fitzpatrick, 1987; Hall & Allen, 1986; Newman, 1983, 1986; Payne, 1983; Reeder, 1984; Rogers, 1970, 1986) are raising poignant questions that challenge us to specify the phenomenon we call health. Recently, Reynolds (1988) reviewed nursing research published between 1977 and 1987 using health as a variable and concluded that most of these studies measured health by the presence or absence of disease and did not measure the idea of health "to which so many nurses subscribe, nor did it reflect a holistic stance" (p. 28).
This finding lends support to the earlier identified need for nursing to specify and measure health within the disciplinary conceptual and syntactical structure.

Chinn (1987) points out that the prevailing delivery system is not, for the most part, delivering "health" care at all and that we have been socialized to avoid calling something what it really is—namely a disease care system. She suggests that "the nursing definition of health, as a goal, carries a substantive quality that does not fulfill the prevailing system's expectations for profit or for the proliferation of disease-oriented technologies" (p. xii). She further suggests that perhaps we should seek an alternative term for the phenomenon with which we in nursing are concerned (health) and credits this idea to Fitzpatrick's proposal discussed at the 1986 meeting of the Nursing Theory Think Tank. Meleis (1986) observes that major trends that have affected the development of theoretical nursing have been a shift from an interest in medical phenomena and illness to an emphasis on "care, environment, and the perception and meaning of the situation of all individuals" (p. 20). Hall and Allen (1986) present a criticism of the "disease model" that explicates its inconsistencies with concerns of the nursing discipline. They state the focus of nursing "should be on health, wholeness, quality of life, the environment, the family and interactions among those factors" (p. 318).
Since Nightingale the goal for organized nursing has been to assist people to achieve their maximum health potential (1969). This goal is affirmed today as much as ever. However, reconceptualization of the phenomenon may be necessary as nursing science becomes more explicit. Rogers (1970) has long recognized that "health and illness...are dichotomous notions, arbitrarily defined, culturally infused and value laden" (p. 85). She asserts that whatever meaning health may have is derived out of an understanding of the life process in its totality.

As a science, nursing is concerned with the study of the life process in its totality. Based on Rogers' conceptual framework, nursing science focuses on the study of human and environmental energy field patterns. Health, disease and illness, in fact all behaviors are manifestations of field pattern (Rogers, 1980, 1983, 1986). It is therefore appropriate to examine a phenomenon such as pain from this theoretical perspective.

**Conceptual Structure**

Within Rogers' (1970, 1980, 1983, 1986) conceptual system for nursing science, the term pattern is a central concept. Rogers (1970) has stated that a language of specificity is needed as a science develops. Communication is hindered to the extent that language and terms do not have common meanings. For this reason, unless specifically defined otherwise, terms used by Rogers are understood by their common usage dictionary definitions.
Rogers' (1986) defines pattern as:

the distinguishing characteristic of an energy field perceived as a single wave. Pattern is an abstraction. It gives identity to the field. The nature of the pattern changes continuously...The term "pattern" is used only to refer to an energy field. (p. 5)

Rogers' statement that "pattern is an abstraction" (p. 5) refers to the theoretical nature of defining that which is the energy field. Rogers further states that "each human field is unique and integral with its own unique environmental field pattern" (p. 5).

While consistent with the dictionary definition of pattern (Webster's New World Dictionary, 1968) Rogers' definition has specificity and meaning only within the context of the science of unitary human beings (Rogers, 1983, 1986). Other meanings of the term pattern within the nursing and health literature (Crawford, 1982; Gordon, 1982; Johnson, 1961) are not germane to this study since the referent is not the human or environmental energy field.

A number of studies have been undertaken attempting to measure manifestations of unitary human-environment field pattern. Floyd (1983) describes patterning as rhythmic in nature and utilizes the terminology of rhythm theory such as peak, trough, cycle, period, amplitude, frequency and phase related to her research on human sleep-wakefulness patterns. As derived from Rogers' principles of resonancy and helicy she describes change (patterning) as "occurring through a rhythmic flow of wave forms that order
and reorder the human and environmental fields...toward wave forms of increasing frequency" (p. 38, p. 40).

Floyd derived a theorem predicting sleep-wakefulness patterns and tested it in a shift worker population and an inpatient psychiatric population. Most hypotheses were supported in the shift worker study, lending support to Rogers' conceptual system and Floyd's theoretical statements including the identification of manifestations of patterning of the human-environmental field through the changes observed in the sleep-wakefulness rhythms. Floyd describes many situational variables that could not be controlled in the clinical setting including the influence of psychotropic drugs, which may have influenced the variables under observation and contributed to the limited support of hypotheses in this group.

Newman's (1983) observations support Floyd's conceptualization and operationalization of pattern and its measurement. She suggests the "methodology appropriate for the development of nursing knowledge is the methodology of pattern " (p. x). In defining pattern, salient characteristics are configuration, design, dynamic and meaning with use of qualifiers such as rhythm, composition and intensity adding to identification.

Bramwell (1984) studied pattern manifestation in older adults. She developed a measurement technique based on the observation of the general tendency among older adults to recall and survey past life events. Bramwell
combined reminiscence and life review in an interview protocol she termed life history process. Life histories were examined for themes that appeared throughout. She identified these themes as analogous to Floyd’s concept of patterning as rhythmical events within a cycle, in this case a life cycle. Manifestations of pattern which emerged from the qualitative study were: wide and varied interests, openness to new experiences, satisfying social relationships and altruism. This pilot study was conducted with a select sample of 8 healthy women over 60. The method of a tape-recorded life history was presented for consideration as a tool for pattern identification. Further study is needed utilizing this methodology with larger, more diverse subsamples. Verification of relationships between reported life events and human field patterning is needed.

Quinn (1984) describes a study in which she tested a theory of energy exchange which was operationalized by measuring state anxiety in hospitalized cardiovascular patients exposed to the experimental condition of noncontact therapeutic touch or noncontact. She derived a proposition that the effects of therapeutic touch are not related to the physical contact between nurse and client but are rather outcomes of the unique mutual process of their energy fields. The nurse is a part of the client’s environmental field and as such may influence the pattern of the client’s field. Quinn’s proposition and theorem are derived from Rogers’ conceptual system. Quinn’s discussion of the
theoretical rationale centers around change in human and environmental energy fields via a "rhythmic flow of energy waves" (p. 44).

Rogers (1986) emphasizes the importance of pattern as a key concept in the conceptual system. Rogers postulates that manifestations of field pattern "emerge out of the human-environmental field mutual process" (p. 6). A way of stating Quinn's proposition more clearly would be to, instead of speaking in terms of energy exchange and field interaction, to speak of patterning and human-environmental field mutual process. The results of Quinn's study revealed a significant difference between the state anxiety level of the subjects in the experimental and control groups at a .0005 level of significance. Quinn states that the transfer or exchange of energy between two human fields in this study was taken as axiomatic and was therefore untestable. Although the results of this study lend support to the assumption of a patterning process between nurse and client during therapeutic touch, other studies are needed in which additional theorems are derived and tested or an attempt should be made to directly test the assumption to empirically validate the reality of energy by exchange (or more precisely stated, mutual field process).

**Human field motion.** Ference (1979) derived a theorem of synergistic human development to investigate Rogers' principle of resonancy. In 1979, the principle of resonancy was stated as follows: The human field and the
environmental field are identified by wave pattern and organization manifesting continuous change from lower frequency, longer waves to higher frequency, shorter waves. Ference restated Rogers’ original correlates of human development, collapsing some concepts to minimize overlap, as time experience, creativity traits, differentiation, and human field motion. Human field motion is a construct developed by Ference and defined as experiential, multidimensional position of the human energy field pattern. It is based on Rogers’ idea of motion and measures a nonlinear, pandimensional perceptual experience of motion.

Ference hypothesized that there is a relationship between human synergistic development (time experience, creativity and differentiation) and human field motion. A canonical correlation design was employed and the hypothesis was supported by the emergence of 3 canonical variates which were significant at the .001, .01 and .07 levels of significance respectively. She named the canonical variates complexity-diversity pattern and human field motion. The third variate was not named because it was not significant at the .05 level. The two sets of measurements were not found to be independent, since only 42% of the variance is accounted for by the 3 dimensions. Not accounting for 100% of the variance indicates that human synergistic development may be comprised of more factors than those included in this study.
Several studies have been completed in which the HFMT was utilized. Macrae (1982) conducted a study which compared human field motion and experience of timelessness in a group of experienced meditators (N=45) and non-meditators (N=45). She hypothesized that the meditators should have higher human field motion scores (indicating higher frequency field pattern) and lower scores on the Time Metaphor Test (indicating sense of timelessness). The study results supported her hypotheses for sense of timelessness and, in the groups considered as deeper meditators, also for human field motion (p<.001 and p<.009, respectively).

Gueldner (1986) tested the relationship between imposed motion and human field motion in institutionalized elderly individuals. Imposed motion was operationalized as rocking. In the quasi-experimental design using 2 treatment groups and one control group, a statistically significant difference on pre- and post-treatment scores of HFMT was not found. However, 77% of those subjects who rocked at an imposed rate manifested increased post-treatment HFMT scores whereas only 23% of the nonrocking control subjects reported increased post-treatment HFMT scores. Gueldner’s sample size (N=31) may have been too small to demonstrate a statistically significant difference between the groups and she postulated that the effect may also be increased by a more intensive treatment regimen. In addition, Gueldner’s hypothesis that a positive relationship exists between perceived human field
motion and reported level of restedness was supported \( (p = .01) \). Subjects who expressed feelings of high human field motion also reported feeling a high degree of restedness.

Ludomirski (1984) conducted an experimental study testing the relationship of human field motion to exposure to longer wavelength red light and shorter wavelength blue light in a group of sighted and blind individuals. She hypothesized that human field motion would be faster in relation to the wave frequency pattern manifest in blue rather than red light in both the adult individuals with sight and those with total blindness. Fifty subjects participated in each group. Red and blue lights were randomly presented for 30 minutes to subjects seated in the experimental room. The colored lights were placed in ceiling fixtures above the subjects. Subjects completed the human field motion test following exposure to each of the two color conditions. The data analysis, using two-factor analysis of variance with repeated measures revealed support for the hypothesis \( (p < .001) \).

These studies provide support for Rogers' conceptual system, as well as providing support for construct validity of the human field motion test. Reliability data from these studies will be reported in the methods section.

Power as Knowing Participation in Change. Barrett (1983, 1986) derived a power theory from Rogers' principle of helicy. The principle of helicy states the continuous, innovative, unpredictable increasing diversity of
human and environmental field patterns characterized by nonrepeating rhythmicities. Barrett linked Rogers' notion that humans can knowingly participate in change with the principle of helicy. Power is defined as the "capacity to participate knowingly in the nature of change characterizing the continuous patterning of the human and environmental fields" (1988, p. 50). She developed an instrument to measure power, the Power as Knowing Participation in Change Tool, Version I and Version II, in which "selected characteristics of human field pattern were operationalized as empirical indicants of human change" (p. 174). The operational indicators of power are "awareness", "choices", "freedom to act intentionally", and "involvement in creating changes". The theory states that power is being aware of what one is choosing to do, feeling free to do it and doing it intentionally. She identifies power as both a state and a trait of the human and environmental field pattern with its intensity, frequency and form varying.

Barrett conducted a pilot study (N=267) and a final study (N=625) to investigate the principle of helicy by testing the relationship between human field motion (HFM) measures, which represented the direction of change, and the power measures, which represented the nature of change. Her hypothesis, that there was at least one significant relationship between the measures, was supported suggesting that "as human field motion, an index of unitary human development, proceeds, so does the human being's capacity to participate
knowingly in the nature of the development (p. 173). Thus, initial support was demonstrated of a relationship between measures of human pattern manifestations.

**Pain**

Pain can be viewed as an elementary sensation, a complex perception, an affect, a neurophysiological activity, a neurochemical reaction, an adaptive reflex behavior, a consequence of internal psychic conflict, an interpersonal manipulation or an aspect of the human condition (Sternbach, 1968, 1970). Theories of pain and consequent knowledge development are reflective of these varying views of pain.

**Pain Theory**

Historically, pain has been viewed either as a purely sensory phenomenon or as a psychological phenomenon. The affective theory, first forwarded by Aristotle (cited by Kim, 1980) proposed pain to be an emotion or "passion of the soul". The Ancients set pain apart from the senses, considering it the antithesis of pleasure, and saw it as not restricted to any part of or locus in the body but rather as a quality pervading the whole (Dallenbach, 1939).

In the 17th century, Descartes asserted that pain was a purely sensory phenomenon and proposed a "straight through" concept such that specific pain receptors in body tissue project impulses via pain fibers and pathways to the
pain center in the brain. This became known as the specificity theory (Kim, 1980; Melzack & Wall, 1983).

In the late 1800's and early 1900's, with advances in sensory physiology and psychophysics, most attention was directed toward developing and expanding understanding of sensory pathways and transmission of pain (Cohen & Sherman, 1983; Dallenbach, 1939; Melzack & Wall, 1983). Variations on another theoretical perspective known as pattern theory emerged. Pattern theory recognized that one neuron may serve several purposes and thus may not be "specific" for pain only. Temporal and spatial patterns of nerve impulses that evoke pain were proposed, that is self-sustaining reverberatory neural circuits serving to perpetuate pain. The explanatory power of pattern theory could account for such pain phenomenon as phantom limb pain and other summative type pain syndromes. In addition, two types of pain fibers were identified: a rapidly conducting system and a more slowly conducting system.

Both specificity and pattern theory represented great advances in their times, however subsequent research produced findings inconsistent with theoretical predictions. The next major theoretical advance came in 1965 when Melzack and Wall proposed the gate control theory of pain. Features of specificity and pattern theory were incorporated into their model (Cohen & Sherman, 1983; Kim, 1980). The theory states that synaptic transmission of
pain information can be "gated" in the dorsal horn of the spinal cord by activity from other pathways. Specifically, the activity of large somatosensory afferent fibers discharges an interneuron in the substantia gelatinosa, which, in turn, can cause presynaptic inhibition of smaller, pain afferent fibers. Activity in the second-order neuron of the pain pathway can thus be modified by activity in other somatosensory pathways. Affective, cognitive and motivational input is thought to originate in the brain and influence the gating mechanism via descending pathways (Melzack & Wall, 1983).

Many studies have failed to support the gate control theory (Hoffert, 1986; Kelly, 1981; Nathan, 1976; Strassburg, Krainick & Thoden, 1977). However a great flurry of research activity was stimulated and the conceptual, multidimensional view posited underscored the contributions of perceptual as well as sensory factors in the phenomenon of pain (Turk & Rudy, 1986).

Fordyce (1976) recently brought renewed emphasis to the inclusion of learning, behavior and motivation in pain theory with his proposed operant conditioning model. According to Fordyce, behavioral manifestations of pain are subject to reinforcement and may be maintained by the responses they elicit from others, even in the absence of nociceptive stimulation. The operant conditioning model contributes especially to a possible explanation of chronic benign pain. Its unidimensional approach however, limits its applicability (Grzesiak & Perrine, 1987).
Finally, Turk, Meichenbaum and Genest (1983) have developed a cognitive-behavioral model that incorporates sensory, affective, cognitive and behavioral factors in the phenomenon of pain. According to the cognitive-behavioral model, "...it is the patient's perspective that interacts reciprocally with emotional factors, sensory phenomena, and behavioral responses" (Turk & Rudy, 1986, p. 762). Pain is described as a complex, multidimensional, perceptual phenomenon that is a dynamic, interpretive process. The model is described as noncausal in that it is transactional, reciprocal or synergistic in nature. Turk and Rudy (1986) point out that empirical tests are yet to be completed.

With the discovery of endorphins and their receptors, the ability of the body to modulate pain was emphasized (Collins, 1987). Endogenous opiate systems have some role to play in the modulation of pain but other neurotransmitters have been identified as significant in these systems as well. Pain blocking systems in supraspinal sites cause descending messages to pass down through the spinal cord and through the actions of endogenous opiates, serotonin or norepinephrine, block any further ascending pain messages at the spinal level (Fields & Basbaum, 1978). The neurotransmitter substance P is suspected to be responsible for the transmission of pain signals carried by sensory nerves to the spinal cord and brain. Endorphins may produce their
analgesic effects by suppressing the release of substance P in the spinal cord (Daube, Reagan, Sandok, & Westmoreland, 1986).

**Pain Definitions**

The literature is replete with varying definitions of pain. Many definitions can be theoretically linked to the specificity theory of pain which accounts for only the sensory component of pain. For example, pain is defined as a sensory experience, noxious in nature, which is evoked by stimuli that injure or threaten to destroy tissue (Cleeland, 1984; Mountcastle, 1980). Other definitions are multidimensional in nature and can be theoretically linked to the gate control theory of pain. The International Association for the Study of Pain (IASP) Subcommittee on Taxonomy published a list of pain terms in 1979. They define pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (p. 250). The NIH Consensus Development Conference (1987) definition is similar to the definition developed by IASP. However, the NIH panel also recommends that pain be classified into one of 3 categories: 1) Acute pain, 2) Chronic pain associated with malignant disease, or 3) Chronic pain not associated with malignant disease. The IOM report (1987) and the Social Security Commission report (1987) differentiate between acute and chronic pain. Chronic pain is "constant or intermittent pain lasting
for long periods of time. Six months is a commonly employed duration" (Social Security Commission of the Evaluation of Pain, 1987).

Melzack and Wall (1983) suggest that pain may be best described in terms of a multidimensional space, wherein all subjective and somatosensory experiences are accounted for. They state:

At present, we must be content with guidelines toward a definition rather than a definition itself. We must recognize that the value of any contemporary definition is heuristic—to reflect past advances and to point the direction for new attacks on the puzzle of pain. Too much remains to be learned about pain mechanisms before we can define pain with precision. (p. 71)

McCaffrey (1979) gives full recognition to the subjective nature of pain in her definition. "Pain is whatever the experiencing person says it is, existing whenever he (or she) says it does" (1979, p. 11).

The Nature of Pain

Sternbach (1984) and Bonica (1985) offer descriptive and measurable characteristics which differentiate acute from chronic pain along more than the dimension of imposed time. Contrasted to acute pain, in chronic pain a habituation of sympathetic responses occurs and vegetative signs emerge. These vegetative signs include sleep disturbance, irritability, self-seclusion, anergia and fatigue and a change in eating behaviors. Many chronic pain patients develop depression, hypochondriasis, preoccupation with the pain, and anxiety as to the meaning of the pain. Behaviors include inactivity,
polysurgery and polypharmacy. Neff (1976) reported on a study by Hendler which found that 70% of people with chronic pain get divorced and 20% attempt or contemplate suicide. Knowledge of basic mechanisms of chronic pain is meager since much of past research has been done on experimentally induced acute pain. Finally, Bonica states that chronic pain never has a biological function (such as protection in acute pain) and describes chronic pain as a "malefic force."

In 1984, the U.S. Congress mandated the Department of Health and Human Services (DHHS) to study the current government disability program in relation to its definition of pain and the criteria for determining eligibility. The Institute of Medicine (IOM) was asked to provide consultation to the DHHS commission. With the publishing of both the Commission and the IOM reports in 1987, the current status of research, theory and treatment approaches for chronic pain are summarized, data currently available are reviewed and recommendations are provided for both the management of the government disability program and chronic pain research directions (IOM, 1987; Social Security Administration Commission of the Evaluation of Pain, 1987).

The IOM Committee summarizes the complexity of the phenomenon of pain and describes the imperfect correlations between the perception of pain and physiological nociceptive activity. "Although it is possible to identify
neural activity that ordinarily causes pain, there can also be pain without any neural activity; conversely, there can be activity in the primary afferent nociceptors without pain" (1987, p. 304). They posit that psychosocial factors may be primary to physiological change.

The IOM Committee structured its discussion of chronic pain within the framework of illness behavior (Mechanic, 1978) which provides a theoretical structure inclusive of the contributions of psychological, social and cultural factors of disease. Pain is viewed in dynamic terms, as a process of complex perception involving higher levels of the central nervous system, emotional states and higher order mental processes. Pain is a highly variable experience and how it manifests in an individual depends on a complex interaction among numerous factors including past experience, personality and coping styles. Factors found to be associated with chronic pain include depression, hypochondriasis and substance abuse. As a clinical problem, chronic pain is often resistant to medical diagnosis and treatment and is elusive and intractable in its measurement and management.

In 1987, the National Institutes of Health (NIH) convened a consensus conference in an effort to resolve some of the questions surrounding the integration of approaches to pain management (NIH Consensus Development Conference, 1987). Chaired by Copp (1974, 1985a, 1985b), this interdisciplinary and lay panel proposed recommendations for pain assessment,
interventions to be used in an integrated approach, the role of the nurse, and
directions for research. This group concurs with the IOM Committee that the
epidemiological data base reflecting the magnitude of the problem of pain is
fragmented and inadequate. There were other areas of agreement in these
two documents as well. The NIH panel agreed important factors to include in
the assessment of pain are location, intensity, temporal aspects, quality, impact
and meaning. Also important in pain assessment are the psychosocial,
economic and cultural contexts of the individual which influence the meaning,
experience and expression of pain. Depression is identified as an important
factor among chronic pain patients. The NIH panel emphasized the
importance, complexity and multidimensional nature of the phenomenon of
pain.

The IOM found only 17 studies in a literature review including the
United States, Canada and Western Europe which described the occurrence of
pain in general and specific population groups. Fifteen of the 17 studies
examined only the most common chronic pain problem-low back pain.
Comparisons of these cross-sectional epidemiological surveys are difficult
because of differences in operational definitions of chronic pain, measures of
its severity and sampling frameworks. The IOM committee substantiated the
fact that there is little valid information available on the nature and extent of
the problem of chronic pain which affects a large number of people.
Crook, Rideout and Browne (1984) conducted an analytic survey of 500 randomly selected households on the roster of a group family practice clinic in Burlington, Ontario. The prevalence rate for persistent pain was 24% among families surveyed. Temporary pain prevalence was 12% and an additional 7% of families yielded a member who was often bothered by pain but had not experienced pain within 2 weeks preceding the survey. Respondents indicating the presence of pain in the first 2 groups were personally interviewed. Three groups (no pain, persistent pain, temporary pain) were compared with regard to the demographic variables of age, sex, employment and marital status. Those in the persistent pain group were older, and more apt to be retired and widowed than those in the no pain group. Age-specific rates increased with age. For example, the persistent pain rate in the 31-40 year old group was 105 per 1000 population compared with a rate of 290 per 1000 population in the 71-80 age group. More females report both persistent and temporary pain than males.

Pain location was most commonly classified as musculo-skeletal, cephalgia and abdominal, accounting for 70% of the temporary pain group complaints and 86% of the persistent pain group. Most respondents with pain (68-69%) reported the pain was of unknown or spontaneous origin. The persistent group utilized more health care services both in terms of visits to health professionals and hospital days than did the temporary group. A high
percentage of both the temporary and persistent groups (60% and 69% respectively) reported taking medications. The only significant difference in overall functional status between the persistent and temporary groups was on "general health today" in which more of the persistent group noted their general health today as "not so good".

Another Canadian study (Roy & Thomas, 1987) examined the prevalence of pain problems in healthy elderly compared with elderly without pain. The convenience sample was randomly drawn from members of the Age and Opportunity Center in Winnipeg (a social and recreational program). Of the 205 subjects surveyed, 143 (69.75%) reported pain complaints. This group was comprised of 83% women and 17% men. Sixty-two subjects reported no pain with 81% of this group women and 19% men. When the sociodemographic characteristics of age, sex, marital status, education, living arrangements and activity (both social and physical/recreational) were compared for the pain and no-pain groups, no statistically significant differences emerged. The authors conclude that pain is common in the elderly. Few individuals viewed pain as a major issue in their lives, rather it was "just a matter of accepting the fact of aging" (p. 105). The authors also observe that in this select group of healthy elderly the ability to cope well with pain is associated with membership in the Age and Opportunity Center and this group's high level of social integration.
One study with a national sample conducted in the United States, the Nuprin Pain Report, has been completed (Louis Harris, 1985 in IOM, 1987). The sample consisted of 1,254 individuals over the age of 18. Telephone interviews were conducted to determine the prevalence of types of chronic pain and sick days related to the problem. Chronic pain was defined in the Nuprin Report as pain present for more than 30 days in the last 12 months. The most common types of pain reported were backaches (13.9%), joint pain (13.8%), headaches (13.3%), muscle pains (9.9%), stomach pains (4.0%), premenstrual or menstrual pain (3.7% of women), dental pain (1.9%), and "other" (2%).

Research on emotional, psychological, and cognitive variables have found support for these factors as a fundamental component of pain, a consequence of pain, a cause of pain and as a concurrent problem (Craig, 1984; IOM, 1987; Johnson, 1972; Meinhart & McCaffery, 1983; Melzack & Wall, 1983; Mersky, 1986). Lack of longitudinal prospective cohort studies may be responsible for some of this conceptual confusion in determining causal relations among variables (IOM, 1987).

Depression has been found to be associated with chronic pain in 10-87% of pain patients (Romano & Turner, 1985). Often these studies fail to distinguish between depressive symptoms and diagnosable major depression and different instruments with varying sensitivity and specificity are used to
measure depression (IOM, 1987). The difficulty is compounded because the
degree and type of depressive symptoms varies among chronic pain patients.
France (1987) observes that "It appears unlikely that there is a simple
psychopathological process explaining the occurrence of depression in chronic
pain patients since different subtypes of depression and various degrees of
depressive symptoms occur in these patients" (p. 235). While chronic
pain and depression are neither necessary nor sufficient conditions to each
other in the chronic pain and depression populations, in many cases the two
phenomena do coexist, at least in some degree. However, Romano and
Turner (1985) point out that due to the lack of controlled studies, it cannot be
concluded that syndromal depression is more common among chronic pain
patients than other chronic medical populations or healthy controls.

Abnormally high scores on the hypochondriasis and hysteria subscales
of the Minnesota Multiphasic Personality Inventory (MMPI) have been found
in chronic low back pain patients (Chapman & Brena, 1982; Southwick &
White, 1983; Trief & Stein, 1985). Southwick and White (1983) have
identified a composite psychological profile for chronic low back pain patients.
They are described as extroverted, demanding, somatically preoccupied,
dependent, anxious, and feeling inadequate and inferior. Dependency was
also found in chronic pain patients by Whittington (1985), Blumer and
The affective component of pain is assessed by the McGill Pain Questionnaire (Melzack, 1975). The major factors assessed by this instrument have been found to vary by pain syndromes but relationships are unclear. Craig (1984) has reviewed the research in this area and results from these studies do not reveal data that would be expected, in some cases, nor can one predict with confidence differences in affective score among pain patients of varying types based on these studies. For example, Melzack (1975) found no differences on affective scores between subjects experiencing pain due to cancer and those with menstrual pain. High intensity chronic low back pain and cancer pain were both found to be associated with high affective loadings (Kremer, Atkinson, & Igenlzi, 1982). Reading and Newton (1979) and Hunter and Philips (1981) found differences in the expected directions among their study populations on the affective dimension. Equivocal findings of the studies comparing differences in the affective dimension of pain as measured by the McGill Pain Questionnaire do not allow for the drawing of any firm conclusions on the relationship of affect to type of pain.

Several studies (Heaton et al., 1982; Roberts & Reinhardt, 1980; Woodforde & Merskey, 1971) have demonstrated that despite the presence or absence of physical findings indicating organic pathology, psychosocial factors that exacerbate and maintain chronic pain problems, for example secondary gains from sick role behavior, are present. Pain expression and coping styles
are influenced by personality, familial and ethnocultural factors (Copp, 1985a, 1985b; Craig, 1984; Jacox & Stewart, 1973; Zborowski, 1952, 1969) as well as past experience (Geach, 1987; Meinhardt & McCaffery, 1983).

Few chronic pain intervention studies employing a unitary perspective have been completed. McDonald (1981, 1982) used Rogers’ conceptual framework to design an experimental study which tested different colors of light (varying from lower to higher frequency) for pain relief. McDonald hypothesized that blue light (higher frequency light waves) would reduce pain because this frequency is conceived to be more harmonious with pain, which was postulated to be an experience characterized by higher frequency human field pattern. She reported that the hypothesis was supported in the predicted direction ($p = .098$). This significance level may be considered significant for an exploratory study. McDonald reports that reduction of pain increased with the amount of time the subjects were exposed to the blue light and recommends that future studies should increase treatment time from 15 minutes to a minimum of 30 minutes. Another significant finding in this study was that it was not necessary for subjects to see the lightwaves in order to be influenced by them.

Findings of this study are supportive of the utility of an approach to pain relief utilizing a field pattern perspective (Rogers, 1970, 1980, 1983, 1986, 1990). McDonald deductively derived a practical pain-relief method from
Rogers' conceptual model. McDonald began exploration of the nature of pain as a manifestation of field pattern. Her suggestions for future research support the need for further explication of the phenomenon along this venue.

Hamm and King (1984) describe a holistic conceptual framework for a study testing visual imagery for effectiveness in pain relief. A volunteer sample of elderly women with chronic pain (N=30) were randomly assigned to the treatment or control group. Imagery techniques employed for the treatment group included those used to produce time distortions and glove anesthesia. The subjects were followed for a 3 month period to determine pain level as measured by Visual Analogue Scales. Groups were comparable in age and physical health. Although scores on pain were similar one week after the treatment was implemented, by week 13 the mean score for the treatment group had changed from the initial level of 92.6 to 11.9, while the control group score changed from 93.2 to 81.9.

Further research and stronger conceptual linkages are needed, but the results of these two exploratory studies provide beginning evidence of the utility of an approach to pain relief utilizing a field pattern perspective (Rogers, 1970, 1980, 1983, 1986).

Summary

Many questions relating to the genesis and trajectory of pain remain unanswered. Collins (1987) in his review of recent research on physiological
mechanisms observes that "...we are truly only seeing the tip of the iceberg" (p. 40). Cerebral mechanisms involving the production of sensation or the perception of pain are not well understood including possible correlates of affective components of pain. The search for a theoretical perspective with the potential to take into account the increasingly recognized multidimensional nature of pain is paramount (Cassel, 1987; Chapman, 1987). Although advances have been made in the management and relief of acute pain, the importance of the continued search for a theoretical perspective with more explanatory and predictive power is underscored by the fact that only 50% of chronic pain patients have adequate reduction of pain as a function of the current approaches available (Toomey, Ghia, Mao & Gregg, 1977). A more recent estimate of 60-85% success rate in pain programs (Seres, 1987) reflects improvement in effectiveness of approaches but a wide range of variability remains in treatment effectiveness.

As Bonica (1985) has pointed out, knowledge of basic mechanisms of chronic pain is meager. Research in the laboratory setting has focused primarily on pain threshold and tolerance in relation to treatment groups such as pain information, past experience and imagery ability (Bowers, 1968; Geach, 1983; Johnson, 1972, 1973; Johnson & Rice, 1974; Staub & Kellet, 1972). These studies have contributed to the understanding of pain but can only reveal information generalizable to similar conditions (Kim, 1980).
Taylor's (1987) recent review of nursing literature on pain expresses frustration over the number of nonproductive studies and laments the lack of sufficient conceptual documentation of and explanation for the selection of treatment conditions. Further, the nursing literature discusses the need for development of a nursing care theory of pain to guide practice (Feldman, 1984; Kim, 1980) and for conceptual clarity in defining the phenomenon of concern and operationalization of salient variables in the conduct of theory-based research (Geach, 1987; Jacox, 1977; McGuire, 1984; Whipple, 1987).

Of necessity, the phenomenon of pain must be defined within the discipline's conceptual structure, with subsequent theory derivation or formulation before a nursing care theory of pain can be developed. If the definition of chronic pain as pattern manifestation is supported in this study, we can then begin to probe more deeply for what this means in the lives of those with chronic pain. A theory of pain as pattern manifestation could then be formulated and empirically tested, which may subsequently lead to advances in the treatment of chronic pain.

Recent studies have revealed support of Rogers' conceptual framework (Barrett, 1983; Cowling, 1983; Ference, 1979; Floyd, 1983; Gueldner, 1986; Ludomirsky, 1984; Macrae, 1982; McDonald, 1981; Quinn, 1984). Pain studies within this perspective, however, have been limited (McDonald, 1981).
Support for the unitary nature of human-environment relationships could add to the body of knowledge of chronic pain. Use of this perspective in chronic pain programs may offer new hope to those with chronic pain. The science of unitary human beings is non-reductionistic, that is, there is no separation of body, mind, and spirit, and furthermore, person and environment are integral with one another. Rogers observes that the capacity to experience oneself and the world and to make sense out of one's experience is an emergent of the life process (1970).

To give full credence to these ideas in the clinical setting would call for redesigning programs to add careful observations of the unique person-environment patterning process as well as personal beliefs and recurring thoughts and feelings. This type of approach would also elevate the position of the "patient" within the health care team to one of active partner, an empowering strategy in itself. Persons with pain are the key informants and expert in matters of their own unique patterning process.

For a problem as extensive as chronic pain, the application of a paradigm with high potential explanatory power and a beginning, though sound, empirical base seems expeditious. Basic research of the nature proposed in this study is necessary in order to build a firm theoretical base from which future studies may be developed and by which the ability of nursing science to explain and predict may be extended.
Chapter III
Methodology

Design

This study employed a descriptive exploratory research design. Two groups were compared on the two variables of interest, human field motion and power. Relationships between groups on the patterning variables were explored. Within groups, the relationship of human field motion and power was explored, as well as relationships of related variables to the patterning measures. Finally, a secondary analysis was undertaken to compare combined effects of group membership and relationships found among patterning and background variables. The research questions are:

1. Is there a difference in human field motion between a group experiencing chronic pain and a group without chronic pain?

2. Is there a difference in power between a group experiencing chronic pain and a group without chronic pain?

3. What is the relationship of human field motion and power of the group experiencing chronic pain?

4. What is the relationship of human field motion and power of the group without chronic pain?
Sample Size

Power, effect size and significance level are used to determine sample size (Volicer, 1984). In this power analysis a relatively small effect size (.35) was selected since this is a new area of research. For a power level of .80 (.20 allowance for the probability of rejection of the null hypothesis when it is false) and a statistical significance level of .05 the recommended sample size for a two-tailed $t$-test is 108 (Cohen, 1977). The $t$-test power analysis tables were used to estimate sample size for this study since no tables for power analysis of multivariate techniques used in this study (multivariate analysis of variance) were available. To allow for possible attrition of subjects during data collection, a sample size of 115 for each group was recruited.

Sample

The population for this study was limited to men and women ages 18-65 who could read and write English and had a minimum of a high school education. Differences have been found by education levels after age 60 on semantic differential scale-checking (Drevenstedt, 1975).

The convenience sample consisted of a total of 226 individuals or 113 pairs of subjects belonging to either the chronic pain or the comparison group. The subjects were matched on age, gender, race and geographic location.
In order to achieve the sample size indicated by the power analysis and to be able to meet the requirements of the four matching variables, a total of 141 individuals with chronic pain and 158 individuals without chronic pain were recruited into the study. The matched sample of 113 pairs of subjects was drawn from the larger sample.

Subjects in the chronic pain group consisted of individuals recruited from inpatient chronic pain programs (Appendix A and B), outpatient programs, and private practice settings. Membership in the chronic pain group was self-defined according to specific pain criteria and entrance into the health care system for the purpose of seeking assistance with the problem of chronic pain. In order to recruit an adequate number of subjects, additional chronic pain programs were contacted to solicit patients’ participation as data collection proceeded.

The initial inclusion criteria on pain severity were established in order to maximize differences between groups. The inclusion criteria was comprised of pain severity (4 or greater on a scale of 1 to 6), pain frequency (2 or greater on a scale of 1 to 4), and pain duration of 6 months or longer. As data were collected, it was apparent that many of the chronic pain subjects were indicating their pain severity to be at level 3 (moderate). After 6 months of data collection, t-tests were performed to determine if significant differences existed within the chronic pain group for Human Field Motion
(HFM) and Power as Knowing Participation in Change (PKPC) by pain severity (Table 2). No significant differences were found. The inclusion criteria were reframed to include all subjects with pain duration of greater than 6 months, regardless of level of severity.

A similar analysis was performed after data collection was completed on the total pain sample (N = 137). Differences on HFM and PKPC were not significant, reinforcing the earlier decision to broaden the inclusion criteria for the chronic pain group.

A final inclusion criterion that was modified for the chronic pain group was the length of treatment for chronic pain. Original inclusion criteria specified that the patient be new to the treatment program or practitioner. It was reasoned that a person new to treatment might be in more distress than

Table 2

Differences on Pattern Tests by Pain Severity (N = 90)

<table>
<thead>
<tr>
<th>Pain Score</th>
<th>Test</th>
<th>N</th>
<th>Pattern Mean</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>HFM</td>
<td>37</td>
<td>90.0</td>
<td>1.1</td>
</tr>
<tr>
<td>4 - 6</td>
<td>HFM</td>
<td>63</td>
<td>85.2</td>
<td>1.1</td>
</tr>
<tr>
<td>1 - 3</td>
<td>PKPC</td>
<td>37</td>
<td>255.8</td>
<td>1.0</td>
</tr>
<tr>
<td>4 - 6</td>
<td>PKPC</td>
<td>63</td>
<td>244.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>
one already under treatment for some time. After data collection had been underway for several months, questionnaires were coded as data were collected to indicate a new or returning patient. These data are therefore incomplete. However, t-tests performed (N = 83) revealed no significant differences whether a patient was new to treatment or returning on HFM and PKPC scores ($t = .44$, $p = .65$ and $t = .67$, $p = .50$, respectively).

In summary, the inclusion criteria for the chronic pain matched sample were changed. The inclusion criteria became duration of chronic pain (6 months or longer) and the status of active treatment within the health care system for chronic pain.

Subjects in the comparison group without chronic pain were recruited from civic, social or special interest community groups with the expectation that many members of such groups would not be experiencing chronic pain. Subjects in the comparison group were matched on the variables of age, sex, race, and city of residence with the chronic pain group to control for differences between groups that may be accounted for by these factors.

**Demographic characteristics.** Pain subjects and matched controls were recruited from the geographic locations of San Francisco (N = 106), Phoenix (N = 110), and Cleveland (N = 10). Subjects were age matched within a 5 year range, with the majority (81.4%) matched within 3 years (Table 3). The age range was 19-65 with a mean of 38.9 years of age (SD = 10.58). Most of
the sample were Caucasian (96.6%), with Hispanics and Blacks comprising the remainder of the sample (2.7% and .9% respectively). Sixty-one percent of the sample were women. Demographic characteristics are presented in Table 3.

Table 3

**Matched Sample Demographic Information**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chronic Pain Frequency</th>
<th>Chronic Pain Percent</th>
<th>Comparison Frequency</th>
<th>Comparison Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-29</td>
<td>27</td>
<td>23.9</td>
<td>20</td>
<td>17.7</td>
</tr>
<tr>
<td>30-39</td>
<td>37</td>
<td>32.7</td>
<td>36</td>
<td>31.9</td>
</tr>
<tr>
<td>40-49</td>
<td>31</td>
<td>27.5</td>
<td>35</td>
<td>30.9</td>
</tr>
<tr>
<td>50-59</td>
<td>14</td>
<td>12.4</td>
<td>18</td>
<td>16.0</td>
</tr>
<tr>
<td>60-65</td>
<td>4</td>
<td>3.5</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>20</td>
<td>17.7</td>
<td>31</td>
<td>27.4</td>
</tr>
<tr>
<td>married</td>
<td>67</td>
<td>59.3</td>
<td>61</td>
<td>54.0</td>
</tr>
<tr>
<td>widowed</td>
<td>1</td>
<td>.9</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>divorced</td>
<td>21</td>
<td>18.6</td>
<td>20</td>
<td>17.7</td>
</tr>
<tr>
<td>separated</td>
<td>4</td>
<td>3.5</td>
<td>1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Table continues
Table 3 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chronic Pain</th>
<th></th>
<th>Comparison</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>high school</td>
<td>37</td>
<td>32.7</td>
<td>13</td>
<td>11.5</td>
</tr>
<tr>
<td>part. college/voc. training</td>
<td>37</td>
<td>32.7</td>
<td>22</td>
<td>19.5</td>
</tr>
<tr>
<td>college grad</td>
<td>26</td>
<td>23.0</td>
<td>44</td>
<td>38.9</td>
</tr>
<tr>
<td>grad degree</td>
<td>11</td>
<td>9.7</td>
<td>34</td>
<td>30.1</td>
</tr>
<tr>
<td>missing</td>
<td>2</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>full time</td>
<td>43</td>
<td>38.0</td>
<td>88</td>
<td>77.8</td>
</tr>
<tr>
<td>part time</td>
<td>6</td>
<td>5.3</td>
<td>13</td>
<td>11.5</td>
</tr>
<tr>
<td>homemaker</td>
<td>15</td>
<td>13.3</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>student</td>
<td>3</td>
<td>2.6</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>retired</td>
<td>5</td>
<td>4.4</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>disabled/unemployed</td>
<td>41</td>
<td>36.3</td>
<td>2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Table continues
Table 3 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chronic Pain Frequency</th>
<th>Chronic Pain Percent</th>
<th>Comparison Frequency</th>
<th>Comparison Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>menial sx</td>
<td>1</td>
<td>1.3</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>unskilled</td>
<td>2</td>
<td>2.6</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>semiskilled</td>
<td>6</td>
<td>7.9</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>skilled manual</td>
<td>21</td>
<td>27.6</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>clerical</td>
<td>9</td>
<td>11.8</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td>technicians</td>
<td>16</td>
<td>21.1</td>
<td>33</td>
<td>34.4</td>
</tr>
<tr>
<td>managers</td>
<td>13</td>
<td>17.1</td>
<td>29</td>
<td>30.2</td>
</tr>
<tr>
<td>administrators</td>
<td>6</td>
<td>7.9</td>
<td>11</td>
<td>11.5</td>
</tr>
<tr>
<td>higher exec.</td>
<td>2</td>
<td>2.6</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>missing</td>
<td>37</td>
<td>--</td>
<td>17</td>
<td>--</td>
</tr>
</tbody>
</table>

The matched sample was predominantly female (61%), white (96.5%), and age 19-49 (80%). Marital status was similar in both groups with the status of "married" most prevalent.

Employment status and occupation differed significantly between groups. Full or part-time employment was indicated by 43.3% of the chronic
pain group and 89.3% of the comparison group. Forty-one of the chronic pain group (36.3%) said they were disabled or unemployed while only 2 (1.8%) of the comparison group did. Occupational categories (Hollingshead, 1975) between the two groups differed with higher status occupations more frequent in the comparison group than in the chronic pain group.

Educational level also differed between the two groups. The majority of the chronic pain group had completed high school or partial college/vocational training (65.4%) while the majority of the comparison group had completed college or graduate school (69%).

Pain characteristics. Although the study inclusion criteria were broadened for the chronic pain group, the description of the nature of their pain experience reveals significant severity (Table 4).

This group of chronic pain patients experienced a mean pain severity level for the past month of 4.1 (SD = .76) on a scale of 1 to 6. At the time of completing the questionnaire the mean pain severity level was 3.7 (SD = .91). Almost 50% of this group had experienced chronic pain for longer than 3 years with 82.3% in pain most or all of the time. Average time spent resting or laying down during the day (down time) was 2.8 hours with 32.8% spending 5 - 12 hours in down time each day. The most frequently reported location of pain was the back or back and leg(s) (68.1%). Accidents accounted for the precipitating event of pain for 73.6% of the pain group, with work and auto accidents
Table 4

**Chronic Pain Characteristics (N = 113)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain level now</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>mild</td>
<td>8</td>
<td>7.1</td>
</tr>
<tr>
<td>moderate</td>
<td>36</td>
<td>31.9</td>
</tr>
<tr>
<td>quite a bit</td>
<td>46</td>
<td>40.7</td>
</tr>
<tr>
<td>very bad</td>
<td>21</td>
<td>18.6</td>
</tr>
<tr>
<td>unbearable</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Pain level average</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>mild</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>moderate</td>
<td>18</td>
<td>15.9</td>
</tr>
<tr>
<td>quite a bit</td>
<td>61</td>
<td>54.0</td>
</tr>
<tr>
<td>very bad</td>
<td>29</td>
<td>25.7</td>
</tr>
<tr>
<td>unbearable</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Length of pain history</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 6 mo</td>
<td>0</td>
<td>--</td>
</tr>
</tbody>
</table>

Table continues
Table 4 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of pain history</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 12 mo</td>
<td>20</td>
<td>17.9</td>
</tr>
<tr>
<td>1 - 3 yr</td>
<td>37</td>
<td>33.0</td>
</tr>
<tr>
<td>&gt; 3 yr</td>
<td>55</td>
<td>49.1</td>
</tr>
<tr>
<td>missing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Pain frequency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>some of the time</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>a good bit of the time</td>
<td>17</td>
<td>15.0</td>
</tr>
<tr>
<td>most of the time</td>
<td>47</td>
<td>41.6</td>
</tr>
<tr>
<td>all of the time</td>
<td>46</td>
<td>40.7</td>
</tr>
<tr>
<td><strong>Length of pain attack</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>seconds and minutes</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>hours</td>
<td>9</td>
<td>8.8</td>
</tr>
<tr>
<td>days</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>constant</td>
<td>64</td>
<td>62.7</td>
</tr>
<tr>
<td>variable</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>missing</td>
<td>11</td>
<td>-</td>
</tr>
</tbody>
</table>

Table continues
Table 4 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Down time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 1 hr/day</td>
<td>37</td>
<td>34.4</td>
</tr>
<tr>
<td>2 - 4 hr/day</td>
<td>35</td>
<td>32.8</td>
</tr>
<tr>
<td>5 - 12 hr/day</td>
<td>35</td>
<td>32.8</td>
</tr>
<tr>
<td>missing</td>
<td>6</td>
<td>--</td>
</tr>
<tr>
<td><strong>Pain location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>back</td>
<td>38</td>
<td>34.8</td>
</tr>
<tr>
<td>back and leg(s)</td>
<td>36</td>
<td>33.3</td>
</tr>
<tr>
<td>head, neck &amp;/or shoulder</td>
<td>28</td>
<td>25.6</td>
</tr>
<tr>
<td>multiple sites</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>other</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>missing</td>
<td>4</td>
<td>--</td>
</tr>
<tr>
<td><strong>Precipitating event</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work accident</td>
<td>45</td>
<td>40.9</td>
</tr>
<tr>
<td>auto accident</td>
<td>23</td>
<td>20.9</td>
</tr>
<tr>
<td>no apparent reason</td>
<td>17</td>
<td>15.4</td>
</tr>
<tr>
<td>home accident</td>
<td>8</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Table continues
Table 4 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitating event</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sports accident</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>post surg/illness</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>other</td>
<td>8</td>
<td>7.3</td>
</tr>
<tr>
<td>missing</td>
<td>3</td>
<td>--</td>
</tr>
</tbody>
</table>

most prevalent. Most chronic pain subjects were not currently involved in a lawsuit related to their pain (70.5%) and were not receiving compensation related to their pain (68%).

Several pain related questions were also asked of the comparison group study participants (Table 5). None of the comparison group had chronic pain by definition of membership to this group. However, 27 (23.8%) of the comparison group indicated they were in pain at the time they completed the questionnaire and 34 (30.1%) indicated they had experienced pain within the last day. Chronic pain was present in an immediate family member for 27 (23.9%) of the comparison group.
Table 5

**Comparison Group Pain Related Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain last day</td>
<td>34</td>
<td>30.1</td>
</tr>
<tr>
<td>Pain now</td>
<td>27</td>
<td>23.8</td>
</tr>
<tr>
<td>Pain level now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>84</td>
<td>74.4</td>
</tr>
<tr>
<td>mild</td>
<td>20</td>
<td>19.3</td>
</tr>
<tr>
<td>moderate</td>
<td>6</td>
<td>6.4</td>
</tr>
<tr>
<td>quite a bit</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>severe</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>unbearable</td>
<td>0</td>
<td>--</td>
</tr>
</tbody>
</table>

Pain medications were surveyed in detail for the pain group. However, most of the data were incomplete, with dosage of medication the most frequently missing information. The majority of the pain group were currently taking 2 or less medications (72.6%) with 19.5% indicating no current medications. Within the comparison group 79 (70.5%) were currently taking no medications with 29 (25.9%) taking 1-2 medications.
In summary, the paired sample was matched on age, sex, race and geographic location. The sample was predominantly white with 61% female and 80% less than 50 years old. The groups were similar with respect to marital status but differed significantly on education, occupation and employment.

**Instrumentation**

**Human Field Motion Test.** Human field motion is "experiential, multidimensional position" (Ference, 1979, 1986a), the feeling and connotative meaning of the motion of an individual's field pattern process. It is an index of unitary human development that manifests the continuously moving position and flow of human field pattern (Barrett, 1983).

The Human Field Motion Test (Ference, 1979) (HFMT) is comprised of 20 semantic differential scales of which 17 are used in score analysis. Eleven scales are rated on the concept "my motor is running" and 9 are rated on the concept "my field expansion." Two of the scales are included for retest purposes and 1 is included for balance (Appendix C).

Ference (1979) used methodological theory and expert judges to establish validity of the tool. Twenty-three bipolar descriptors were selected from the original factor analysis done by Osgood and Suci (1955) in the development of the semantic differential tool. Nine descriptors associated with lower and higher wave frequency within Rogers' conceptual framework
were added. A panel of 5 expert judges assessed the validity and direction of the bipolar descriptors. Forty-three subjects then participated in a pilot study by rating three concepts against the 32 scales. Two concepts and 16 scales were selected as a measure of human field motion based on low correlations between scales, internal consistency of the scales by concept and retest reliability by concept. Factorial validity was confirmed when, by factor analysis of the Human Field Motion Tool the 3 expected dimensions originally described by Osgood (1955), activity, potency and evaluation, emerged.

In the pilot study of 43 subjects the part-whole correlations for all Human Field Motion scales exceeded .59. Part-whole correlations in the actual study (N=213) were .50 or greater except for the hazy-clear scale which correlated .36. All scales rated on the concept of "my motor is running" had part-whole correlations greater than .63. Retest reliability was .70 on the pragmatic-visionary scale rated on the concept "my motor is running."

Ference reports reliability coefficients average .70 to .87 in studies that have been completed using this tool (Ference, 1986b).

Reliability tests in completed studies have supported the stability of the HFMT. Gueldner (1983) reports Cronbach-alpha reliability coefficient of .76 for the "motor running" scale, .74 for the "field expansion" scale, and .84 overall. Ludomirski (1984) calculated Cronbach-alpha reliability coefficients on HFMT for experimental groups and reports results of .94, .95, .86, and .90
(n=100). In work currently proceeding to validate a picture form of the HFMT, Gueldner and Ference (1988) report Spearman-Brown split half reliabilities for the word form as .892/.917 (N=278). Conner (1986) reports reliability data on a sample of 414 subjects in somewhat greater detail. Cronbach-alpha for the HFMT was .91. Correlation between "motor running" and "field expansion" scales yielded a Guttman split-half coefficient of .74. Retest reliability for the "motor running" and "field expansion" scales were .86 and .90, respectively.

Each scale of the Human Field Motion Test (HFMT) has a value of 1 to 7 in the direction of lower to higher frequency pattern manifestation. The HFMT score for each subject is obtained by adding the scores from the scales. The total score range is 17-119. Higher scores indicate higher frequency human field motion than lower scores.

Some subjects have reported difficulties in understanding the meaning of the HFMT (Butcher, 1986; Gueldner, 1983; Macrae, 1984). Therefore, a brief explanation of the construct was included in the administration of the HFMT in this study (Appendix C). In addition, as an indicator of construct validity one question was added at the end of the test to ask subjects where they think they fall in relation to this index of field pattering, that is, motion experienced as slow, motion experienced as fast, motion experienced as continuous (Appendix D).
Power as Knowing Participation in Change Test. The Power as Knowing Participation in Change Test (PKPCT) (Barrett, 1983) measures an individual's capacity to knowingly participate in change (Appendix E). The instrument is structured in a semantic differential style and consists of four concepts, three contexts and 12 scales. The concepts are different field behaviors that characterize power: awareness, choices, freedom to act intentionally and involvement in creating changes. Version I of the tool includes contexts representing the human and environmental fields as "myself", "my family" and "my occupation." The concepts are rated in relation to these contexts. The scales are bipolar adjectives describing the field behaviors that characterize power. One scale appears twice for each concept constituting retest reliability items.

Initially, to establish face validity two judges' studies were conducted. Following suggested revisions, a pilot study (N=267) was conducted with a volunteer, national sample. Construct validity of the scales was established by the loadings of the scales on factors that emerged which supported Barrett's conceptualizations (1983). Coefficients of stability on the retest items ranged from .57 to .90.

In the final study (N=625), reliabilities of the concepts are reported as variances of the factor scores obtained for the first factor when data from the four concepts-contexts were merged into a single factor analysis. These
variances ranged from .63 to .99. The coefficients of stability for the retest items ranged from .70 to .78.

Construct validity was again supported by the loadings of scales in factor analysis (Barrett, 1983). In both the pilot and final study the subjects did not substantially differentiate among the indices of the human and environmental fields as measured by the contexts "myself", "my family", or "my occupation". Congruence coefficients ranged from .86 to .98. This finding supports Rogers' notion that the human and environmental fields are integral with one another and that power generalizes across contexts.

This study utilized Version II of the PKPCT (Barrett, personal communication, February 6, 1988; Trangenstein, personal communication, January 28, 1988) which omits the contexts of "myself", "my family" and "my occupation." Trangenstein (1988) reports Cronbach alpha reliabilities for PKPCT Version II as .86 (awareness), .88 (choices), .89 (freedom to act intentionally), .92 (involvement in creating change) and .96 (total PKPCT). Coefficients of stability for test-retest reliability were .75 (awareness), .80 (choices), .72 (freedom to act intentionally) and .68 (involvement in creating change).

Each scale of the PKPCT has a value of 1 to 7 in the direction of lower to higher frequency pattern manifestation. The PKPCT score for each
subject is obtained by adding the scores from each scale. The total score range is 48-336.

**Pain and related variables.** Background information was collected on demographic variables and lifestyle (Appendix H and I). Questions relating to lifestyle included were those which have been associated with the proposed indices of pattern and include questions such as those relating to sleep, dreams, meditation, and peak experiences. Other data collected, revealed as important variables by the pain literature review, included race and occupation.

For the chronic pain group, questions relating to pain included items to assess the nature and degree of pain. Data collected included location, history, impact (such as compensation, litigation, employment status), and pain medication prescriptions.

The group without chronic pain was questioned to document the absence of chronic pain in self or immediate family member. Also the presence of acute pain at the time of data collection was determined.

**Data Collection**

Data collection took place within the setting of the private health care practitioners or pain program offices. The instruments were individually self-administered after an introduction and instructions were given by the researcher, or a trained staff member of the given setting. The researcher or
research assistant was present while the subject completed the tests. The instruments took 30 minutes or less to complete.

Subjects in the group without chronic pain were recruited from community groups and public gathering places. After an introduction and explanation of the study, control group subjects were encouraged to complete the questionnaires immediately. Subjects unable to do so were given a packet containing the instruments and a postage paid return envelope. These subjects were asked to complete and return the contents within 2 weeks.

All data were treated as group data and anonymity was assured to study participants. Consent to participate in the study was completed by each subject (Appendix H) and human rights were protected by securing approval of institutional review boards and research committees as appropriate.
CHAPTER IV

Results

Study results will begin with a report of instrument reliability and validity. The research questions will then be answered followed by a description of related analyses.

Reliability of the Instruments

The internal consistency of the Human Field Motion (HFM) test was assessed for the two subscales and for the total measure using all data collected (N = 299). Alpha coefficients for the subscales were: motor running = .86 and field expansion = .93. Alpha coefficient for the total measure was .94. These results are similar to findings of other studies (Butcher, 1986; Conner, 1986; Gueldner, 1983; Ludomirski, 1984). Test-retest reliability for the two subscales in this study were: motor running = .82 and field expansion = .79. Ference (1979) reports test-retest for motor running as .77 in a pilot test and .70 in the final study (N = 213).

The internal consistency of the Power as Knowing Participation in Change test (PKPC) was assessed for each of the four subscales as well as for the total measure using all data collected (N = 299). Alpha coefficients for the four subscales were: awareness = .79, choices = .77, freedom to act intentionally = .82, and involvement in creating changes = .82. For the total
The measure of PKPC the alpha coefficient was .94, similar to Trangenstein's (1988) finding of .96 and Rizzo's (1990) finding of .94.

Coefficients of stability for test-retest reliability for the four PKPC subscales were: awareness = .72, choices = .76, freedom to act intentionally = .76 and involvement in creating change = .69 (N = 294-297). Results of these reliability tests meet standards of acceptance (Nunnally, 1978).

Validity of the Human Field Motion Test

This study provided an opportunity to further test the validity of the HFM test. Questions have been raised regarding the contemporary understanding of the concepts "My Motor is Running" and "My Field Expansion" as well as the conceptual fit of some of the adjective pairs (Butcher, 1988; Macrae, 1982). To assess the construct validity one question was added at the end of the HFM test (Appendix D) after consultation with Ference (personal communication, 1988).

Scores on the validity question ranged from 1 to 5 with higher scores indicating faster human field motion similar to the scoring direction of the original HFM test. Total score range for the HFM test is 19-119. The correlation coefficient of the HFM total score with the HFM validity question score was fairly high ($r = .60, p < .001$). Table 6 displays responses to the validity question by score and the corresponding mean raw HFM score for subjects in each of the validity question score categories.
Table 6

**HFM Validity Question Score and HFM Test Score** \((N = 296)\)

<table>
<thead>
<tr>
<th>Validity Score</th>
<th>N</th>
<th>Mean HFM Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19</td>
<td>67.9</td>
</tr>
<tr>
<td>2</td>
<td>61</td>
<td>80.8</td>
</tr>
<tr>
<td>3</td>
<td>102</td>
<td>98.0</td>
</tr>
<tr>
<td>4</td>
<td>81</td>
<td>109.5</td>
</tr>
<tr>
<td>5</td>
<td>33</td>
<td>112.5</td>
</tr>
</tbody>
</table>

Subjects were invited to comment in relation to the Human Field Motion test. Nineteen responded with remarks indicating difficulty with the HFM test. Of the 19 subjects responding, 5 were from the chronic pain group. Eight subjects specifically mentioned difficulty with understanding the meaning of "my field expansion" and five were unclear about the meaning of "my motor running." The most frequent complaint about the HFM test was the "vagueness" of the concepts, and difficulty relating adjectives to the concepts. Overall, 8% of all subjects (2% of which were in the chronic pain group) reported difficulty with understanding the HFM test. Results indicate that the pain group had less difficulty with the instrument than did the
comparison group, supporting the use of this instrument with clinical populations that may be quite ill.

Research Questions

The matching procedure for age, race and sex was employed in this study to control for possible group differences due to these characteristics as reported in the literature (Crook, Rideout, & Browne, 1984; IOM, 1987; Roy & Thomas, 1989). Another variable to consider in examining group differences is prescription medication use. When groups were compared, there were significant differences on number of medications currently being taken. An analysis of variance showed this difference to be significant (M.S. = 127.8, F = 70.72, p<.001). Drug classification and frequency are shown for the matched groups in Appendix I.

Those medications affecting the central nervous system are specifically of concern since their presence affects sensorium, which may in turn affect perceptions of patterning as measured by the HFM and PKPC tests. Fifty-four subjects in the chronic pain group reported they were currently taking pain medications that are classified as narcotic/opioids. This class of drugs produces the following central nervous system effects pertinent to this study: analgesia; sedation; drowsiness; ataxia; euphoria. The narcotic/opioid analgesics not only alleviate pain, but also alter the subjective response to pain
so that pain is less distressing or more tolerable (Malseed & Harrigan, 1989; Shlafer & Marieb, 1989).

Multivariate analysis of covariance (MANCOVA) using narcotics as a covariate or dummy variable was employed to address the concern of this potentially confounding variable. This analysis was completed prior to answering the research questions. Results revealed that after adjusting for the correlation between narcotic/opioid use and the dependent variables (scores on HFM and PKPC) the residual variability was significantly different between the chronic pain and comparison groups (Wilk’s Lambda = .76, F = 16.94, p < .001). No significant differences were found on HFM and PKPC scores between those chronic pain subjects with opioid use and those without opioid use, although results approached significance (Wilk’s Lambda = .95, F = 2.98, p = .055). Results of this MANCOVA determined that analysis of the research questions could proceed without the need to include narcotic/opioid use within the pain group as a covariate.

The research questions were answered using data from the matched chronic pain and comparison groups with N = 113 for each group. Measures of central tendency were computed for Human Field Motion (HFM) subscales of motor running (MR) and field expansion (FE) and HFM total score as well as for Power as Knowing Participation in Change (PKPC) subscales of
awareness, choices, freedom to act intentionally and involvement in creating change and PKPC total score (Table 7).

Table 7

Mean HFM and PKPC Scores (N=113 pairs)

| Variable     | Chronic Pain | | | Comparison | | |
|--------------|--------------|--------|--------|-------------|--------|
|              | Mean | SD    | Mean | SD          |
| HFM total    | 4.6  | 1.3   | 5.5  | .93         |
| HFM subscales|     |       |      |             |
| MR           | 4.6  | 1.2   | 5.4  | .93         |
| FE           | 4.7  | 1.5   | 5.8  | 1.00        |
| PKPC total   | 5.1  | .99   | 5.6  | .78         |
| PKPC subscales|    |       |      |             |
| Awareness    | 5.1  | 1.1   | 5.5  | .85         |
| Choices      | 5.2  | 1.1   | 5.6  | .92         |
| Involvement  | 5.3  | 1.2   | 5.7  | .89         |
| Freedom      | 5.1  | .94   | 5.6  | .83         |

The first 2 research questions were stated as follows:

Research Question 1. Is there a difference in Human Field Motion between a group experiencing chronic pain and a group without chronic pain?
Research Question 2. Is there a difference in Power as Knowing Participation in Change between a group experiencing chronic pain and a group without chronic pain?

Multivariate analysis of variance (MANOVA) was employed to answer the research questions 1 and 2. MANOVA is appropriate when there are two or more dependent measures and two or more comparison groups. MANOVA takes into account the intercorrelations of the dependent measures in computing the test statistic (Polit & Hungler, 1987). The total score means for HFM and PKPC were entered together as the dependent variables in the analysis to compare for differences between the independent variable of group membership, that is, the chronic pain and no chronic pain groups.

In answer to the first two research questions there is a significant difference in HFM and PKPC between the chronic pain and comparison group without chronic pain. The differences between groups on HFM and PKPC were significant with Wilk’s Lambda = .757, F = 17.77, and p<.001. Research questions 3 and 4 were asked to explore the relationship of Human Field Motion and Power as Knowing Participation in Change within each of the study groups and were stated as follows:

Research Question 3. What is the relationship of Human Field Motion and Power as Knowing Participation in Change within the group experiencing chronic pain?
Research Question 4. What is the relationship of Human Field Motion and Power as Knowing Participation in Change within the group without chronic pain?

The Pearson product-moment correlation coefficient was used to determine within each group the strength and direction of the relationship of the variables. Total scores for each of the measures was used in the computations.

The correlation coefficient for HFM and PKPC within the chronic pain group ($r = .71$) was significant ($p < .0001$). The correlation coefficient for HFM and PKPC within the comparison group ($r = .78$) was also significant ($p < .0001$).

These correlations indicate a strong positive relationship between the variables in both groups with the mean scores significantly lower for both measures in the chronic pain group. Because a strong relationship was found to exist between the variables of HFM and PKPC in both groups, a fifth research question was asked.

Research Question 5. Is there a difference in the relationship of Human Field Motion and Power as Knowing Participation in Change between the chronic pain group and the group without chronic pain?

The correlation coefficient of HFM and PKPC within the chronic pain group ($r = .71$, $p < .0001$) and within the comparison group ($r = .78$, $p < .0001$)
were used to compute Fisher's z (Howell, 1982). The results of this analysis, z = 1.015, p = .156, revealed that there was not a significant difference in the strength or the direction of the relationship of the variables between the 2 groups. Both HFM and PKPC mean scores were lower within the chronic pain group and higher within the comparison group.

In summary, MANOVA revealed significant differences in Human Field Motion and Power as Knowing Participation in Change between the chronic pain and comparison groups. The Pearson product-moment correlation coefficient revealed Human Field Motion and Power as Knowing Participation in Change to be highly correlated within both the chronic pain and comparison groups. Finally, the strength and direction of the relationship of Human Field Motion and Power as Knowing Participation in Change was found to be similar regardless of group membership by use of Fisher’s z.

Related Analyses

Several of the demographic variables were found to differ across study groups. These included education, employment and occupation. Analysis of variance performed for education and occupation revealed significant differences between groups (MS = 48.28, F = 20.13, p < .001 and MS = 38.96, F = 45.81, p < .001, respectively). An analysis collapsing employment categories to three showed significant differences between groups ($X^2 = 53.6$, d.f. = 2, p < .001).
Post hoc exploration of the data for occupation and education using chi-square revealed that differences in occupational groups were accounted for by higher numbers of the comparison group in the higher occupational categories \( (X^2 = 25.7, \text{ d.f.} = 8, p=.0012) \). Educational level was significantly different with greater numbers of the comparison group having completed college or graduate level education \( (X^2 = 32.9, \text{ d.f.} = 5, p<.001) \).

A number of background variables were included in the questionnaires for both groups related to behaviors which are considered higher frequency pattern manifestations (Barrett, 1983; Ference, 1979), or considered important in relation to the phenomenon of pain. Variables related to pain within the comparison group include the presence of acute pain in self or chronic pain in a family member and self-rated level of health. Although 23.4\% of the comparison group indicated they were in pain at the time they completed the questionnaire, 30\% indicated they had experienced pain within the last day, and 24\% indicated chronic pain was present in an immediate family member, analysis of variance (ANOVA) revealed no significant differences on HFM and PKPC scores for the presence of these factors.

Differences on self-rated health were apparent between groups with 96.5\% of the comparison group rating their health as "excellent" or "good" while only 66.4\% of the chronic pain group rated themselves in these categories (Table 8).
ANOVA performed for level of health revealed significant differences between groups (MS = 29.03, F = 58.62, p < .001). Results of a post hoc chi-square for health was significant ($X^2 = 45.15$, d.f. = 3, p < .001). Greater

Table 8

**Self-Rated Health in Matched Groups**

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>Chronic Pain Frequency</th>
<th>Chronic Pain Percent</th>
<th>Comparison Frequency</th>
<th>Comparison Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>poor</td>
<td>11</td>
<td>9.7</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>fair</td>
<td>27</td>
<td>23.9</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>good</td>
<td>55</td>
<td>48.7</td>
<td>53</td>
<td>46.9</td>
</tr>
<tr>
<td>excellent</td>
<td>20</td>
<td>17.7</td>
<td>56</td>
<td>49.6</td>
</tr>
</tbody>
</table>

numbers of the chronic pain group indicated poor or fair health and greater numbers of the comparison group indicated excellent health.

Behaviors related to pattern manifestations included in the questionnaire were substance use, sleep patterns, crisis, dream recall, self development activity, peak experiences, sense of oneness with nature, timelessness, and meditation. Intake of substances other than medications which may be related to HFM and PKPC scores was surveyed. Groups were similar on their reported use of coffee/tea, alcohol, cigarettes and other stimulants or depressants although more
of the comparison group reported coffee/tea intake prior to questionnaire completion and more of the chronic pain group reported intake of other stimulants/depressants (Table 9).

Table 9

**Substance Use in Matched Groups** *(N = 113 pairs)*

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>Chronic Pain</th>
<th></th>
<th>Comparison</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Coffee/tea today</td>
<td>57</td>
<td>53.3</td>
<td>73</td>
<td>65.2</td>
</tr>
<tr>
<td>Alcohol today</td>
<td>4</td>
<td>3.7</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>Cigarettes today</td>
<td>25</td>
<td>23.4</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>Other stimulants/ depressants</td>
<td>13</td>
<td>12.1</td>
<td>3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

More of the comparison group reported a normal night’s sleep last night (80.5%) than did the chronic pain group (68.2%). The mean hours of sleep was 6.9 (SD = 1.4) for the comparison group and 5.9 (SD = 1.8) for the chronic pain group. Differences on hours of sleep was not statistically significant.

Only 36.3% of the comparison group had experienced a crisis in the last six months compared to 67.9% of the chronic pain group. The comparison group reported significantly more experiences of higher frequency pattern.
manifestations such as dream recall, peak experiences, oneness with nature, timelessness and participation in self development activities than did the chronic pain group (Table 10).

Both groups were similar in their reports of meditation. ANOVA revealed significant differences between groups for other background variables (Table 11).

Multivariate analysis of variance was performed on all variables showing a significant difference between the matched groups. These analyses were performed in order to ask if Human Field Motion and Power as Knowing Participation in Change together vary as a function of group membership combined with important background variables. These analyses answer the questions, for example: do HFM and PKPC differ by educational level regardless of presence of chronic pain? is there an interaction between educational level and group membership? and, regardless of educational level, do HFM and PKPC differ by group membership?

For education and occupation there were no significant main or interaction effects with group membership significant at $p < .001$. For crisis, self development, timelessness, oneness, peak experiences and meditation the only significant finding of differences for HFM and PKPC were by group membership. Dream recall and normal sleep last night both showed significant interaction effects ($p = .04$ for both) and significant group membership effects
(p<.001). The only background variable to show a significant main effect was level of health (p<.001) with group membership remaining significant (p=.05). Self-rated level of health was not entered as a covariate because of its theoretical link to the presence/absence of chronic pain. Within the chronic pain group perception of health would be integrally related to the presence of this significant health problem. Level of health was included in the background questionnaire primarily to screen the comparison group for presence of significant health/illness history.

Table 10

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>Chronic Pain</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Recent Crisis</td>
<td>74</td>
<td>67.9</td>
</tr>
<tr>
<td>Dream Recall</td>
<td>65</td>
<td>59.6</td>
</tr>
<tr>
<td>Self Development</td>
<td>37</td>
<td>34.9</td>
</tr>
<tr>
<td>Peak Experiences</td>
<td>44</td>
<td>41.5</td>
</tr>
<tr>
<td>Oneness w/Nature</td>
<td>46</td>
<td>43.0</td>
</tr>
<tr>
<td>Timelessness</td>
<td>34</td>
<td>30.9</td>
</tr>
<tr>
<td>Meditation</td>
<td>51</td>
<td>45.9</td>
</tr>
</tbody>
</table>
Table 11

**Analysis of Variance for Selected Background Variables** (N = 113 pairs)

<table>
<thead>
<tr>
<th>Variable</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crisis</td>
<td>2.64</td>
<td>11.25</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Dream recall</td>
<td>2.02</td>
<td>8.58</td>
<td>.004</td>
</tr>
<tr>
<td>Peak experience</td>
<td>3.31</td>
<td>14.13</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Oneness</td>
<td>2.47</td>
<td>10.91</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Timelessness</td>
<td>1.69</td>
<td>6.43</td>
<td>.01</td>
</tr>
<tr>
<td>Self development</td>
<td>4.58</td>
<td>20.76</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Meditation</td>
<td>.55</td>
<td>2.22</td>
<td>ns</td>
</tr>
</tbody>
</table>

Finally, a possible confounding variable which took place after the chronic pain group data collection was completed but before the comparison data had been collected was the San Francisco earthquake of October 17, 1989. Data collection for the San Francisco comparison group was originally scheduled to begin October 18 but was postponed for 6 weeks due to this event's occurrence. An analysis of variance was completed comparing the non-pain groups from San Francisco (N=53) and Phoenix (N=55) on differences in HFM and PKPC scores. Differences between the 2 comparison groups were not
significant for either HFM (M.S. = 276.45, F = 1.06, p = .30) or PKPC (M.S. = 2583.20, F = 2.13, p = .14).

In summary, the study groups differed significantly on a number of demographic and background variables. The demographic characteristic differences included education, occupation, and employment. Groups also differed on many background variables such as crisis, health and higher frequency pattern manifestations. MANOVAs performed on all characteristics which differed significantly between the groups revealed that in most cases, group membership accounted for differences on HFM and PKPC scores. Exceptions noted were a significant main effect for level of health and significant interaction effects for dream recall and normal sleep last night.
CHAPTER V
Discussion of Findings

"Nursing is the study of unitary, irreducible, indivisible human and environmental fields: people and their world" (Rogers, 1990). The purpose of this study was to describe a plaguing human experience, chronic pain, within the context of a theoretical system within nursing science (Rogers 1970, 1980, 1983, 1986, 1990). Chronic pain was viewed from the perspective of the irreducible nature of individuals as energy fields, different from the sum of their parts and integral with their respective environmental fields. The basic unit of observation for this study was unitary human field patterning manifestations.

Theoretical Rationale

Pattern is the identifying characteristic of a unitary human being (Rogers 1970, 1980, 1983, 1986, 1990). This study describes the patterning of chronic pain and compares it to patterning found in a matched comparison group without chronic pain.

Patterning measures included Human Field Motion (Ference, 1979), an experiential, multidimensional position of the human field and Power as Knowing Participation in Change (Barrett, 1983, 1986, 1988), one's capacity to participate in the nature of change characterizing the integral nature of the human and environmental fields.
Within the descriptive exploratory research design of this study, the presence or absence of chronic pain was viewed as the independent variable, that is, the defining characteristic or pattern manifestation which separated subjects into 2 groups. Each of these groups were then described in greater depth by the pattern manifestations found. Since this study is cross-sectional and descriptive, the relationships and findings cannot be interpreted causally. The instruments developed to measure the constructs of Human Field Motion (HFM) and Power as Knowing Participation in Change (PKPC) measure pattern frequency. Conceptualized within Rogers’ abstract system, these instruments provide a score which reflects the pattern frequency measured at the time of instrument completion.

The instruments are designed to differentiate lower from higher frequency patterning as defined by Rogers (1986). For example Human Field Motion may be experienced at a lower frequency identified by feelings of being slow, dragging, sleepy, dull, and limited. Conversely, Human Field Motion may be experienced at a higher frequency identified by feelings of being propelled, fast, alert, bright, unlimited and transcendent. People are asked to relate their feelings or connotative sense for several concepts within each instrument. For both instruments these concepts operationalize the more complex constructs they are designed to measure. They tap the nonverbal experience each person has of their own field pattern as related to the notions of motion and power.
Research Questions

Since this is one of the first studies to examine a clinical phenomenon from the perspective of human-environmental energy field patterning the research questions were basic in nature. This is appropriate for new areas of inquiry. All four research questions inquired into the nature of patterning. The first two questions asked: Is there a difference in human field motion and power between a group experiencing chronic pain and a group without chronic pain?

The findings revealed that there were significant differences between a chronic pain group and a matched comparison group without chronic pain. Age, sex, race and geographic location were controlled by the matching procedure. The scores on HFM (M = 4.6) and PKPC (M = 5.1) indicated lower frequency patterning in the chronic pain group compared to the higher frequency HFM and PKPC scores (M = 5.5 and M = 5.6 respectively) in the comparison group.

No other studies are available for comparison, however, Macrae’s (1982) study is conceptually similar. Macrae (1982) measured HFM in 2 groups: meditators and non-meditators. She found significant differences in pattern frequency as measured by HFM between the deeper meditators and the non-meditators. Meditators had higher scores on HFM, indicating higher frequency patterning.
This study also measured patterning in 2 groups, although the group of special interest had an illness (chronic pain) whereas Macrae’s special population exhibited transcendent behaviors regularly (meditators). Results are nevertheless similar although from different perspectives. This study found lower frequency scores in a group which experiences varying degrees of impairment while Macrae (1982) found higher frequency scores in a highly actualized group.

Research questions 3 and 4 explored the relationship of human field motion and power within each of the two study groups. Findings indicated that the two pattern measures were highly correlated within each group (pain group $r = .71$, comparison group $r = .78$). Because strong correlations were found in each group, a fifth question was asked to determine if the relationship of HFM and PKPC differed within each of the study groups. Fisher’s z statistic revealed that there was not a statistically significant difference in the relationship of these two pattern measures for the chronic pain and comparison groups ($z = 1.015$, $p = .156$). The correlations of HFM and PKPC were similar for both groups although scores differed significantly.

These findings support Rogers’ (1990) definition of pattern as "the distinguishing characteristic of an energy field perceived as a single wave" (p. 7). All behaviors are manifestations of pattern, and, while pattern undergoes continuous change, two measures of pattern taken at the same time should
reflect the pattern present in similar ways. While the constructs of HFM and PKPC differ, they both measure pattern frequency.

The highly correlated positive relationship of HFM and PKPC found in this study is similar to the findings Barrett reports (1983). In the original work on instrument development of the power measure, canonical correlation performed with the scales and concepts of HFM and PKPC was .61 and .16, both statistically significant and accounting for 40% of shared variances among the two sets of variables. Barrett's (1983) interpretation of these findings is that "...as human field motion, an index of unitary human development, proceeds so does the capacity to participate knowingly" (p. 119).

To summarize, findings related to the research questions revealed statistically significant differences between the chronic pain and comparison groups for both pattern measures of HFM and PKPC, with the scores lower in the chronic pain group. The pattern measures had high positive correlations within both groups with no statistically significant differences in the relationship of the pattern measure scores across groups.

Results of this study indicate that for the sample of chronic pain patients observed, lower frequency patterning was found in comparison to a matched group without chronic pain. Both study groups were samples of convenience therefore results cannot be generalized. However, the results have strong
theoretical support based on Rogers' abstract system and can be interpreted in that light.

The mean scores for the chronic pain group on HFM (X = 4.6, S.D. = 1.3) and PKPC (X = 5.1, S. D. = .99), while significantly lower than the comparison group, are not within the lowest ranges of scores possible on these measures. The range of scores on each adjective pair is from 1 to 7. A score of 4 is considered mid-range, between high frequency scores of 7 and low frequency scores of 1. One might have expected the chronic pain group scores to have been even lower than they were.

There is evidence that HFM and PKPC scores may be biased in the direction of higher frequency (Barrett, 1983; Trangenstein, 1988). If this is so, it may account for why the chronic pain group scores were not lower. Social desirability may be a factor in explaining the generally high means and needs further exploration. Use of these instruments in other clinical populations would provide further evidence of instrument discrimination and variability.

As measured through the constructs of power and human field motion the chronic pain group's sense of their own field patterning indicates lower frequency, longer wave length patterning relative to the comparison group (Barrett, 1983, 1986; Ference, 1979). The findings of this exploratory study indicate field pattern appraisal (Barrett, 1990) as a useful approach in describing the phenomenon of chronic pain. If these findings are confirmed in replication,
it will provide a foundation for theoretically derived interventions that could provide new directions in the treatment of chronic pain.

It is important to point out that this study was one of basic research. It can conceivably serve as the first in a line of subsequent studies that first replicate and then seek to understand the meaning of the findings. If subsequent studies provide additional support for an approach using field patterning to describe and better understand people during the processes of illness and health, the ultimate goal would be the design and implementation of new approaches to assist individuals achieve well being.

Methodology

The sample. The sample for the study was one of convenience. A total of 9 different recruitment sites for the chronic pain group were used in this study in 3 large metropolitan areas. The recruitment sites included 3 chronic pain programs, and 6 private practice settings (2 physicians, 2 dentists, 1 physical therapist, 1 nurse). An important aim of the data collection design was to recruit those with severe chronic pain since effect size was an important consideration in this exploratory work.

Comparison groups were recruited after an adequate sample size was achieved for the chronic pain group. Comparison group recruitment was further guided by the matching design, therefore age, race and gender were considered in recruitment of the comparison group and data collection was continued until
the matching procedure achieved the critical number of subjects required by the
time analysis. Subjects were matched for age with a maximum of 5 years
difference. The majority of subjects were matched within 3 years (81.4%).
Comparison group subjects were recruited from business, social and community
groups. In San Francisco, public gathering places were also used. This included
the cafeterias of the county civic center and two community colleges. Use of a
randomly selected comparison group may have provided a comparison sample
more similar to the chronic pain group on variables such as education and
occupation, although these variables were not associated with differences in the
patterning variables.

The demographic questionnaires. Several items were difficult to interpret
within the background information sheet (Appendices F and G). The
employment status item allowed subjects to check more than one response
which made data coding and analysis more difficult. "Unemployed" and
"disabled" were listed together and should have been separated into two
responses. The item on intuition and logic was not answered correctly by many
subjects. Wording of this item should be clarified. The item "time of day you
function best", while descriptively interesting could not be related to patterning
because the time of instrument completion was not recorded. Similarly the
relationship of weather to pain could not be completely described. The question
lacked specificity, for example, on the type of effect weather has on pain.
Finally, data generated for medications was incomplete. Most often missing was the dosage of the medication. It may be more appropriate to ask subjects to bring prescriptions and to collect this type of information during an interview. The self-administered questionnaire approach was not effective for collecting complete information on medication use.

Instruments

Alpha coefficients for HFM (alpha = .94) and PKPC (alpha = .94) provide additional support for the reliability of these instruments and are similar to alphas found in other studies (Butcher, 1986; Conner, 1986; Gueldner, 1983; Ludomirski, 1984; Rizzo, 1990; Trangenstein, 1988). Test-retest reliabilities were also acceptable for both instruments (HFM subscale range = .79 -.82, PKPC subscale range = .69 -.72).

Instructions for the HFM test were modified in an attempt to clarify confusion and questions that subjects of other studies had expressed (Butcher, 1988; Macrae, 1982). Only 8% of all subjects expressed difficulty understanding the instrument through written comments that were invited at the conclusion of the test (Appendix D). It is interesting that among those expressing difficulty, only 2% were from the chronic pain group who were less educated than the comparison group. One of the characteristics of individuals with chronic pain is a search for meaning in their experience (Bonica, 1985; Sternbach, 1984). The pain group may be more in touch with their feelings and emotions and therefore
could more easily relate to the connotative sense of "my motor running" and "my field expansion".

The HFM validity question developed for this study was a single item designed to tap the general meaning of human field motion sensed as an experiential, multidimensional position and flow (Appendix D). It is not an alternative form of the HFM test. It would be expected that this one item would not capture all that is being measured in the entire test, but should be positively correlated with the total test score. The Pearson product moment correlation for the validity question and the total HFM score ($\tau = .60$) supported the construct validity of the HFM test (Ference, 1979, 1986a).

Finally, although groups were statistically and clinically very different from each other, the numerical difference in scores on HFM and PKPC was quite small. Mean total HFM score for the chronic pain group was 4.6, while mean score for the comparison group was 5.5. Mean total PKPC score for the chronic pain group was 5.1, with mean score for the comparison group of 5.6. The issue of social desirability needs to be addressed in future studies. Greater discrimination and variability is needed especially for accurately assessing an individual's pattern in clinical situations.

For the purposes of this initial study, the comparison of group scores was meaningful. Studies of additional clinical groups are needed, as well as general population testing, for the norming of scores although score norms would be
expected to change over time. Statistically significant differences were found between groups in this study which provides support for this approach to studying a phenomenon of concern to nursing and direction for future studies of patterning.

Related Analysis

Epidemiological data on chronic pain is incomplete. As the IOM (1987) committee substantiated, little valid information is available. It is therefore difficult to know how the chronic pain subjects participating in this study may differ from others. Bias may have been present in this sample of convenience. Instrumentation for this study required a high school education, which may have also affected bias related to this variable in the chronic pain group.

The study groups differed from each other on many demographic and background variables. These factors did not account for group differences on pattern measures, however. MANOVAs were performed for all variables significantly differing between groups. No significant main effects were found. Only dream recall and normal sleep last night revealed a significant interaction effect while the group effect remained significant. Further exploration of dream and sleep are indicated. Change from more sleeping to more waking is among the manifestations of patterning Rogers identifies (Table 1) and may be one of the few indicators of higher frequency patterning in the chronic pain patients. More detailed information about total hours of sleep in a 24 hour period and
the quality of this sleep should be investigated. Dream recall may be related to pattern of sleeping and waking. Greater diversity of sleep/wake/dream patterns in chronic pain patients may be a clue for designing interventions to support change in the direction of higher frequency once more is understood.

Health, as measured in this study, was self-rated and self-defined. Four choices were available to subjects: "poor", "fair", "good", and "excellent". Self-rated health levels differed significantly between groups. It was the only background variable entered into MANOVA to show a significant main effect, and a significant group effect. Self-rated level of health is conceptually related to presence/absence of chronic pain. If groups had been defined by level of health instead of presence/absence of chronic pain, study results may have been similar. The finding of a significant main effect for health suggests that this variable would be important to pursue in the study of human patterning. Use of a Cantril ladder would be one possible method to measure health from a unitary perspective (McKeehan, Cowling, & Wykle, 1986). Another possibility would be the measure of the more global concept of well being. One example of an instrument conceptually consistent for the study of human patterning is the Index of Well Being (Braden, 1990; Campbell, Converse, & Rogers, 1976).

Other instruments measuring health may actually be measuring the absence of disease or focusing on an additive approach, that is, summing physical health, mental health, spiritual health, and/or social indicators.
Examples of commonly used measures of health include the Sickness Impact Profile (Bergner, Bobbitt, Polland, Martin & Gilson, 1976) and the General Health Survey (Stewart, Hays, Ware, 1988). These instruments are not appropriate for the study of human patterning.
CHAPTER VI
Summary, Conclusions and Recommendations

Summary and Conclusions

This basic research in nursing science revealed continued support for Rogers' abstract system. It is among the first to study a clinical population, and proceeds from the work of others before it with general population studies and methodological studies in instrument development.

Results of this study support the notion of energy field pattern as the basic unit of study for irreducible unitary human beings. Instruments designed to capture field patterning were able to discriminate differences between a clinical group and a "normal" comparison group. Using MANOVA, significant differences were found between the chronic pain and comparison groups on Human Field Motion (HFM) (Ference, 1979) and Power as Knowing Participation in Change (PKPC) (Barrett, 1983). These differences were statistically significant ($p < .001$).

This study demonstrated the reliability of the HFM (alpha = .94) and PKPC (alpha = .94) instruments. In addition, support for the validity of the HFM instrument was demonstrated with a significantly positive correlation ($r = .60$) of the HFM test and a validity question. Rogers' definition of pattern as the distinguishing characteristic of an energy field perceived as a single wave was supported by the high correlations of HFM and PKPC in both study groups.
(r = .71, p < .0001 in chronic pain group, r = .79, p < .0001 in comparison group).

The phenomenon of chronic pain can be defined conceptually as a pattern manifestation which is measurably different from individuals without this health problem. The chronic pain subjects in this study were also different from their comparison counterparts on other pattern indicators as well. These differences included experiencing a crisis in the last six months, and less frequent experience of events such as a sense of oneness with nature, timelessness, peak experience, participation in self development activities, and recalling dreams.

Do these behaviors promote health or is it that those in chronic pain have less of these experiences because of the pain? If human change proceeds in the direction of higher frequency, as Rogers maintains, is there something preventing or blocking the chronic pain subjects from moving in that direction? Is chronic pain a manifestation of an obstruction to change in the direction of greater diversity and complexity?

Although results of this study demonstrate this line of inquiry to be significant, many additional questions are raised. If other studies demonstrate similar results, nursing interventions can be designed that will facilitate human growth and change in its natural direction, that is, toward higher frequency patterning. For example, empirical evidence will support the use of high
frequency light (blue) for pain reduction. Other high frequency environmental conditions supporting change in this direction could include music and sound, motion, and practices such as meditation, dream journaling, nature explorations, imagery, hypnosis, and therapeutic touch.

It is likely that if a study were designed with self-rated health as the defining group characteristic, similar results would be obtained. The question then becomes, for example, how do pattern measures distinguish between chronic respiratory disease, cardiac disease, cancer, or AIDS? Or does it make a difference?

If person-environment patterning is basic, perhaps it is the patterning process we need to be paying attention to, for it may be primary to physiologic processes. In other words, how can we be supportive of unitary human beings in their natural process of growth and change? Is well being a more appropriate term for what is often referred to as health? If disease is a manifestation of human-environmental field patterning it is not necessarily bad, it is merely an indicator of that which is, or the way things are. Instead of trying to eliminate disease as if it were outside or separate from the self, we should be asking questions related to its meaning and significance within a person’s life. That is, why has the unique patterning of this individual manifested as a particular disease?
**Recommendations**

Recommendations for further study include:

1. Replication, using randomly selected chronic pain and comparison groups from the general population.

2. In order to randomly sample the general population, modification of the HFM and PKPC instruments is necessary so that those with less than a high school education can be included. Possible modifications include the testing and validation of a Cantril Ladder format for both of these instruments (McKeehan, Cowling & Wykle, 1986).

3. Addressing the issue of social desirability, perhaps by including the Social Desirability Scale in future studies using the HFM and PKPC tests.

4. Addition of a qualitative method to explore meaning of chronic pain and person-environment mutual process.

5. Based on findings of this study and McDonald’s (1981), clinical trials using blue light to support field pattern transformation.

6. Exploration of the use of PKPC and HFM as outcome measures in chronic pain program evaluation studies.

7. Designing and testing of interventions for chronic pain based on Barrett’s power theory, that is interventions designed to enhance awareness, choices, freedom to act intentionally and involvement in creating changes.
8. Designing and testing of modalities for chronic pain to enhance the natural unfolding of human-environmental patterning process in the direction of higher frequency patterning. Examples of such modalities include non-invasive techniques such as mindfulness meditation (Kabat-Zinn, 1990), imagery, humor, sound/music, and therapeutic touch (Krieger, 1979).

9. Further exploration of sleeping/waking/dreaming and chronic pain. Although chronic pain patients have more disrupted sleep cycles, do they sleep more or less than they did prior to the pain experience? How is this related to dream recall? Will enhancing waking and beyond waking (pattern manifestations of higher frequency) experiences assist with the resolution of chronic pain?

10. Design studies to explore additional postulated manifestations of patterning based on initial findings of this study. For example, pain, or other diseases as manifestation of lower frequency patterning and well being as manifestation of higher frequency patterning.
LITERATURE CITED


APPENDIX A

PAIN PROGRAM "A" DESCRIPTION

1. INTRODUCTION:

Pain is often protective and helpful because it can be an indicator of injury or distress. In these instances, pain guides physicians in accurately treating its underlying disorder or cause, whether it be a disease process, trauma or infection. Pain of this nature is generally referred to as acute pain.

In some instances, however, there may be no apparent treatable cause for the pain. Sometimes the pain is extremely disruptive or unduly prolonged. When a person has had such pain for six months or longer, the condition is judged to be chronic. Chronic pain does not serve a useful function as does acute pain, and methods which are generally helpful in the treatment of acute pain cannot be applied to individuals with chronic pain. These circumstances can lead to severe physical and/or emotional problems.

Chronic pain is always disruptive in some way to an individual's ability to actively engage in productive and meaningful vocational and social roles. Due to its complexities, chronic pain requires an integrated, interdisciplinary treatment program directed at both physical and psychological rehabilitation. It requires thorough attention from specialists in a variety of fields: experts in medicine, physical therapy, occupational therapy, psychology, nursing, and other allied health professions.

The purpose of the Pain Center is to provide inpatient and outpatient treatment for patients presenting with a wide array of chronic pain disorders. It is designed to provide referring physicians with an interdisci-
plinary support staff of specialists in chronic pain control. Although a cure may not be possible, these specialists can address the medical and psychological problems associated with chronic pain and help patients better manage their pain.

II. PAIN CENTER - TREATMENT GOALS:

The Pain Center has three primary treatment goals for all patients entering the inpatient or outpatient program. Each of these goals is individually tailored to meet the unique needs of patients entering treatment.

1) Adjustment of medication levels to best suit the needs of the patient. Many individuals suffering from chronic pain become dependent on narcotic analgesic medication. In fact, narcotic analgesics, while effective and necessary in the treatment of acute pain, are often contraindicated for the treatment of chronic pain. We attempt to find non-narcotic medications which can alleviate some of the patient's pain without interfering with his/her ability to function on a daily basis.

2) Decrease levels of pain through training in self-management techniques. There are a number of psychological self-management techniques which an individual can employ to help decrease their subjective level of pain. Patients entering our program are trained in these specific coping skills, including relaxation techniques and biofeedback. In addition, because stress is typically associated with exacerbations in chronic pain, patients are instructed in stress-management techniques so that their pain has minimal impact on their daily functioning.
3) **Increase physical functioning, activity levels and improve quality of life.** Chronic pain sufferers often decrease their activity and adopt protective postures in order to decrease their pain, when in fact these actions may only serve to exacerbate their problem. Patients entering the Pain Center undergo intensive, but gradual, physical and occupational therapy rehabilitation programs. These are designed to help individuals learn how to remain active and enjoy life in spite of their pain. We assist our patients in reaching the optimal level of physical functioning and help them resume their previous personal and vocational activities to the fullest extent possible.

III. **PAIN CENTER TREATMENT PROGRAM**

A. **Physician Referral**

A physician referral is necessary for patients to be evaluated as a candidate for the Pain Center. The evaluation process is designed to ensure that patients are both medically and psychologically appropriate for the Pain Center treatment program.

B. **Medical Evaluation**

1) All patients are evaluated by the Pain Center Director or one of the physicians associated with the Pain Center.

2) The physician reviews all patient records and radiographs and takes a complete medical history. A physical examination is performed, including a detailed neurologic and musculoskeletal examination.

3) If further diagnostic evaluation/testing is required, it is performed at this point prior to proceeding with the Pain Center evaluation process.
APPENDIX B

PAIN PROGRAM "B" DESCRIPTION

On behalf of the Pain Team and patients, we wish to welcome you to the Pain Program at Hospital! We hope that you will find compassion for your difficulties and a great deal of interest in helping you to understand and manage your chronic pain problem.

Most people come into the hospital feeling frightened and self-conscious, but are surprised and reassured to find out how easily and quickly sharing with others can help relieve these feelings. Your symptoms may differ from others in details, but the basic aspects of your problems are likely to be similar. Treatment in groups may be uncomfortable initially, but most patients find the honesty and openness very rewarding and very helpful in developing a greater capacity for trust, and that the discomfort quickly dissipates.

We hope that you will quickly come to feel a vital part of the Pain Team. Please feel free to ask questions about anything that you do not understand; all of use, patients and staff alike, will try to be as helpful as possible.
114

APPENDIX B

THE THERAPEUTIC COMMUNITY IN THE PAIN PROGRAM

The therapeutic community in the Pain Program is based on a philosophy which includes several aspects. The most important of these is that structure, itself, (the uses of time, rules, expectations, and physical arrangements) can help to modify thoughts, feelings, and behavior. Social involvement in the various groups is an especially strong influence towards getting to know yourself and helping you make the changes which you desire.

Your doctor is extremely important in ordering and arranging the elements of your evaluation and treatment, but the time that he spends with you individually will be relatively minor compared to the amount of time spent in groups. The groups are a very important component of treatment in the Pain Program, and what you learn about yourself, reveal to the groups, and your pattern and style of interaction with the groups will all be used by your doctor in the process of evaluating your progress. You will be expected to rely very heavily on the groups for ongoing treatment and evaluation.

Although you have come to the Pain Program because of chronic pain, everyone who comes has strengths, and can be a helpful and responsible part of the social structure. Part of your responsibility is in dealing with your own feelings and behavior, and those of other patients. Open sharing is an essential part of treatment in the Pain Program. Without this openness, you will be short-changed in your treatment, and you may find yourself burdened with secrets, or wanting to burden someone else with your
secrets. Confidentiality is crucial, and in order to preserve the openness on the unit, it is of the utmost importance that the information shared with you about others not be taken off the unit.

In some meetings, and in casual visiting, family members and other significant persons become involved within the community of the Pain Program; they too, are expected to observe strict confidentiality.

The therapeutic community of the Pain Program is both a treatment process and a community. Like any other community, it must remain attentive to the needs, desires, values, attitudes, and skills of the people who make it up. Like any treatment process, the ultimate goal is relief of physical and emotional pain by an ongoing and ever-deepening understanding of you and your pain problems. You are the most important part of treatment. The biggest factor is your motivation to work as a vital member of the Pain Team in developing a better self-understanding and better control over your behavior and feelings effected by your chronic pain problem.
PLEASE NOTE

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

116-121

University Microfilms International
APPENDIX F

DEMOGRAPHIC INFORMATION FORM COMPARISON GROUP

1. Sex
   ___ Female  ___ Male

2. Age____

3. Marital Status
   ___ single  ___ divorced
   ___ married  ___ separated
   ___ widowed

4. Education
   ___ less than seventh grade
   ___ junior high school (9th grade)
   ___ partial college or special training
   ___ high school graduate
   ___ standard college or university graduation
   ___ graduate professional training (graduate degree)

5. Race/Ethnic Background:
   ___ American Indian  ___ Black
   ___ Asian  ___ White
   ___ Hispanic  ___ other

   specify: __________________________

6. Occupation or Career:

   ____________________________________________

   briefly describe:

7. Employment:
   ___ full-time  ___ student
   ___ part-time  ___ retired
   ___ homemaker  ___ disabled/unemployed
APPENDIX F

8. Check the language that you read, write and speak best:
   ___American-English
   ___Other:____________________

9. Do you practice any form of meditation?
   ___no    ___yes If yes, how often___________

10. Have you experienced a crisis during the past 6 months?
    ___yes    ___no

11. How many hours of sleep did you get last night?_______
    Was your sleep pattern last night normal for you?
    ___yes    ___no

12. Check the time of day when you function best:
    ___morning   ___afternoon
    ___evening   ___night

13. Do you recall your dreams?
    ___no    ___yes
    If yes, do you recall more than 1 dream a week?
    ___no    ___yes

14. Are you engaged in any form of self-development?
    ___no    ___if yes, specify____________________

15. Have you had "peak experiences"*?
    ___no    ___yes If yes, how often do you have these
    experiences?________________________________

16. Do you consider yourself
    ___more intuitive than logical?
    ___yes    ___no
    or equally intuitive and logical?
    ___yes    ___no

* spontaneous, emotional, subjective experience of ecstasy
17. Do you ever feel a sense of oneness with nature (the universe)?
   ___no ___yes If yes, how often do you feel this way?

18. Have you had the experience of "timelessness"**?
   ___no ___yes If yes, how often do you experience this?

19. Check if you ingested or inhaled any stimulants, depressants or hallucinogens today:
   ___none ___alcohol
   ___coffee or tea ___cigarettes
   ___other

20. Are you taking any medication(s) regularly?
   ___no ___yes

   If yes, please specify______________________________
   ________________________________
   ________________________________

   Time taken in relation to this test____________

21. Have you experienced any pain or discomfort in the last 24-hours?
   ___no ___yes

22. Are you feeling any pain or discomfort right now?
   ___no ___yes

   Where is that pain or discomfort?
   ________________________________

** little awareness or regard for clock-time
APPENDIX F

23. If you have pain right now, please circle the number and word(s) that best describe it

none  mild  moderate  quite a bit  very bad  unbearable

24. Do you consider yourself to have chronic pain*?
   ___ no   ___ yes

25. Do any members of your household have chronic pain*?
   ___ no   ___ yes

26. Please indicate the general level of your health:
   ___ poor  ___ fair  ___ good  ___ excellent

* Pain of constant or intermittent nature present for 6 months or longer
APPENDIX G

DEMOGRAPHIC INFORMATION FORM CHRONIC PAIN GROUP

1. Sex
   ___Female  ___Male

2. Age____

3. Marital Status
   ___single  ___divorced
   ___married  ___separated
   ___widowed

4. Education
   ___less than seventh grade
   ___junior high school (9th grade)
   ___partial college or special training
   ___high school graduate
   ___standard college or university graduation
   ___graduate professional training (graduate degree)

5. Race/Ethnic Background:
   ___American Indian  ___Black
   ___Asian  ___White
   ___Hispanic  ___other
   Specify: ____________________________

6. Occupation or Career:
   ________________________________

   briefly describe

7. Employment:
   ___full-time  ___student
   ___part-time  ___retired
   ___homemaker  ___disabled/unemployed
APPENDIX G

8. Check the language that you read, write and speak best:
   ___ American-English
   ___ Other: __________________________

9. Do you practice any form of meditation?
   ___ no    ___ yes. If yes, how often_______________

10. Have you experienced a crisis during the past 6 months?
    ___ yes    ___ no

11. How many hours of sleep did you get last night?_______

   Was your sleep pattern last night normal for you?
   ___ yes    ___ no

12. Do you recall your dreams?
    ___ no    ___ yes
    If yes, do you recall more than 1 dream a week?
    ___ no    ___ yes

13. Are you engaged in any form of self-development?
    ___ no    ___ if yes, specify_______________

14. Have you had "peak experiences"**?
    ___ no    ___ yes  If yes, how often do you have these
    experiences?_____________________________

15. Do you consider yourself
    ___ more intuitive than logical?
    ___ yes    ___ no
    or equally intuitive and logical?
    ___ yes    ___ no

16. Do you ever feel a sense of oneness with nature (the universe)?
    ___ no    ___ yes  If yes, how often do you feel this
    way?_____________________________________

* spontaneous, emotional, subjective experience of
  ecstasy, joy, bliss
17. Have you had the experience of "timelessness"**?
   ___no   ___yes

   If yes, how often do you experience this?

18. Check if you ingested or inhaled any stimulants, depressants or hallucinogens today:
   ___none   ___alcohol
   ___coffee or tea ___cigarettes
   ___other

19. Have you experienced any pain or discomfort in the last 24-hours?
   ___no   ___yes

20. Are you feeling any pain or discomfort right now?
   ___no   ___yes

   Where is that pain or discomfort?

   Where (which part of your body) do you usually experience pain?

21. Please circle the number and word(s) that best describe your pain right now.

   1 2 3 4 5 6
   none mild moderate quite a bit very bad unbearable

22. Please circle the number and word(s) that best describes the average level of your pain this past month.

   1 2 3 4 5 6
   none mild moderate quite a bit very bad unbearable

** little awareness or regard for clock-time
APPENDIX G

23. Length of pain history:
   ___less than 6 months   ___1-3 years
   ___6-12 months          ___more than 3 years

24. Frequency of pain in the last 3 months:
   ___some of the time  ___most of the time
   ___a good bit of the time  ___all of the time

25. Length of pain attack:
   ___seconds and minutes   ___constant
   ___hours               ___variable
   ___days

26. Precipitating event of pain:
   ___work       ___spontaneous (no apparent reason)
   ___home       ___other
   ___post surgery/illness

27. Check the time of day when you function best:
   ___morning     ___afternoon
   ___evening     ___night

28. Please state the number of yours between 8:00AM and
    8:00PM that you spend resting or lying down__________

29. Does the weather or barometric pressure effect your
    pain?
   ___yes   ___no

30. Please circle the appropriate response(s):

   Today is
   Rainy Snowy Cloudy Sunny Dry Humid

31. Are you currently involved in litigation?
   ___no   ___yes
32. Are you currently receiving compensation related to your pain?  
   ___ no   ___ yes

33. Please indicate the general level of your health:  
   ___ poor   ___ fair   ___ good   ___ excellent

34. Medications prescribed for relief of your pain:

A. Name__________________________________
   Dosage__________________________________
   By mouth___________ By injection__________
   Time taken in relation to this test__________

B. Name__________________________________
   Dosage__________________________________
   By mouth___________ By injection__________
   Time taken in relation to this test__________

C. Name__________________________________
   Dosage__________________________________
   By Mouth___________ By injection__________
   Time taken in relation to this test__________

D. Name__________________________________
   Dosage__________________________________
   By mouth___________ By injection__________
   Time taken in relation to this test__________

E. Name__________________________________
   Dosage__________________________________
   By mouth___________ By injection__________
   Time taken in relation to this test__________

F. Name__________________________________
   Dosage__________________________________
   By mouth___________ By injection__________
   Time taken in relation to this test__________

Please continue on next page.
APPENDIX G

G. Name
Dosage
By mouth By injection
Time taken in relation to this test

H. Name
Dosage
By mouth By injection
Time taken in relation to this test

I. Name
Dosage
By mouth By injection
Time taken in relation to this test

Thank You
APPENDIX H

CONSENT FORM

I understand that this study is being conducted to explore indicators of human change and chronic pain. Recurrent feelings such as the ones I will be asked about in this study, may play an important role in the experience of chronic pain. The study is being conducted by Katherine E. Rapacz, MS, RN,C. Ms. Rapacz is a PhD Candidate at Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, OH and a Faculty Associate at Arizona State University, College of Nursing, Tempe, AZ.

I understand that I will answer two paper-pencil questionnaires and a background information form, which will take about 30 minutes to complete. I also understand that my scores are confidential and will be processed by a code number and that only the results of group data will be reported.

There are no known risks to me as a participant in this study. The only benefit to me is in realizing the contribution I am making in participating in research that may lead to information that will assist those in pain at some time in the future.

I understand that my decision to participate or not to participate in this study will not alter my usual health care. I am aware that I may withdraw from this study at any time.

__________________________
name

__________________________
street

__________________________
city state zip

I request that an abstract of the study be mailed to me.

____yes  ____no
APPENDIX I

MATCHED GROUP MEDICATIONS

Comparison of Medication Taken by Matched Groups (n = 113 pairs)

<table>
<thead>
<tr>
<th>Drug Classification</th>
<th>Pain Group</th>
<th></th>
<th></th>
<th></th>
<th>Comparison</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq</td>
<td>%</td>
<td>Freq</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular sys drug</td>
<td>6</td>
<td>5.3</td>
<td>6</td>
<td>5.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotic agent</td>
<td>1</td>
<td>.9</td>
<td>2</td>
<td>1.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central nervous sys drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nonnarcotic analgesic, nonsteroidal</td>
<td>22</td>
<td>19.4</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>anti-inflammatory</td>
<td>33</td>
<td>29.2</td>
<td>1</td>
<td>.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>narcotic/opioid analges.</td>
<td>54</td>
<td>47.8</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sedative/hypnotic</td>
<td>2</td>
<td>1.7</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>anticonvulsant</td>
<td>0</td>
<td>--</td>
<td>3</td>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>antidepressants</td>
<td>22</td>
<td>19.4</td>
<td>1</td>
<td>.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>antianxiety</td>
<td>13</td>
<td>11.5</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>misc psychotherapeutics</td>
<td>0</td>
<td>--</td>
<td>2</td>
<td>1.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomic nervous sys drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>skeletal muscle relaxants</td>
<td>23</td>
<td>20.3</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory drug</td>
<td>2</td>
<td>1.7</td>
<td>8</td>
<td>7.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal drug</td>
<td>5</td>
<td>4.4</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hormonal agent</td>
<td>16</td>
<td>14.1</td>
<td>15</td>
<td>13.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutritional agent</td>
<td>4</td>
<td>3.5</td>
<td>4</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>diuretics</td>
<td>1</td>
<td>.9</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dermatologic</td>
<td>0</td>
<td>--</td>
<td>1</td>
<td>.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
<td>--</td>
<td>0</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>