An In-depth Exploration of Personality, Behavior, and Family Functioning of University Students With and Without Chronic Pain

By

Jennifer Garinger

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

MASTER OF ARTS

Department of Psychology
University of Manitoba
Winnipeg, MB

© February, 2000

National Library of Canada
Acquisitions and Bibliographic Services
395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale du Canada
Acquisitions et services bibliographiques
395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-51710-1

Canada

THE UNIVERSITY OF MANITOBA

FACULTY OF GRADUATE STUDIES

*****

COPYRIGHT PERMISSION PAGE

An In-depth Exploration of Personality, Behavior, and Family Functioning of University Students With and Without Chronic Pain

BY

Jennifer Garinger

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirements of the degree

of

Master of Arts

JENNIFER GARINGER ©1999

Permission has been granted to the Library of The University of Manitoba to lend or sell copies of this thesis/practicum, to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film, and to Dissertations Abstracts International to publish an abstract of this thesis/practicum.

The author reserves other publication rights, and neither this thesis/practicum nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

Table of Contents

			Page
Abstract			5
Acknowledgements			6
List of Tables			7
1.	Introduction		8
2.	Review of the Literature		9
	2.0	Chronic pain and the family	9
	2.1	Chronic pain and depression	10
	2.2	Chronic pain and anxiety	12
	2.3	Chronic pain and esteem	12
	2.4	Chronic pain and locus of control	13
	2.5	Chronic pain and social support	13
	2.6	Chronic pain and illness behavior	14
	2.7	Chronic pain and attention	14
3.	Method		17
	3.0	Participants	17
	3.1	Materials	17
	3.2	Procedure	21
4.	Results		22
	4.0	Beck Depression Inventory (BDI)	23
	4.1	West Haven-Yale Multidimensional Pain Inventory (WHYMPI)	24
	4.2	Rosenberg Self-Esteem Scale	24

Page

4.3 Wender Utah Rating Scale (WURS) 25

4.4 Family Environment Scale (FES) 25

4.5 Illness Behavior Questionnaire (IBQ) 25

4.6 Multidimensional Health Locus of Control Scale (MHLC) 26

4.7 Pain Disability Index (PDI) 27

4.8 Beck Anxiety Inventory (BAI) 28

5. Discussion 28

6. References 35

7. Appendix A 44

8. Appendix B 50

9. Appendix C 55

10. Appendix D 56

11. Appendix E 61

12. Appendix F 65

13. Appendix G 70

14. Appendix H 73

15. Appendix I 80

16. Appendix J 83

17. Appendix K 85

18. Appendix L 86

19. Table 1 87

20. Table 2 88

		Page
21.	Table 3	89
22.	Table 4	90
23.	Table 5	91
24.	Table 6	93
25.	Table 7	96
26.	Table 8	97
27.	Table 9	99
28.	Table 10	100

Abstract

This study hypothesized that young adults with chronic pain would experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and would be less satisfied with their social support. It was also hypothesized that students reporting longer-term chronic pain would experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and would be less satisfied with their social support when compared to those reporting short-term chronic pain. The participants included 402 introductory psychology students. They completed a battery of questionnaires including (a) a demographic and pain questionnaire, (b) the Beck Depression Inventory (BDI), (c) the West Haven-Yale Multidimensional Pain Inventory (WHYMPI), (d) the Rosenberg Self-Esteem Scale, (e) the Wender Utah Rating Scale (WURS), (f) the Family Environment Scale (FES), (g) the Illness Behavior Questionnaire (IBQ), (h) the Multidimensional Health Locus of Control Scale (MHLC), (i) the Pain Disability Index (PDI), and (j) the Beck Anxiety Inventory (BAI). There were no significant differences ($p > .05$) between the groups in terms of depression, anxiety, family dysfunction, self-esteem, and social support satisfaction. However, there were trends for individuals with chronic pain to report more depression and anxiety compared to individuals with acute/intermittent pain. This study also found that individuals with acute/intermittent pain were more likely to have an external locus of control compared to individuals with chronic pain. Furthermore, there were no significant differences between individuals with short-term and longer-term chronic pain on any of the measures.

Acknowledgements

I would like to thank Dr. Michael Thomas who provided invaluable advice and guidance throughout this undertaking. His feedback, time, and effort was greatly appreciated. I would also like to thank my examining committee for their feedback on earlier drafts. In addition, I would like to thank my family and friends for their support and encouragement. Their understanding and patience will always be valued.

List of Tables

Table 1 – Demographic characteristics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers.

Table 2 – Descriptive statistics for pain duration and severity for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers.

Table 3 – Percentage of acute/intermittent pain sufferers, short-term pain sufferers, and longer-term pain sufferers reporting pain in the past week for a specific location.

Table 4 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the BDI, Rosenberg Self-Esteem Scale, WURS, and BAI.

Table 5 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the WHYMPI.

Table 6 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the FES.

Table 7 – Analysis of variance for FES.

Table 8 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the IBQ.

Table 9 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the MHLC.

Table 10 – Descriptive statistics for acute/intermittent pain sufferers, short-term chronic pain sufferers, and longer-term chronic pain sufferers on the PDI.

An In-depth Exploration of Personality, Behavior, and Family Functioning of University Students With and Without Chronic Pain

Pain has been defined by the International Association for the Study of Pain (IASP) as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage" (1986, p. S217). There are two broad categories of pain under study in the research literature, acute and chronic. Acute pain results from specific causes that produce tissue damage or irritation. Typically acute pain is defined as lasting less than six weeks and responds to treatment with appropriate healing. Chronic pain in contrast, evolves from an acute pain etiology but persists beyond a reasonable period of healing (the standard used is three months) and is not responsive to treatment. Because three months time duration without healing is an arbitrary time cutoff used to operationally define when pain is considered chronic, this standard needs additional research. Gender differences have been reported in the pain literature. Montgomery (1994) found that in a sample of high school and university students females tended to report a higher frequency of headaches and greater pain severity when compared to males.

Traditionally, pain has been viewed primarily from a unidimensional medical model in which the amount of pain experienced by an individual is believed to be directly proportional to the amount of tissue damage. This model, however, has proved insufficient in explaining the variability among people's reactions to the same pain disorder and their inconsistent responsiveness to conventional forms of treatment (Turk, Rudy, & Flor, 1985). Therefore, during the last decade, researchers have begun to shift

their attention to the role of psychosocial factors in the development and maintenance of chronic pain.

Chronic Pain and the Family

Research has found that there are some families who tend to have an increased incidence of chronic pain. Apley (1975) studied children with recurrent abdominal pain and found that the rate of abdominal pain in parents and siblings of the participants was almost six times higher than in relatives of the group of control children. Gentry, Shows, and Thomas (1974) reported that of their 56 chronic low back pain patients, 59% had at least one family member with low back pain or some equally debilitating disorder. Finally, Violon and Giurgea (1984) compared 40 chronic pain patients with 50 patients with a chronic but pain-free illness. They found that 78% of the chronic pain patients came from a family in which at least one other member had suffered from chronic pain.

These studies clearly demonstrate a link between family and pain. A number of theories exist to explain this relationship. One hypothesis regarding this link between family and pain is that the pain patient assumes a "sick role" characterized by chronic pain behaviors in an attempt to divert attention away from the underlying conflict resulting from disturbances within the family (Minuchin, Baker, Rosman, Liebman, Milman, & Todd, 1975). This pattern is maintained by the family because it serves the purpose of stabilizing the family system. Payne (as cited in Payne & Norfleet, 1986) noted that of the 47 chronic pain families that she treated, most showed signs of rigidity and inability to resolve conflict. There is also evidence to suggest that chronic pain patients and their families have difficulty recognizing and verbalizing feelings (Beutler, Daldrup, Engle, Guest, Corbishley, & Meredith, 1988; Blumer & Heilbronn, 1981;

Postone, 1986) and tend to use physical explanations and surgical procedures to deal with psychic distress (Hughes & Zimin, 1978). Roy, Thomas, and Cook (1991) reported similar findings within a sample of university students with head pain and their families. Roy et al. (1991) found the families of these pain sufferers had difficulty with open exchange of information and difficulty verbalizing feelings. In addition, they found that there was little positive interaction among these families, family members overly regulated each others' lives, and that there was a great deal of intrafamilial confusion about expected and accepted attitudes and behaviors. Similarly, families of college students suffering from migraine headaches have been found to place greater emphasis on clear organization, structure, rules, and to not encourage family members to express their emotions (Ehde, Holm, & Metzger, 1991). In addition, Nicassio and Radojevic (1993) found that the families of a group of individuals suffering from fibromyalgia tended to exhibit low family cohesiveness and that there was a lack of promotion of activity and recreation in these families.

Although some research has demonstrated a relationship between family and chronic pain, there are a few studies which do not support such a relationship. For instance, although Roy et al. (1991) found that families of university students with head pain experienced a number of difficulties mentioned above, they also found that university students without pain also experienced a considerable amount of family dysfunction.

Chronic Pain and Depression

In previous research, a relationship between chronic pain and depression has been consistently demonstrated. Numerous studies have reported that between 31% and 100%

of chronic pain patients have a diagnosis of depression, with a mean of approximately 50% (e.g., Becker, Thomsen, Olsen, Sjogren, Bech, & Eriksen, 1997; Romano & Turner, 1985; Rudy, Kerns, & Turk, 1988). However, Estlander, Takala, and Verkasalo (1995) claim that this may actually be an overestimation due to the use of inventories on depression that include somatic-vegetative signs of the disorder.

However, the nature of this relationship has been widely debated among researchers. There have been three main views concerning the nature of this relationship. Eisendrath (1985) found that chronic pain conditions were associated with many psychiatric disorders and therefore concluded that chronic pain was a primary psychiatric disorder. However, researchers have also proposed that depression and chronic pain share a common biological pathway. Research has proven that neurotransmitters, such as serotonin and norepinephrine, that have been implicated in depression also play a part in the chronic pain experience (Fields, as cited in Von Korff & Simon, 1996). Lastly, it has been postulated that psychosocial factors play a part in the relationship between depression and chronic pain. For instance, Rudy et al. (1988) concluded that chronic pain patients tend to be depressed due to impaired social role performance and reduced activity levels caused by their pain.

This relationship between depression and pain has serious implications for treatment. Dworkin, Handlin, Richlin, Brand, and Vannicci (1986) found that chronic pain patients without depression benefit more from treatment than those patients with depression. In addition, Weickgenant, Slater, Patterson, Atkinson, Grant, and Garfin (1993) found that chronic pain patients with depression tend to engage in self-blame and tend to avoid problem-focused behaviors and social support.

Chronic Pain and Anxiety

Past research has found that individuals suffering from chronic pain tend to suffer from a greater incidence of anxiety. Becker et al. (1997) reported that in a sample of 150 chronic pain patients 50% suffered from an anxiety disorder. Research has also found that individuals with chronic pain report more trait anxiety (i.e., a more enduring sense of anxiety) and state anxiety (i.e., current anxiety) than individuals with chronic illness or no-illness control individuals (Dura & Beck, 1988). In addition, Dura and Beck found that individuals with chronic pain who reported greater levels of disability had higher state anxiety compared to chronic pain sufferers with lower disability due to their pain. Villarreal (1995) found that as the level of anxiety increased in a group of chronic pain sufferers, their risk of hospitalization also increased significantly. In addition, White, LeFort, Amsel, and Jeans (1997) examined risk factors in the development of chronic pain and found that those adults with acute pain who ended up developing chronic pain reported higher anxiety than those individuals whose pain was resolved. Chronic pain patients suffering from anxiety have been found to not respond favorably to treatment (Kerns & Haythornthwaite, 1988).

Chronic Pain and Self-Esteem

Self-esteem refers to an individual's feelings of his/her value or worth. In other words, self-esteem is the extent to which an individual holds him/herself in high or low regard (Seff, Gecas, & Ray, 1992). A number of studies have found that individuals with chronic pain have lower levels of self-esteem than pain-free individuals (Elton, Stanley, & Burrows, 1978; Watson, 1982; William & Thorn, 1989).

Chronic Pain and Locus of Control

Locus of control refers to how an individual interprets and attributes events in his or her life (Rotter, as cited in Scharff, Turk, & Marcus, 1995). An individual with an internal locus of control believes that life events are under his or her control (Scharff et al., 1995). External locus of control refers to the belief that events are controlled by sources external to oneself, such as other people or luck (Crisson & Keefe, 1988). Past research has found that individuals with an external locus of control in which they feel that they have no control over their health and consider that whether or not they get pain is a matter of chance tend to report more pain (Crisson & Keefe; Johnson, Magnani, Chan, & Ferrante, 1989; Klaber, Hughes, & Griffiths, 1993; Scharff et al.). In addition, these individuals do not respond as favorably to treatment than those with an internal locus of control (Haerkaepaeae, Jaervikoski, Mellin, & Hurri, 1991). Crisson and Keefe also found that adults with an external locus of control tended to rely on maladaptive pain coping strategies and reported greater psychological distress (depression and anxiety) than those individuals with an internal locus of control.

Chronic Pain and Social Support

Research has consistently found that social support is beneficial for those individuals with chronic disease in terms of their recovery and rehabilitation (Wallston, Alagna, DeVellis, & DeVellis, as cited in Gil, Keefe, Crisson, & Van Dalfsen, 1987). In addition, Klapow, Slater, Patterson, Atkinson, Weickgenant, Grant, and Garfin (1995) found that two groups of chronic low back pain sufferers are most satisfied with their social support networks – those reporting high levels of pain, low disability, and low levels of depression , and those with low levels of pain, disability, and depression.

Similarly, Kerns and Turk (1984) found that spouse support is important in decreasing depression in chronic pain sufferers. There have two main hypotheses proposed to explain this relationship. The first states that social support is beneficial because it is a positive experience for people and gives individuals socially rewarded roles (Cohen & Wills, 1985). A second explanation suggests that social support serves as a buffer against stressors (Cohen & Wills).

Chronic Pain and Illness Behavior

Antczak-Bouckoms and Bouckoms (1985) conducted a study in which they compared the behaviors of chronic pain sufferers with those with acute pain and those with no pain. They found that the chronic pain sufferers were most convinced of the seriousness of their illness (even without medical evidence). They also found that acute pain patients and individuals with no pain were more likely to attribute their pains to psychological causes. Antczak-Bouckoms and Bouckoms also found that chronic pain patients were more likely to admit to feeling sad, nervous, and anxious, admitted to the existence of additional problems other than their illness (e.g., family or financial problems), and were less likely to express their affective disturbances.

Chronic Pain and Attention

An important cognitive factor that affects the experience of pain is attention. There is clear evidence that attention to pain increases the pain experience (Arntz & De Jong, 1993; Arntz, Dreessen, & Merckelbach, 1991; Beers & Karoly, 1979; Grimm & Kanfer, 1976; Kanfer & Goldfoot, 1966; Tan, 1982; Turk, Meichenbaum, & Genest, 1983; Williams & Kinney, 1991; Worthington, 1978). Furthermore, pain can be experienced without painful stimulation, and attention focused on the pain experience is

partially responsible for some pain reports (Bayer, Baer, & Early, 1991). Whereas attention to pain appears to increase the pain experience, distraction seems to reduce reports of pain. Experimental studies designed to specifically manipulate attention show that individuals rate pain lower when they direct their attention away from the painful stimulus (Ahles, Blanchard, & Leventhal, 1983; Miron, Duncan, & Bushnell, 1989). McCaul and Malott (1984) suggested that pain perception is an effortful, nonautomatic process and that attention must be directed toward a noxious stimulus in order for it to cause suffering.

Although much of the research presented above involved adult pain sufferers, pain complaints are not limited to middle age and geriatric populations. To date, there have been a minimal number investigations of chronic pain in university aged young adults reported. Those studies that have assessed pain (both intermittent and chronic) in this age cohort have reported high frequencies of chronic pain, 18% to 23% (Sternbach, 1986; Thomas, Roy, Cook & Marykuca, 1990). However, the pain experienced by this population is a variant of the pain experienced in the middle-aged chronic pain population. These young adults tend to suffer from persistent pain but not, as yet, clinically debilitating pain. This difference makes the young adult pain sufferers a distinct subset of chronic pain sufferers.

The goal of this research is to first determine the occurrence of chronic pain versus acute/intermittent pain in a large young adult (university) sample. Furthermore, this study investigates the existence of short-term chronic pain and longer-term chronic pain in an university sample. The review has shown that psychological features are of increasing importance in understanding pain behavior in chronic pain in comparison with

acute/intermittent pain. Therefore, the time criteria for defining chronic pain as related to psychopathology needs further investigation. This research attempts to accomplish this.

In addition, this research attempts to develop a more complete behavioral, psychological, health history, and family functioning profile (pain profile) for young adult chronic pain sufferers. It is hypothesized that (1) the psychological profiles for those young adults with chronic pain will differ significantly from young adults with acute/intermittent pain. In particular, it is expected that young adults with chronic pain will experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and will be less satisfied with their social support. It is also hypothesized that (2) students reporting longer-term chronic pain will experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and will be less satisfied with their social support when compared to those reporting short-term chronic pain.

To date, little research has been reported in the literature on chronic pain profiles in the young adult age cohort. If, as Thomas and Roy (1999) have proposed in their research, there are differences in factors that impact pain at different ages then this investigation is important. They have proposed that the onset of chronic pain patterns in middle aged individuals may have been established during young adulthood rather than having developed only during a time interval just preceding the diagnosis of chronic pain in middle age. However, it should be noted that no research has been conducted to support this hypothesis. Thus, it is important to assess a young adult sample using measures typically found to be important factors in middle aged chronic pain samples. Thereby allowing any similarities or differences that may exist to be evident.

Method

Participants

The participants included 413 male and female undergraduate students. These students were introductory psychology students participating on a volunteer basis for course credit. Of these individuals, 11 were excluded from the analyses because they did not report experiencing any pain. Therefore, the remaining sample consisted of 402 students. The majority (66%) of these participants were female. The average age was 19 years, ranging from 17 – 53 years.

Materials

The demographic and pain part of the questionnaire included standard demographic and health questions used in previous studies investigating pain in university students (Roy, Thomas, & Makarenko, 1989; Thomas, Roy, & Cook, 1992; Thomas, Roy, Cook, & Marykuca, 1990; Thomas, Roy, & Makarenko, 1989). The questionnaire also assessed (a) the occurrence of chronic pain (pain lasting beyond a reasonable period of healing), and acute/intermittent pain (pain lasting less than 6 weeks), (b) pain duration, measured by the number of weeks or months pain lasted on average, and (c) pain severity, using a numeric rating scale from 1 (not painful) to 10 (extremely painful) (see Appendix A for a complete copy of the questionnaire).

The questionnaire included 10 additional measures: (a) the Beck Depression Inventory (BDI), (b) the West Haven-Yale Multidimensional Pain Inventory (WHYMPI), (c) the Rosenberg Self-Esteem Scale, (d) the Wender Utah Rating Scale (WURS), (e) the Family Environment Scale (FES), (f) the Illness Behavior Questionnaire (IBQ), (g) the Multidimensional Health Locus of Control Scale (MHLC), (h) the Pain Disability Index

(PDI), and (i) the Beck Anxiety Inventory (BAI). The Beck Depression Inventory (BDI) is a 21-item questionnaire developed to assess cognitive depression in adults (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Answers are provided on a Likert-type scale for each section, ranging from 0, indicating an absence of the problem, to 3, indicating an extreme problem. Standard BDI screening suggests using cut-off scores of 13 for identifying subjects as depressed for research and 21 for clinical diagnoses of depression (Hatzenbuehler, Parpal, & Matthews, 1983). Tanaka-Matsumi and Kameoka (1986) reported that convergent validity for the BDI was $\underline{r} = 0.68$. Hatzenbuehler et al. (1983) found that the test-retest reliability ($\underline{r} = 0.81$) was very good (see Appendix B for a complete copy of the questionnaire).

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is composed of 10 items scored on 4-point Likert rating scale. The responses are rated from 1 (strongly agree) to 4 (strongly disagree) for five items of positive self-description and five items of negative self-description. Scores range from 10 to 40. Test-retest reliability ($\underline{r} = 0.615$) and convergent validity ($\underline{r} = 0.604$) are very good (Byrne, 1983) (see Appendix C for a complete copy of the questionnaire).

The West Haven-Yale Multidimensional Pain Inventory (WHYMPI) consists of three separate sections (Kerns, Turk, & Rudy, 1985). The present study uses one of these sections that assesses subjects' descriptions of their pain complaints and the effects which pain has on their lives. This portion of the questionnaire consists of a series of 20 questions. Subjects indicate how much each of the statements apply to them on a numeric rating scale ranging from 1, indicating no problem, to 7, indicating an extreme problem. Kerns et al. (1985) found that test-retest reliability coefficients for the WHYMPI range

from 0.62 to 0.91. Kerns et al. also found that the WHYMPI was highly correlated with previously validated instruments such as the McGill Pain Questionnaire (see Appendix D for a complete copy of the questionnaire).

The Wender Utah Rating Scale (WURS) is a 61-item self-report instrument designed to assess adults' descriptions of their childhood behavior (Wender, 1985). Subjects rate each item on a 5-point Likert scale ranging from 0 (not at all or very slightly) to 4 (very much). Ward, Wender, and Reimherr (1993) found that using a cutoff score of 36 correctly identified 96% of adults with ADHD and 96% of adults without ADHD. Therefore, in the present study a score of 36 or higher classified an individual as having ADHD, whereas a score of 35 or lower classified an individual as not having ADHD. Weyandt, Linterman, and Rice (1995) reported that internal consistency (Cronbach's alpha) was 0.87. Weyandt et al. also found that test-retest reliability ($r = 0.86$) is very good (see Appendix E for a complete copy of the questionnaire).

The Family Environment Scale (FES) is a 90-item checklist which utilizes a True/False format to evaluate three dimensions of the family's social environment (Moos, 1975). The Relationship dimension yields scores for (a) cohesion, (b) expressiveness, and (c) conflict. The Personal Growth dimension taps (a) achievement orientation, (b) intellectual-cultural orientation, (c) independence, (d) moral religious emphasis, and (e) active recreational orientation. The System Maintenance dimension assesses (a) organization, and (b) control. Moos, using the Kuder-Richardson formula 20 statistics, reported internal consistencies for these 10 subscales ranging from 0.64 to 0.79. Item subscale correlations ranged from 0.45 to 0.58 respectively, while test-retest reliability varied from 0.68 to 0.86 (see Appendix F for a complete copy of the questionnaire).

Illness behaviour in the study was be assessed through the Illness Behaviour Questionnaire (Pilowsky, Murrell, & Gordon, 1979). This scale measures seven factors: (a) general hypochondriacal factor, (b) disease conviction factor, (c) affective inhibition factor, (d) affective disturbance factor, (e) denial factor, (f) irritability factor and (g) psychological vs. somatic factor. This test requires a simple "yes" or "no" response for 53 items. Good test-retest reliability has been reported ($r = 0.89$) and predictive validity for chronic illness using discriminate function found sensitivity of 97%, specificity of 73%, and a hits positive rate of 0.70 (Palsson & Kaij, 1985) (see Appendix G for a complete copy of the questionnaire).

The Multidimensional Health Locus of Control Scale (MHLC) will also be administered (Wallston & Wallston, 1978). This scale is an area-specific measure of expectancies regarding locus of control developed for the prediction of health-related behaviors. It consists of 36 items which are divided into three dimensions – internality, powerful other, and chance. Each item is answered on 6-point Likert-type scale, ranging from 1 (strongly disagree) to 6 (strongly agree). (see Appendix H for a complete copy of the questionnaire).

The Pain Disability Index (PDI) is a 7-item self-report rating scale that assesses seven categories of life activity (Pollard, 1984). The seven areas assessed are family responsibilities, recreation, social activity, occupational responsibilities, sexual behaviour, self-care, and life support activity. Items are rated on a scale ranging from 1 (no interference) to 10 (total interference). The total PDI score can range from 0 to 70. This scale has been found to be internally consistent (alpha reliability = 0.87; Pollard). Subsequent reliability in a two month test retest was significant although the correlation

(r = 0.44) was only moderate (Tait, Chibnall, & Krause, 1990). Validity studies consistently demonstrate high/low physical and verbal disability discrimination between high/low scores on the Pain Disability Index (see Appendix I for a complete copy of the questionnaire).

The Beck Anxiety Inventory is a 21-item self-report inventory instrument for measuring the severity of anxiety in adolescents and adults (Beck, Epstein, Brown, & Steer, 1988). This scale has been shown to have high test-retest reliability (r = .75) and internal consistency (alpha = .92) (Beck et al., 1988). Beck et al. also found that the inventory is moderately correlated with the Hamilton Anxiety Rating Scale (r = .51) (see Appendix J for a complete copy of the questionnaire).

A validity check also included at the end of the questionnaire. This check consisted of a single, open-ended question: "What do you think was the main purpose of this study?"

Procedure

Upon arriving on the day of testing, participants were requested to fill out an informed consent form (see Appendix K for a complete copy of the consent form), after which they completed the battery of questionnaires previously mentioned. The participants were tested in a group setting. Several control measures were taken. The order of the questionnaires were counterbalanced to control for fatigue or order effects. In addition, at the beginning of the session, the participants were instructed to not turn back to previous pages in the questionnaire once completed. This control was used to prevent participants from changing their responses to items after they had answered items farther along in the battery of tests. Once the students had completed all of the questionnaires,

they were given a debriefing sheet explaining the nature of the study (see Appendix L for a complete copy of the debriefing). The debriefing sheet included a telephone number for students interested in obtaining a copy of the results once the study is completed.

Results

The SPSS/PC version 9.0 computer software program was used for all analyses in the study. Significance was evaluated at $p < .05$ for all analyses. Of the 402 participants, 65 (15%) experienced chronic pain (i.e., pain lasting three months or longer) and 201 (50%) experienced acute/intermittent pain (i.e., pain lasting less than six weeks). For the individuals reporting chronic pain, a median split was done to divide the group into short-term chronic pain sufferers ($N = 33$) and longer-term chronic pain sufferers ($N = 32$).

Demographic characteristics (age, gender) for these three groups are provided in Table 1. There was a significant difference between the groups in terms of age, $F(2, 262) = 9.4$, $p = .000$. Post-hoc analyses indicated that longer-term chronic pain sufferers were significantly older than acute/intermittent pain sufferers ($p = .000$). However, there were no significant differences between individuals with acute/intermittent pain and those with short-term chronic pain or between those with short-term chronic pain and longer-term chronic pain. There was no statistically significant difference between the groups in terms of gender.

Descriptive statistics (mean, standard deviation, range) for pain duration and severity are given in Table 2. There were significant differences between the groups for both variables. Using a rating scale ranging from 1 (not painful) to 10 (extremely painful), a significant difference was found between the three groups in terms of pain severity, $F(2, 259) = 8.1$, $p = .000$. Post-hoc analyses indicated that individuals with

short-term chronic pain reported significantly more severe pain compared to acute/intermittent pain sufferers ($p = .003$) and that individuals with longer-term chronic pain reported significantly more severe pain than those with acute/intermittent pain ($p = .05$). However, there was no significant difference between individuals with short-term chronic pain and longer-term chronic pain in terms of pain severity. Analyses also indicated that, overall, females tended to report more severe pain compared to males [$t(389) = -3.8$, $p = .000$]. Females reported an average pain severity of 5.1, whereas males reported an average pain severity of 4.3.

Of the 13 possible pain locations indicated on the questionnaire (head, neck, back, muscle, internal, chest, joint, tooth, nausea, cramps, ear, stomach, and other), headache, muscle ache, back ache, and neck pain were most frequently reported (see Table 3). There was a significant difference in terms of the percentage of individuals in the three groups reporting joint pain, $X^2(2, N = 266) = 6.6$, $p = .04$, with more individuals with longer-term chronic pain reporting joint pain. However, there were no significant differences in the number of individuals reporting pain in the other pain locations.

Beck Depression Inventory (BDI)

There was a slight trend for individuals with longer lasting pain to report more depression compared to individuals with acute/intermittent pain and short-term chronic pain (see Table 4). However, these differences were not statistically significant, $F(2, 263) = 0.77$, $p = .47$. On average, acute/intermittent pain sufferers had a score of 6.9 on the BDI ($SD = 6.5$), with scores ranging from 0 - 44. In comparison, short-term chronic pain sufferers had an average score of 7.6 ($SD = 6.9$), with scores ranging from

0 – 36, and longer-term chronic pain sufferers had an average score of 8.4 (SD = 6.8), with scores ranging from 0 – 23.

West Haven-Yale Multidimensional Pain Inventory (WHYMPI)

Descriptive statistics for the five subscales of the WHYMPI are provided in Table 5. There were significant differences between the groups in terms of interference [F (2, 258) = 6.8, p = .001] and pain severity [F (2, 258) = 10.2, p = .000]. Post-hoc analyses indicated that individuals with longer-term chronic pain reported significantly more interference compared to individuals with acute/intermittent pain (p = .004). However, there were no significant differences found between individuals with acute/intermittent pain and those with short-term chronic pain or between individuals with short-term chronic pain and those with longer-term chronic pain in terms of interference. Post-hoc analyses also indicated that individuals with short-term chronic pain suffered from more severe pain compared to individuals with acute/intermittent pain (p = .008). In addition, individuals with longer-term chronic pain reported more severe pain than individuals with acute/intermittent pain (p = .001). There was no significant difference between individuals with short-term chronic pain and longer-term chronic pain in terms of pain severity.

Rosenberg Self-Esteem Scale

There were no significant differences between the three groups in terms of self-esteem, F (2, 263) = 0.50, p = 0.61 (see Table 4). However, there was a trend for individuals with longer lasting pain to report higher levels of self-esteem. The average score on the Rosenberg Self-Esteem Scale for individuals with acute/intermittent pain was 32.7 (SD = 5.9), with scores ranging from 10 – 40. The average score for individuals

with short-term chronic pain was 32.1 (SD = 5.6), with scores ranging from 16 – 40. The average score for individuals with longer-term chronic pain was 33.5 (SD = 4.7), with scores ranging from 20 – 40.

Wender Utah Rating Scale (WURS)

There were no significant differences between the groups in terms of attentional difficulties, F (2, 263) = 1.4, p = .25 (see Table 4). The average score on the WURS for individuals with acute/intermittent pain was 26.6 (SD = 14.9), with scores ranging from 0 – 81. The average score for individuals with short-term chronic pain was 28.5 (SD = 14.1), with scores ranging from 6 – 62. The average score for individuals with longer-term chronic pain was 26.4 (SD = 14.5), with scores ranging from 0 – 81.

Family Environment Scale (FES)

Descriptive statistics for the 10 subscales are provided in Table 6. There were no significant differences between the groups on any of the subscales (see Table 7).

Illness Behavior Questionnaire (IBQ)

Descriptive statistics for the seven subscales of the IBQ are given in Table 8. There were significant differences between the groups on the disease conviction [F (2, 263) = 6.4, p = .002] and psychological vs. somatic subscales [F (2, 263) = 4.5, p = .01]. Post-hoc analyses indicated that individuals with short-term chronic pain were significantly more convinced of their pain/illness compared to individuals with acute/intermittent pain (p = .003). No significant differences were found between individuals with longer-term chronic pain and individuals with acute/intermittent pain or between individuals with short-term chronic pain and those with longer-term chronic pain in terms of disease conviction. Post-hoc analyses also found that individuals with short-

term chronic pain tended to report that their pain/illness was more somatic in nature compared to individuals with acute/intermittent pain ($p = .02$). However, there were no significant differences between individuals with longer-term chronic pain and acute/intermittent pain or between short-term chronic pain sufferers and longer-term chronic pain sufferers in terms of a psychological vs. somatic basis of their pain.

Multidimensional Health Locus of Control Scale (MHLC)

Descriptive statistics for the three subscales of the MHLC are given in Table 9. Although the short-term chronic pain sufferers scored slightly higher on the internality subscale compared to acute/intermittent pain sufferers and longer-term chronic pain sufferers, this difference was non-significant, $F(2, 263) = 1.1$, $p = .35$. However, there was a significant difference between the groups on the powerful other [$F(2, 263) = 9.1$, $p = .000$] and chance subscales [$F(2, 263) = 4.9$, $p = .008$]. Post-hoc analyses indicated that individuals with acute/intermittent pain reported that their physical health status was under the control of a powerful other, such as a health-care professional more so than individuals with short-term chronic pain ($p = .05$) and that individuals with acute/intermittent pain also attributed their health status to the work of a powerful other more so than individuals with longer-term chronic pain ($p = .001$). However, there was no significant difference between short-term chronic pain sufferers and longer-term chronic pain sufferers on this dimension. Similarly, post-hoc analyses indicated that acute/intermittent pain sufferers were more likely to attribute their health status to chance compared to individuals with short-term chronic pain and longer-term chronic pain. Although these analyses did not reach statistical significance at the $p < .05$ level, they neared significance ($p = .07$ and $p = .06$, respectively). There was no significant

difference between short-term chronic pain sufferers and longer-term chronic pain sufferers on the chance subscale.

Pain Disability Index (PDI)

Descriptive statistics for the PDI are given in Table 10. Although there was no significant difference between the groups in terms of overall disability (total score), there were significant differences between the three groups on the family responsibilities [F (2, 262) = 3.2, p = .04], recreation [F (2, 262) = 4.8, p = .009], and occupational responsibilities [F (2, 262) = 6.0, p = .003] subscales. On the family responsibilities subscale, post-hoc analyses indicated that individuals with longer-term chronic pain reported significantly more disability than individuals with acute/intermittent pain (p = .05). There were no significant differences between individuals with short-term chronic pain and individuals with acute/intermittent pain or between individuals with short-term chronic pain and longer-term chronic pain on the family responsibilities subscale. On the recreation subscale, individuals with short-term chronic pain reported significantly more disability compared to individuals with acute/intermittent pain (p = .03). However, there were no significant differences between longer-term chronic pain sufferers and acute/intermittent pain sufferers or between short-term chronic pain sufferers and longer-term chronic pain sufferers in terms of recreation. Finally, it was found that individuals with longer-term chronic pain reported significantly more disability in the area of occupational responsibilities compared to individuals with acute/intermittent pain (p = .002). There were no significant differences found between individuals with short-term chronic pain and individuals with acute/intermittent pain or

between individuals with short-term chronic pain and those with longer-term chronic pain on the occupational responsibilities subscale.

Beck Anxiety Inventory (BAI)

Although there was no significant differences between the three groups on the BAI, F (2, 262) = 0.89, p = .41, there was a trend for individuals with longer lasting pain to report higher levels of anxiety (see Table 4). Individuals with acute/intermittent pain had an average score of 9.3 (SD = 7.4), with scores ranging from 0 – 38. Individuals with short-term chronic pain had an average of 10.3 (SD = 7.8), with scores ranging from 0 – 26. Individuals with longer-term chronic pain had an average score of 11.2 (SD = 9.9), with scores ranging from 1 – 44.

Discussion

The results from this study did not support the hypotheses. It was hypothesized that (1) the psychological profiles for those young adults with chronic pain would differ significantly from young adults with acute/intermittent pain. In particular, it was expected that young adults with chronic pain would experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and will be less satisfied with their social support. It was also hypothesized that (2) students reporting longer-term chronic pain will experience more depression, more family dysfunction, more anxiety, lower levels of self-esteem, have an external locus of control, and will be less satisfied with their social support when compared to those reporting short-term chronic pain.

Although, the differences among the groups were nonsignificant on the measures for depression and anxiety, there was a trend for individuals with chronic pain to report

more depression and anxiety than individuals with acute/intermittent pain. In addition, individuals with longer-lasting chronic pain tended to report more depression and anxiety compared to individuals with short-term chronic pain. However, these differences were non-significant. These findings lend support to past studies that have found that, on average, 50% of chronic pain patients have a diagnosis of depression (e.g., Becker, Thomsen, Olsen, Sjogren, Bech, & Eriksen, 1997; Romano & Turner, 1985; Rudy, Kerns, & Turk, 1988). However, in the present study only 3% of individuals with acute/intermittent pain scored 21 or higher on the BDI, the cut-off score for a clinical diagnosis of depression. In addition, 3% of individuals with short-term chronic pain scored 21 or higher, and 9% of individuals with longer-term chronic pain scored above the cut-off. The finding that individuals with chronic pain tend to experience more anxiety also supports the literature (e.g., Dura & Beck, 1988).

On the measure of family dysfunction, there were also nonsignificant differences between the groups. On two of the 10 subscales (independence and active recreation orientation), there was a trend for individuals with chronic pain to report more family dysfunction compared to those with acute/intermittent pain. However, for five of the 10 subscales (cohesion, expressiveness, intellectual-cultural orientation, moral religious emphasis, and organization), individuals with chronic pain reported less family dysfunction than individuals with acute/intermittent pain. When individuals with short-term chronic pain and longer-term chronic pain were compared on this measure, there were no significant differences between the groups. On seven of the 10 subscales (cohesion, expressiveness, conflict, achievement orientation, intellectual-cultural orientation, moral religious emphasis, and control), there was a trend for individuals with

short-term chronic pain to report more family dysfunction than those with longer-term chronic pain. However, on two of the 10 subscales (active recreation orientation and organization), there was a trend for individuals with longer-term chronic pain to report more family dysfunction compared to individuals with short-term chronic pain. These findings tend to support past research that has found that individuals with chronic pain report that within their family there was a lack of promotion of activity and recreation (Nicassio & Radojevic, 1993). In addition, this study also found that families of individuals with longer-term chronic pain tended to place a greater emphasis on organization. This finding also supports previous research (e.g., Ehde, Holm, & Metzger, 1991). However, the present findings are contrary to a number of studies that have been conducted that have found that families of individuals with chronic pain tend to exhibit low family cohesiveness, have difficulty with open exchange of information, and difficulty verbalizing feelings (e.g., Ehde et al., 1991; Nicassio & Radojevic, 1993; Roy et al., 1991).

Surprisingly, this study found that individuals with chronic pain reported higher levels of self-esteem compared to individuals with acute/intermittent pain. In addition, it was found that individuals with longer-term chronic pain report higher levels of self-esteem than individuals with short-term chronic pain. These findings do not support the hypotheses and are contrary to past research which has reported that individuals with chronic pain tend to experience lower levels of self-esteem (e.g., Elton et al., 1978; Watson, 1982; William & Thorn, 1989). However, these studies compared individuals with chronic pain to pain-free individuals, whereas the present study compared individuals with chronic pain to individuals with acute/intermittent pain.

In addition, it was found that individuals with acute/intermittent pain were more likely to have an external locus of control compared to individuals with chronic pain. Similarly, individuals with short-term chronic pain were more likely to have an external locus of control compared to individuals with longer-term chronic pain. This finding also does not support the hypotheses. Furthermore, it conflicts with past research which has found that individuals with an external locus of control tend to report more pain (Crisson & Keefe, 1988; Johnson et al., 1989; Klaber et al., 1993).

Finally, this study found that individuals with chronic pain tend to be more satisfied with their social support compared to those with acute/intermittent pain (although this difference was not significant). Furthermore, individuals with longer-term chronic pain reported more satisfaction compared to individuals with short-term chronic pain. This finding also does not support the hypotheses and is contrary to a previous study done by Klapow et al. (1995) which found that two groups of individuals tended to report being more satisfied with their social support networks - those reporting high levels of pain, low disability, and low levels of depression , and those with low levels of pain, disability, and depression.

Unexpectedly, this study suggests that individuals with chronic pain display some level of adaptation to their pain – experiencing high levels of self-esteem, being more likely to have an internal locus of control, and being more satisfied with their social support system. One possible explanation for these findings may be that individuals with chronic pain become accustomed to their pain and no longer view it as a disability. For example, these individuals may have integrated their pain into their self-concept (i.e., their pain has become a part of who they are). Another possible explanation for these

findings is that the social support systems of these chronic pain individuals may serve as a buffer to their pain, thereby allowing them to feel better about who they are and to believe that they have some control over their pain.

Furthermore, contrary to the hypotheses, this study found that there were no significant differences between individuals with short-term chronic pain and those with longer-term chronic pain on any of the measures. This may suggest that beyond a specific time period, duration of pain does not play a critical role in determining an individual's psychological status. For instance, on a number of measures individuals with short-term chronic pain tended to report more disturbance compared to individuals with longer-term chronic pain (e.g., family dysfunction, affective disturbance, disease conviction). This may suggest that individuals with longer-term chronic pain have started to incorporate their chronic pain into their lives, therefore not falling into a "sick role". Another possible explanation may be that individuals with short-term chronic pain may be investing more energy into trying to deal with their pain, resulting in more dysfunction, whereas individuals with longer-term chronic pain have become accustomed to their pain. Lastly, duration of pain may be secondary to severity of pain in determining psychological functioning. The present study found that when participants rated the severity of their pain on a scale from 1 (not painful) – 10 (extremely painful), pain severity was at its peak for individuals suffering from short-term chronic pain and then decreased for those individuals with longer-term chronic pain. Therefore, perhaps pain severity is responsible for psychological functioning.

One interesting finding was the high pain severity ratings by individuals with chronic pain. When participants rated the severity of their pain on a scale from 1 – 10,

individuals with short-term chronic pain reported an average severity rating of 6.0 and individuals with longer-term chronic pain reported an average rating of 5.6. These results are quite surprising. Thomas (1993) found that when university students with current chronic pain rated the intensity of their pain on a scale from 1 – 10, they reported an average rating of 4.3. The current findings are considerably divergent from this past research. These findings suggest that this chronic pain group reports pain of a severity that is clinically important.

However, there was a discrepancy between the pain severity reported on the visual analogue scale when compared to severity rated on the West Haven-Yale Multidimensional Pain Inventory (WHYMPI). When participants rated the severity of their pain on a scale from 1 – 10, pain severity was at its peak for individuals suffering from short-term chronic pain and then decreased for those individuals with longer-term chronic pain. However, on the WHYMPI, reported pain severity consistently increased as duration of pain increased. One possible explanation for this discrepancy is that pain severity reported on the WHYMPI is rated on a scale from 1 – 7. The pain severity rating scale ranging from 1 – 10 is much more sensitive in its ratings.

Consistent with the literature on pain, the present study found sex differences in reports of pain. In this study, women reported pain of greater severity than did men. This is congruent with a number of past studies on pain (e.g., Montgomery, 1994).

The results of this study indicate that chronic pain is not an uniform condition. The distress that accompanies chronic pain does not affect all individuals in the same manner. This study has extended the literature by providing a more complete behavioral, psychological, health history, and family functioning profile (pain profile) for young

adult chronic pain sufferers. In addition, this study suggests that young adults with chronic pain show some similarities to middle-aged chronic pain sufferers. Although this study found that the majority of young adult pain sufferers do not experience seriously debilitating pain and clinically significant psychological problems, it was found that individuals with chronic pain tend to experience more depression and anxiety compared to those with acute/intermittent pain. Similar findings have been reported in studies examining middle-aged chronic pain patients (e.g., Becker et al., 1997). Future research may attempt to determine if these young adult chronic pain sufferers become middle-aged chronic pain patients, using a longitudinal research design.

References

Ahles, T. A., Blanchard, E. B., & Leventhal, H. (1983). Cognitive control of pain: Attention to the sensory aspects of the cold pressor stimulus. Cognitive Therapy and Research, 7, 159-177.

Antczak-Bouckoms, A. & Bouckoms, A. J. (1985). Affective disturbance and denial of problems in dental patients with pain. International Journal of Psychosomatics, 32 (3), 9-11.

Apley, J. (1975). The child with abdominal pains. Oxford, England: Basil Blackwell.

Arntz, A., & De Jong, P. (1993). Anxiety, attention and pain. Journal of Psychosomatic Research, 37, 423-432.

Arntz, A., Dreessen, L., & Merckelbach, H. (1991). Attention, not anxiety, influences pain. Behaviour Research and Therapy, 29, 41-50.

Averill, P. M., Novy, D. M., Nelson, D. V., & Berry, L. A. (1996). Correlates of depression in chronic pain patients: A comprehensive examination. Pain, 65, 93-100.

Bayer, T. L., Baer, P. E., & Early, C. (1991). Situational and psychophysiological factors in psychologically induced pain. Pain, 44, 45-50.

Beck, A. T., Epstein, N., Brown, G., Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. Journal of Consulting and Clinical Psychology, 56, 893-897.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.

Becker, N., Thomsen, A. B., Olsen, A. K., Sjogren, P., Bech, P., & Eriksen, J. (1997). Pain epidemiology and health related quality of life in chronic non-malignant pain patients referred to a Danish multidisciplinary pain center. Pain, 73, 393-400.

Beers, T. M., & Karoly, P. (1979). Cognitive strategies, expectancy, and coping style in the control of pain. Journal of Consulting and Clinical Psychology, 47, 179-180.

Beutler, L. E., Daldrup, R., Engle, D., Guest, P., Corbishley, A., & Meredith, K. E. (1988). Family dynamics and emotional expression among patients with chronic pain and depression. Pain, 32, 65-72.

Blumer, D., & Heilbronn, M. (1981). The pain-prone disorder: A clinical and psychological profile. Psychosomatics, 22, 395-402.

Byrne, B. M. (1983). Investigating measures of self-concept. Measurement and Evaluation in Guidance, 16 (3), 115-126.

Cohen, S. & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98, 310-357.

Crisson, J. E., & Keefe, F. J. (1988). The relationship of locus of control to pain coping strategies and psychological distress in chronic pain patients. Pain, 35, 147-154.

Dura, J. R., & Beck, S. J. (1988). A comparison of family functioning when mothers have chronic pain. Pain, 35, 79-89.

Dworkin, R. H., Handlin, D. S., Richlin, D. M., Brand, L., & Vannicci, C. (1986). Unraveling the effects of compensation, litigation, and employment on treatment response in chronic pain. Pain, 23, 49-59.

Ehde, D. M., Holm, J. E., & Metzger, D. L. (1991). The role of family structure, functioning, and pain modeling in headache. Headache, 31, 35-40.

Eisendrath, S. (1995). Psychiatric aspects of chronic pain. Neurology, 45 (suppl. 9), s26-s34.

Elton, D., Stanley, G. V., & Burrows, G. D. (1978). Self-esteem and chronic pain. Journal of Psychosomatic Research, 22, 25-30.

Estlander, A., Takala, E., & Verkasalo, M. (1995). Assessment of depression in chronic musculoskeletal pain patients. Clinical Journal of Pain, 11, 194-200.

Fishbain, D. A., Cutler, R., Rosomoff, H. L., & Rosomoff, R. S. (1997). Chronic pain-associated depression: Antecedent or consequence of chronic pain? A review. The Clinical Journal of Pain, 13, 116-137.

Gentry, W. D., Shows, W. D., & Thomas, M. (1974). Chronic low back pain: A psychological profile. Psychosomatics, 15, 174-177.

Gil, K. M., Keefe, F. J., Crisson, J. E., & Van Dalfsen, P. J. (1987). Social support and pain behavior. Pain, 29, 209-217.

Grimm, L., & Kanfer, F. H. (1976). Tolerance of aversive stimulation. Behavior Therapy, 7, 593-601.

Hatzenbuehler, L. C., Parpal, M., & Matthews, L. (1983). Classifying college students as depressed or nondepressed using the Beck Depression Inventory: An empirical analysis. Journal of Consulting and Clinical Psychology, 51, 360-366.

Haerkaepaeae, K., Jaervikoski, A., Mellin, G., & Hurri, H. (1991). Health locus of control beliefs and psychological distress as predictors for treatment outcome in low-back pain patients: Results of a 3-month follow-up of a controlled intervention study. Pain, 46, 35-41.

Hughes, M. C., & Zimin, R. (1978). Children with psychogenic abdominal pain and their families. Clinical Pediatrics, 17, 569-573.

International Association for the Study of Pain. (1986). Classification of chronic pain. Descriptions of chronic pain syndromes and definition of pain terms. Pain, 28 (Suppl. 3), S1-S270.

Johnson, L. R., Magnani, B., Chan, V., & Ferrante, F. M. (1989). Modifiers of patient-controlled analgesia: I. Locus of control. Pain, 39, 17-22.

Kanfer, F. H., & Goldfoot, D. A. (1966). Self-control and tolerance of noxious stimulation. Psychological Reports, 18, 79-85.

Kerns, R. D., & Haythornthwaite, J. A. (1988). Depression among chronic pain patients: Cognitive-behavioral analysis and effect on rehabilitation outcome. Journal of Consulting and Clinical Psychology, 56, 870-876.

Kerns, R. D. & Turk, D. C. (1984). Depression and chronic pain: The mediating role of the spouse. Journal of Marriage and Family, 46, 845-852.

Kerns, R. D., Turk, D. C., & Rudy, T. E. (1985). The West Haven-Yale Multidimensional Pain Inventory. Pain, 23, 345-356.

Klapow, J. C., Slater, M. A., Patterson, T. L., Atkinson, J. H., Weickgenant, A. L., Grant, I., & Garfin, S. R. (1995). Psychosocial factors discriminate multidimensional clinical groups of chronic low back pain patients. Pain, 62, 349-355.

McCaul, K. D., & Malott, J. M. (1984). Distraction and coping with pain. Psychological Bulletin, 95, 516-533.

Minuchin, S., Baker, L., Rosman, B. L., Liebman, R., Milman, L., & Todd, T. C. (1975). A conceptual model of psychosomatic illness in children: Family organization and family therapy. Archives of General Psychiatry, 32, 1031-1038.

Miron, D., Duncan, G. H., & Bushnell, M. C. (1989). Effects of attention on the intensity and unpleasantness of thermal pain. Pain, 39, 345-352.

Montgomery, G. T. (1994). Headache characteristics among high school and university students. Headache, 34, 247-256.

Moos, R. H. (1975). Evaluating correctional and community settings. New York: Wiley Interscience.

Nicassio, P. M., & Radojevic, V. (1993). Models of family functioning and their contribution to patient outcomes in chronic pain. Motivation and Emotion, 17, 295-316.

Palsson, N., & Kaij, L. (1985). Development of a screening method for probable somatizing syndromes. Scandinavian Psychiatric Journal, 72, 69-73.

Payne, B., & Norfleet, M. A. (1986). Chronic pain and the family: A review. Pain, 26, 1-22.

Rudy, T. E., Kerns, R. D., & Turk, D. C. (1988). Chronic pain and depression: Toward a cognitive-behavioral mediation model. Pain, 35, 129-140.

Pilowsky, I., Murrell, T. G., & Gordon, A. (1979). The development of a screening method for abnormal illness behavior. Journal of Psychosomatic Research, 23, 203-207.

Pollard, C. A. (1984). Preliminary validity study of the Pain Disability Index. Perceptual Motor Skills, 59, 974-981.

Postone, N. (1986). Alexithymia in chronic pain patients. General Hospital Psychiatry, 8, 163-167.

Romano, J. M., & Turner, J. A. (1985). Chronic pain and depression: Does the evidence support a relationship? Psychological Bulletin, 97, 18-34.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Roy, R., Thomas, M. R., & Cook, A. (1991). Headache: A family affair. Headache Quarterly, 2, 135-137.

Roy, R., Thomas, M. R., & Makarenko, P. (1989). Memories of pain: Comparison of "worst pain ever" experienced by senior citizens and college students. The Clinical Journal of Pain, 5, 359-362.

Scharff, L., Turk, D. C., & Marcus, D. A. (1995). The relationship of locus of control and psychosocial-behavioral response in chronic headache. Headache, 35, 527-533.

Seff, M. A., Gecas, V., & Ray, M. P. (1992). Injury and depression: The mediating effects of self-concept. Sociological Perspectives, 35, 573-591.

Sternbach, R. A. (1986). Pain and "hassles" in the United States: Findings of the Nuprin Pain Report. Pain, 27, 69-80.

Tait, R. C., Chibnall, J. T., & Krause, S. (1990). The Pain Disability Index: Psychometric properties. Pain, 40, 171-182.

Tan, S. Y. (1982). Cognitive-behavioral methods for pain control: A selective review. Pain, 12, 201-228.

Tanaka-Matsumi, J., & Kameoka, V. A. (1986). Reliabilities and concurrent validities of popular self-report measures of depression, anxiety, and social desirability. Journal of Consulting and Clinical Psychology, 54, 328-333.

Thomas, M. R. (1993). Profiles of pain complaints and psychological functioning in a Canadian university aged population. VII World Congress on Pain. Published Abstracts, Paris, France.

Thomas, M. R., & Roy, R. (1999). The changing nature of pain complaints over the lifespan. New York: Plenum Press.

Thomas, M. R., Roy, R., & Cook, A. (1992). Reports of family pain by college students including a subsample of pain reports of parents. The Pain Clinic, 5 (3), 137-145.

Thomas, M. R., Roy, R., Cook, A., & Marykuca, S. (1990). Chronic pain in college students: Issues of management. Canadian Family Physician, 38, 2597-2601.

Thomas, M. R., Roy, R., & Makarenko, P. (1989). Social modeling in attitudes toward young and elderly subjects. Journal of Pain Management, 2, 309-315.

Turk, D. C., Meichenbaum, D., & Genest, M. (1983). Pain and behavioral medicine. New York: Guilford Press.

Turk, D. C., Rudy, E. E., & Flor, H. (1985). Why a family perspective for pain? International Journal of Family Therapy, 7, 223-234.

Villarreal, S. S. (1995). A comparative study of selected patient variables as risk factors in hospitalization for chronic headache. Headache, 35, 349-354.

Violon, A., & Giurgea, D. (1984). Familial models for chronic pain. Pain, 18, 199-203.

Von Korff, M., & Simon, G. (1996). The relationship between pain and depression. British Journal of Psychiatry, 168 (suppl. 30), 101-108.

Wallston, K. A., & Wallston, B. S. (1978). Development of the Multidimensional Health Locus of Control (MHLC) Scales. Health Education Monographs, 6 (2), 160-170.

Ward, M. F., Wender, P. H., & Reimherr, F. W. (1993). The Wender Utah Rating Scale: An aid in the retrospective diagnosis of childhood attention deficit hyperactivity disorder. American Journal of Psychiatry, 150, 885-890.

Watson, D. (1982). Neurotic tendencies among chronic pain patients: An MMPI item analysis. Pain, 14, 365-385.

Weickgenant, A. L., Slater, M. A., Patterson, T. L., Atkinson, J. H., Grant, I., & Garfin, S. R. (1993). Coping activities in chronic low back pain: Relationship with depression. Pain, 53, 95-103.

Wender, P. (1985). Wender AQCC (Adult Questionnaire-Childhood Characteristics) Scale. Psychopharmacology Bulletin, 21, 927-928.

Weyandt, L. L., Linterman, I., & Rice, J. A. (1995). Reported prevalence of attentional difficulties in a general sample of college students. Journal of Psychopathology and Behavioral Assessment, 17, 293-304.

William, D. A., & Thorn, B. E. (1989). An empirical assessment of pain beliefs. Pain, 36, 351-358.

Williams, S. L., & Kinney, P. J. (1991). Performance and nonperformance strategies for coping with acute pain: The role of perceived self-efficacy, expected outcomes, and attention. Cognitive Therapy and Research, 15, 1-19.

White, C. L., LeFort, S. M., Amsel, R., & Jeans, M. (1997). Predictors of the development of chronic pain. Research in Nursing and Health, 20, 309-318.

Worthington, E. L. (1978). The effects of imagery content, choice of imagery content, and self-verbalization on the self-control of pain. Cognitive Therapy and Research, 2, 225-240.

Appendix A

Demographic and Pain Questionnaire

1. Date of Birth _____Day _____Month _____Year

2. Age _____ years

3. Sex Male_____ Female_____

4. Religion Protestant_____ Buddhist_____

Catholic_____ Hindu_____

Jewish_____ Muslim_____

Atheist_____

Traditional Aboriginal Spirituality_____

Other_____

5. Marital Status Single_____ Divorced_____

Married_____ Common Law _____

Separated_____ Other _____

6. Years of University/Post-Secondary Education Completed

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 16+

7. University GPA _____

High School GPA/Average _____

8. Employment Full-time_____

Part-time_____

Unemployed_____

9. Area of Major Study Arts_____

Sciences_____

Physical Education_____

Engineering_____

Architecture_____

Education_____

Other_____

10. Which of the following have you ever had? (check all that apply)

Absessed Ears_____ Flu_____

Chicken Pox_____ Head Injuries_____

Encephalitis_____ Hearing Problems_____

Allergies_____ High Fever_____

Broken Bones_____ Measles_____

Convulsions_____ Meningitis_____

Diphtheria_____ Mumps_____

Operations_____ Sight Problems_____

Speech Problems_____ Whooping Cough_____

11. Have you taken medication to help you sleep?

YES_____ NO_____

12. Have you ever been prescribed medication to relieve pain?

YES_____ NO_____

13. Do you currently take medication to relieve pain?

YES_____ NO_____

14. Have you taken medication to stop depression?

YES_____ NO_____

15. Has anyone in your family been treated for depression?

YES_____ NO_____

16. Have you taken medication to stop anxiety?

YES_____ NO_____

17. Has anyone in your family been treated for anxiety?

YES_____ NO_____

18. Have you ever taken Ritalin?

YES_____ NO_____

If YES: What was the dosage of the medication? _____

Was the medication taken every day? YES_____ NO_____

Did the medication have short-acting effects or longer-lasting effects? SHORT-ACTING_____ LONGER-LASTING_____

What was the length of treatment? _____ months

Did the treatment help? YES_____ NO_____

19. Has chronic pain interfered with your school or university work?

YES_____ NO_____

20. Have you ever been treated at a pain clinic?

YES_____ NO_____

21. Have you ever used alcohol to help relieve pain?

YES_____ NO_____

22. Have you ever used alcohol to calm you down?

YES_____ NO_____

23. Have you ever used tranquilizers to calm you down?

YES_____ NO_____

24. Have you ever used exercise to calm you down?

YES_____ NO_____

25. Do you have pain today?

YES_____ NO_____

26. If you have current pain, is it the result of an accident? (answer ? if you don't have current pain)

YES_____ NO_____ ?_____

27. If you have chronic pain (i.e., pain lasting beyond a reasonable period of healing), is it the result of an accident? (answer ? if you don't have chronic pain)

YES_____ NO_____ ?_____

If YES, how severe is your chronic pain? (circle one of the following)

1 2 3 4 5 6 7 8 9 10

not severe extremely severe

If YES, how long have you had this pain? _____ weeks or _____ months

28. Which of these pain symptoms, if any, have you experienced in the past week? (Circle any that apply.)

1.) Headache
2.) Neck Pain
3.) Back Pain
4.) Muscle Ache
5.) Internal Pain
7.) Joint Pain
8.) Tooth Ache
9.) Nausea
10.) Cramps
11.) Ear Ache
13.) Other _____

6.) Chest Pain 12.) Stomach Pain

Which of the above pain symptoms was the most severe?_____

How severe was that pain symptom? (Circle one of the following.)

1 2 3 4 5 6 7 8 9 10

not severe extremely severe

29. Is the pain you experienced during the past week chronic pain (i.e., pain lasting beyond a reasonable period of healing)? (Answer ? if you had no pain during the past week.)

YES_____ NO_____ ?_____

30. How long have you had this pain? _____ weeks or _____ months

31. Is your pain getting better (i.e., healing)?

YES_____ NO_____

32. Socially, how much alcohol do you drink on average per week?

Beer _____ oz.

Wine _____ oz.

Hard Liquor _____ oz.

33. Have you ever been diagnosed as having Attention Deficit Hyperactivity Disorder (ADHD)?

YES_____ NO_____

34. Have you ever been diagnosed as having a learning disability (i.e., reading difficulties)?

YES_____ NO_____

35. Do you think you have an attentional problem?

YES_____ NO_____

36. Are you currently taking Ritalin?

YES_____ NO_____

Appendix B

The Beck Depression Inventory

The next set of questions are groups of statements. Please read each group of statements carefully. Then pick out one statement in each group which best describes the way you have been feeling the past week, including today. Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, CIRCLE EACH ONE. Be sure to read all the statements in each group before making your choice.

1.	0	I do not feel sad.
	1	I feel sad.
	2	I am sad all the time and I can't snap out of it.
	3	I am so sad or unhappy that I can't stand it.
2.	0	I am not particularly discouraged about the future.
	1	I feel discouraged about the future.
	2	I feel I have nothing to look forward to.
	3	I feel that the future is hopeless and that things cannot improve.
3.	0	I do not feel like a failure.
	1	I feel that I have failed more than the average person.
	2	As I look back on my life, all I can see is a lot of failures.
	3	I feel I am a complete failure as a person.

4.	0	I get as much satisfaction out of things as I used to.
	1	I don't enjoy things the way I used to.
	2	I don't get real satisfaction out of anything anymore.
	3	I am dissatisfied or bored with everything.
5.	0	I don't feel particularly guilty.
	1	I feel guilty a good part of the time.
	2	I feel guilty most of the time.
	3	I feel guilty all of the time.
6.	0	I don't feel I am being punished.
	1	I feel I may be punished.
	2	I expect to be punished.
	3	I feel I am being punished.
7.	0	I don't feel disappointed in myself.
	1	I am disappointed in myself.
	2	I am disgusted with myself.
	3	I hate myself.
8.	0	I don't think I am any worse than anybody else.
	1	I am critical of myself for my weaknesses or mistakes.
	2	I blame myself all the time for my failure.
	3	I blame myself for everything bad that happens.

9.	0	I don't have any thoughts of killing myself.
	1	I have thoughts of killing myself, but I would never carry them out.
	2	I would like to kill myself.
	3	I would kill myself if I had the chance.
10.	0	I don't cry anymore than usual.
	1	I cry more than I used to.
	2	I cry all the time now.
	3	I used to be able to cry, but now I can't cry even though I want to.
11.	0	I am no more irritated than I ever am.
	1	I get annoyed or irritated more easily than I used to.
	2	I feel irritated all the time now.
	3	I don't get irritated at all by the things that used to irritate me.
12.	0	I have not lost interest in other people.
	1	I am less interested in other people than I used to be.
	2	I have lost most of my interest in other people.
	3	I have lost all my interest in other people.
13.	0	I make decisions about as well as I ever could.
	1	I put off making decisions more than I used to.
	2	I have greater difficulty in making decisions than before.
	3	I can't make decisions at all anymore.

14. 0 I don't feel I look any worse than I used to.

1 I am worried that I am looking old and unattractive.

2 I feel that there are permanent changes in my appearance that make me look unattractive.

3 I believe that I look ugly.

15. 0 I can work about as well as before.

1 It takes me extra effort to get started at doing something.

2 I have to push myself very hard to do anything.

3 I can't do any work at all.

16. 0 I can sleep as well as usual.

1 I don't sleep as well as I used to.

2 I wake up 1-2 hours earlier than I used to and find it hard to get back to sleep.

3 I wake up several hours earlier than I used and cannot get back to sleep.

17. 0 I don't get more tired than usual.

1 I get tired more easily than I used to.

2 I get tired from doing almost everything.

3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.

1 My appetite is not as good as it used to be.

2 My appetite is much worse now.

3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.

1 I have lost more than 5 pounds.

I am purposely trying to lose weight. YES_____ NO_____

2 I have lost more than 10 pounds.

3 I have lost more than 15 pounds.

20. 0 I am no more worried about my health than usual.

1 I am worried about my problems such as aches and pains; or upset stomach; or constipation.

2 I am very worried about physical problems and it's hard to think of much else.

3 I am so worried about my physical problems, that I cannot think about anything else.

21. 0 I have not noticed any recent changes in my interest in sex.

1 I am less interested in sex than I used to be.

2 I am much less interested in sex now.

3 I have lost interest in sex completely.

Appendix C

The Rosenberg Self-Esteem Scale

FOLLOWING ARE A NUMBER OF STATEMENTS ABOUT THE WAY YOU FEEL ABOUT YOURSELF. PLEASE READ EACH STATEMENT AND CIRCLE THE NUMBER THAT MOST CLOSELY CORRESPONDS TO YOUR PERSONAL BELIEF ABOUT THAT ITEM. TRY TO ANSWER ON THE BASIS OF WHAT YOU REALLY THINK AND NOT BASED ON WHAT "SOUNDS GOOD OR BAD".

STRONGLY DISAGREE	MODERATELY DISAGREE	MODERATELY AGREE	STRONGLY AGREE
1	2	3	4

1 2 3 4	1. I feel that I'm a person of worth, at least on an equal plane with others.
1 2 3 4	2. I feel that I have a number of good qualities.
1 2 3 4	3. All in all, I am inclined to feel that I am a failure.
1 2 3 4	4. I am able to do things as well as most other people.
1 2 3 4	5. I feel I do not have much to be proud of.
1 2 3 4	6. I take a positive attitude toward myself.
1 2 3 4	7. On the whole, I am satisfied with myself.
1 2 3 4	8. I wish I could have more respect for myself.
1 2 3 4	9. I certainly feel useless at times.
1 2 3 4	10. At times I think I am no good at all.

Appendix D

The West Haven-Yale Multidimensional Pain Inventory

Answer the following questions to describe your pain and how it affects your life. Please circle a number on the scale under that question to indicate how that specific question applies to you. A significant other could be a spouse, boyfriend/girlfriend, a family member, or a friend.

Please circle your relationship to the person you will be rating in these questions as your significant other.

1. spouse
2. boyfriend who you have been dating for at least six months
3. girlfriend who you have been dating for at least six months
4. mother
5. father
6. sibling
7. friend

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

1 2 3 4 5 6 7

No Pain Very Intense Pain

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

1 2 3 4 5 6 7

No Interference Extreme Interference

3. Since the time you developed a pain problem, how much has your pain changed your ability to work?

1 2 3 4 5 6 7

No Change Extreme Change

_____ Check here if you have retired for reasons other than your pain problem.

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

1 2 3 4 5 6 7

No Change Extreme Change

5. How supportive or helpful is your significant other to you in relation to your pain?

1 2 3 4 5 6 7

Not At All Supportive Extremely Supportive

6. Rate your overall mood during the past week.

1 2 3 4 5 6 7

Extremely Low Mood Extremely High Mood

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

1 2 3 4 5 6 7

Not At All Severe Extremely Severe

8. How much has your pain changed your ability to participate in recreational and other social activities?

1 2 3 4 5 6 7

No Change Extreme Change

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

1 2 3 4 5 6 7

No Change Extreme Change

10. How worried is your significant other about you in relation to your pain problem?

1 2 3 4 5 6 7

Not At All Worried Extremely Worried

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

1 2 3 4 5 6 7

Not At All In Control Extremely In Control

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

1 2 3 4 5 6 7

No Suffering Extreme Suffering

13. How much has your pain changed your marriage or family relationships?

1 2 3 4 5 6 7

No Change Extreme Change

14. How much has your pain changed the amount of satisfaction and enjoyment you get from work?

1 2 3 4 5 6 7

No Change Extreme Change

_____ Check here if you are not presently working.

15. How attentive is your significant other to your pain problem?

1 2 3 4 5 6 7

Not At All Attentive Extremely Attentive

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

1 2 3 4 5 6 7

Not At All Extremely Well

17. How much has your pain changed your ability to do household chores?

1 2 3 4 5 6 7

No Change Extreme Change

18. During the past week, how irritable have you been?

1 2 3 4 5 6 7

Not At All Irritable Extremely Irritable

19. How much has your pain changed your friendships with people other than your family?

1 2 3 4 5 6 7

No Change Extreme Change

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

1 2 3 4 5 6 7

Not At All Tense or Anxious

Extremely Tense or Anxious

Appendix E

The Wender Utah Rating Scale

Listed below are items concerning children's behavior and the problems they sometimes have. Read each item carefully and decide how much you think you were bothered by these problems when you were between six and ten years old. Rate the amount of the problem by circling the number that best describes yourself at that time.

NOT AT ALL OR VERY SLIGHTLY	MILDLY	MODERATELY	QUITE A BIT	VERY MUCH
0	1	2	3	4

As a child I was (or had):

1. Active, restless, always on the go	0	1	2	3	4
2. Afraid of things	0	1	2	3	4
3. Concentration problems, easily distracted	0	1	2	3	4
4. Anxious, worrying	0	1	2	3	4
5. Nervous, fidgety	0	1	2	3	4
6. Inattentive, daydreaming	0	1	2	3	4
7. Hot- or short-tempered, low boiling point	0	1	2	3	4
8. Shy, sensitive	0	1	2	3	4
9. Temper outbursts, tantrums	0	1	2	3	4
10. Trouble with stick-to-it-tiveness, not following through, failing to finish things started	0	1	2	3	4
11. Stubborn, strong-willed	0	1	2	3	4

12. Sad or blue, depressed, unhappy	0	1	2	3	4
13. Incautious, dare-devilish, involved in pranks	0	1	2	3	4
14. Not getting a kick out of things, dissatisfied with life	0	1	2	3	4
15. Disobedient with parents, rebellious, sassy	0	1	2	3	4
16. Low opinion of myself	0	1	2	3	4
17. Irritable	0	1	2	3	4
18. Outgoing, friendly, enjoyed company of people	0	1	2	3	4
19. Sloppy, disorganized	0	1	2	3	4
20. Moody, ups and downs	0	1	2	3	4
21. Angry	0	1	2	3	4
22. Friends, popular	0	1	2	3	4
23. Well-organized, tidy, neat	0	1	2	3	4
24. Acting without thinking, impulsive	0	1	2	3	4
25. Tendency to be immature	0	1	2	3	4
26. Guilty feelings, regretful	0	1	2	3	4
27. Losing control of myself	0	1	2	3	4
28. Tendency to be or act irrational	0	1	2	3	4
29. Unpopular with other children, didn't keep friends for long, didn't get along with other children	0	1	2	3	4
30. Poorly coordinated, did not participate in sports	0	1	2	3	4
31. Afraid of losing control of self	0	1	2	3	4
32. Well-coordinated, picked first in games	0	1	2	3	4
33. Tomboyish (for women only)	0	1	2	3	4

34. Running away from home	0	1	2	3	4
35. Getting into fights	0	1	2	3	4
36. Teasing other children	0	1	2	3	4
37. Leader, bossy	0	1	2	3	4
38. Difficulty getting awake	0	1	2	3	4
39. Follower, led around too much	0	1	2	3	4
40. Trouble seeing things from someone else's point of view	0	1	2	3	4
41. Trouble with authorities, trouble with school, visits to principal's office	0	1	2	3	4
42. Trouble with police, booked, convicted	0	1	2	3	4
Medical problems as a child:					
43. Headaches	0	1	2	3	4
44. Stomachaches	0	1	2	3	4
45. Constipation	0	1	2	3	4
46. Diarrhea	0	1	2	3	4
47. Food allergies	0	1	2	3	4
48. Other allergies	0	1	2	3	4
49. Bedwetting	0	1	2	3	4
As a child in school, I was (or had):					
50. Overall a good student, fast	0	1	2	3	4
51. Overall a poor student, slow learner	0	1	2	3	4
52. Slow in learning to read	0	1	2	3	4
53. Slow reader	0	1	2	3	4

54. Trouble reversing letters	0	1	2	3	4
55. Problems in spelling	0	1	2	3	4
56. Trouble with mathematics or numbers	0	1	2	3	4
57. Bad handwriting	0	1	2	3	4
58. Able to read pretty well but never really enjoyed reading	0	1	2	3	4
59. Not achieving up to potential	0	1	2	3	4
60. Repeating grades (which grades?_____)	0	1	2	3	4
61. Suspended or expelled (which grades?_____)	0	1	2	3	4

Appendix F

Family Environment Scale

The statements listed below describe situations which could happen in a family. For each statement below, please circle "T" if the statement describes your family most of the time, or "F" if the statement does not describe your family most of the time.

T F 1. Family members really help and support one another.

T F 2. Family members often keep their feelings to themselves.

T F 3. We fight a lot in our family.

T F 4. We don't do things on our own very often in our family.

T F 5. We feel it is important to be good at whatever you do.

T F 6. We often talk about political and social problems.

T F 7. We spend most weekends and evenings at home.

T F 8. Family members attend church, synagogue, or Sunday school fairly often.

T F 9. Activities in our family are pretty carefully planned.

T F 10. Family members are rarely ordered around.

T F 11. We often seem to killing time at home.

T F 12. We say anything we want to around home.

T F 13. Family members rarely become openly angry.

T F 14. In our family, we are strongly encouraged to be independent.

T F 15. Getting ahead in life is very important in our family.

T F 16. We rarely go to lectures, plays, or concerts.

T F 17. Friends often come over for dinner or to visit.

T F 18. We don't say prayers in our family.

T F 19. We are generally very neat and orderly.

T F 20. There are very few rules to follow in our family.

T F 21. We put a lot of energy into what we do at home.

T F 22. It's hard to "blow off steam" at home without upsetting somebody.

T F 23. Family members sometimes get so angry they throw things.

T F 24. We think things out for ourselves in our family.

T F 25. How much money a person makes is not very important to us.

T F 26. Learning about new and different things is very important in our family.

T F 27. Nobody in our family is active in sports, Little League, bowling, etc.

T F 28. We often talk about the religious meanings of Christmas, Passover, or other holidays.

T F 29. It's often hard to find things when you need them in our household.

T F 30. There is one family member who makes most of the decisions.

T F 31. There is a feeling of togetherness in our family.

T F 32. We tell each other about our personal problems.

T F 33. Family members hardly ever lose their tempers.

T F 34. We come and go as we want to in our family.

T F 35. We believe in competition and "may the best man win".

T F 36. We are not interested in cultural activities.

T F 37. We often go to movies, sports events, camping, etc.

T F 38. We don't believe in heaven or hell.

T F 39. Being on time is very important in our family.

T F 40. There are set ways of doing things at home.

T F 41. We rarely volunteer when something has to be done at home.

T F 42. If we feel like doing something on the spur of the moment we often just pick up and go.

T F 43. Family members often criticize each other.

T F 44. There is very little privacy in our family.

T F 45. We always strive to do things just a little better the next time.

T F 46. We rarely have intellectual discussions.

T F 47. Everyone in our family has a hobby or two.

T F 48. Family members have strict ideas about what is right and wrong.

T F 49. People change their minds often in our family.

T F 50. There is a strong emphasis on following rules in our family.

T F 51. Family members really back each other up.

T F 52. Someone usually gets upset if you complain in our family.

T F 53. Family members sometimes hit each other.

T F 54. Family members almost always rely on themselves when a problem comes up.

T F 55. Family members rarely worry about job promotions.

T F 56. Someone in our family plays a musical instrument.

T F 57. Family members are not very involved in recreational activities outside work or school.

T F 58. We believe there are some things you have to take on faith.

T F 59. Family members make sure their rooms are neat.

T F 60. Everyone has an equal say in family decisions.

T F 61. There is very little group spirit in our family.

T F 62. Money and paying bills is openly talked about in our family.

T F 63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.

T F 64. Family members strongly encourage each other to stand up for their rights.

T F 65. In our family, we don't try hard to succeed.

T F 66. Family members often go to the library.

T F 67. Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).

T F 68. In our family, each person has different ideas about what is right and wrong.

T F 69. Each person's duties are clearly defined in our family.

T F 70. We can do whatever we want to in our family.

T F 71. We really get along well with each other.

T F 72. We are usually careful about what we say to each other.

T F 73. Family members often try to one-up or outdo each other.

T F 74. It's hard to be by yourself without hurting someone's feelings in our household.

T F 75. "Work before play" is the rule in our family.

T F 76. Watching TV is more important than reading in our family.

T F 77. Family members go out a lot.

T F 78. The Bible is a very important book in our home.

T F 79. Money is not handled very carefully in our family.

T F 80. Rules are pretty inflexible in our household.

T F 81. There is plenty of time and attention for everyone in our family.

T F 82. There are a lot of spontaneous discussions in our family.

T F 83. In our family, we believe you don't ever get anywhere by raising your voice.

T F 84. We are not really encouraged to speak up for ourselves in our family.

T F 85. Family members are often compared with others as to how well they are doing at work or school.

T F 86. Family members really like music, art, and literature.

T F 87. Our main form of entertainment is watching TV or listening to the radio.

T F 88. Family members believe that if you sin you will be punished.

T F 89. Dishes are usually done immediately after eating.

T F 90. You can't get away with much in our family.

Appendix G

Illness Behavior Questionnaire

HERE ARE SOME QUESTIONS. CIRCLE EITHER YES OR NO TO INDICATE YOUR ANSWER TO EACH QUESTION.

YES NO 1. Do you worry a lot about your health?

YES NO 2. Do you think there is something seriously wrong with your body?

YES NO 3. Does your illness interfere with your life a great deal?

YES NO 4. Are you easy to get on with when you are ill?

YES NO 5. Does your family have a history of illness?

YES NO 6. Do you think you are more liable to illness than other people?

YES NO 7. If the doctor told you that he could find nothing wrong with you, would you believe him?

YES NO 8. Is it easy for you to forget about yourself and think about all sorts of other things?

YES NO 9. If you feel ill and someone tells you that you are looking better, do you become annoyed?

YES NO 10. Do you find that you are often aware of various things happening in your body?

YES NO 11. Do you ever think of your illness as punishment for something you have done wrong in the past?

YES NO 12. Do you have trouble with your nerves?

YES NO 13. If you feel ill or worried, can you be easily cheered up by the doctor?

YES NO 14. Do you think that other people realize what it's like to be sick?

YES NO 15. Does it upset you to talk to the doctor about your illness?

YES NO 16. Are you bothered by many pains and aches?

YES NO 17. Does your illness affect the way you get on with your family or friends a great deal?

YES NO 18. Do you find that you get anxious easily?

YES NO 19. Do you know anybody who has had the same illness as you?

YES NO 20. Are you more sensitive to pain than other people?

YES NO 21. Are you afraid of illness?

YES NO 22. Can you express your personal feelings easily to other people?

YES NO 23. Do people feel sorry for you when you are ill?

YES NO 24. Do you think that you worry about your health more than most people?

YES NO 25. Do you find that your illness affects your sexual relations?

YES NO 26. Do you experience a lot of pain with your illness?

YES NO 27. Except for your illness, do you have any problems in your life?

YES NO 28. Do you care whether or not people realize you are sick?

YES NO 29. Do you find that you get jealous of other people's good health?

YES NO 30. Do you ever have silly thoughts about your health which you can't get out of your mind, no matter how hard you try?

YES NO 31. Do you have any financial problems?

YES NO 32. Are you upset by the way people take your illness?

YES NO 33. Is it hard for you to believe the doctor when he tells you there is nothing for you to worry about?

YES NO 34. Do you often worry about the possibility that you have got a serious illness?

YES NO 35. Are you sleeping well?

YES NO 36. When you are angry, do you tend to bottle up your feelings?

YES NO 37. Do you often think that you might suddenly fall ill?

YES NO 38. If a disease is brought to your attention (through the radio, television, newspapers or someone you know) do you worry about getting it yourself?

YES NO 39. Do you get the feeling that people are not taking your illness seriously enough?

YES NO 40. Are you upset by the appearance of your face or body?

YES NO 41. Do you find that you are bothered by many different symptoms?

YES NO 42. Do you frequently try to explain to others how you are feeling?

YES NO 43. Do you have any family problems?

YES NO 44. Do you think there is something the matter with your mind?

YES NO 45. Are you eating well?

YES NO 46. Is your bad health the biggest difficulty of your life?

YES NO 47. Do you find that you get sad easily?

YES NO 48. Do you worry or fuss over small details that seem unimportant to others?

YES NO 49. Are you always a co-operative patient?

YES NO 50. Do you often have the symptoms of a very serious disease?

YES NO 51. Do you find that you get angry easily?

YES NO 52. Do you have any work problems?

Appendix H

Multidimensional Health Locus of Control Scale

PLEASE RESPOND TO THE FOLLOWING STATEMENTS BY CIRCLING A NUMBER (1-6) TO INDICATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT:

1. If I get sick, it is my own behavior which determines how soon I get well again.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

2. Health professionals keep me healthy.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

3. No matter what I do, if I am going to get sick I will get sick.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

4. When I stay healthy, I'm just plain lucky.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

5. Having regular contact with my physician is the best way for me to avoid illness.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

6. My physical well-being depends on how well I take care of myself.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

7. Most things that affect my health happen to me by accident.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

8. When I feel ill, I know it is because I have not been taking care of myself properly.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

9. Whenever I don't feel well, I should consult a medically trained professional.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

10. The type of care I receive from other people is what is responsible for how well I recover from an illness.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

11. I am in control of my health.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

12. Even when I take care of myself, it's easy to get sick.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

13. My family has a lot to do with my becoming sick or staying healthy.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

14. When I become ill, it's a matter of fate.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

15. When I get sick I am to blame.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

16. I can pretty much stay healthy by taking good care of myself.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

17. Luck plays a big part in determining how soon I will recover from an illness.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

18. Following doctors' orders to the letter is the best way for me to stay healthy.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

19. Health professionals control my health.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

20. If I become sick, I have the power to make myself well again.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

21. My good health is largely a matter of good fortune.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

22. Often I feel that no matter what I do, if I am going to get sick, I will get sick.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

23. The main thing which affects my health is what I myself do.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

24. If I see an excellent doctor regularly, I am less likely to have health problems.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

25. If I take care of myself, I can avoid illness.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

26. It seems that my health is greatly influenced by accidental happenings.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

27. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

28. I can only maintain my health by consulting health professionals.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

29. No matter what I do, I'm likely to get sick.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

30. I am directly responsible for my health.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

31. If it's meant to be, I will stay healthy.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

32. Other people play a big part in whether I stay healthy or become sick.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

33. If I take the right actions, I can stay healthy.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

34. Whatever goes wrong with my health is my own fault.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

35. Regarding my health, I can only do what my doctor tells me to do.

STRONGLY DISAGREE — STRONGLY AGREE

1 2 3 4 5 6

36. When I am sick, I just have to let nature run its course.

STRONGLY DISAGREE					STRONGLY AGREE
1	2	3	4	5	6

Appendix I

Pain Disability Index

The rating scales below are designed to measure the degree to which several aspects of your life are presently disrupted by chronic pain. In other words, we would like to know how much your pain is preventing you from doing what you would normally do, or from doing it as well as you normally would. Respond to each category by indicating the overall impact of pain in your life, not just when the pain is at its worst.

For each of the 7 categories of life activity listed, please circle the number on the scale which describes the level of disability you typically experience. A score of 0 means no disability at all, and a score of 10 signifies that all of the activities in which you would normally be involved have been totally disrupted or prevented by your pain.

1. FAMILY/HOME RESPONSIBILITIES

This category refers to activities related to the home or family. It includes chores or duties performed around the house (e.g., yard work) and errands or favors for other family members (e.g., driving the children to school).

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

2. RECREATION

This category includes hobbies, sports, and other similar leisure time activities.

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

3. SOCIAL ACTIVITY

This category refers to activities which involve participation with friends and acquaintances other than family members. It includes parties, theatre, concerts, dining out, and other social functions.

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

4. OCCUPATION

This category refers to activities that are part of or directly related to one's job. This includes non-paying jobs as well, such as that of a housewife or volunteer worker.

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

5. SEXUAL BEHAVIOR

This category refers to the frequency and quality of one's sex life.

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

6. SELF-CARE

This category includes activities which involve personal maintenance and independent daily living (e.g., taking a shower, driving, getting dressed, etc.).

0 1 2 3 4 5 6 7 8 9 10

NO DISABILITY — TOTAL DISABILITY

7. LIFE-SUPPORT ACTIVITY

This category refers to basic life-supporting behaviors such as eating, sleeping, and breathing.

0	1	2	3	4	5	6	7	8	9	10
NO DISABILITY										TOTAL DISABILITY

Appendix J

Beck Anxiety Inventory

Please read each item in the list carefully. Then indicate how much you have been bothered by each item during the PAST WEEK, INCLUDING TODAY by circling the number corresponding to your answer.

	Not at all	Mildly. It did not bother me much.	Moderately. It was very unpleasant but I could stand it.	Severely. I could barely stand it.
1. Numbness or tingling.	0	1	2	3
2. Feeling hot.	0	1	2	3
3. Wobbliness in legs.	0	1	2	3
4. Unable to relax.	0	1	2	3
5. Fear of the worst happening.	0	1	2	3
6. Dizzy or lightheaded.	0	1	2	3
7. Heart pounding	0	1	2	3

or racing.				
8. Unsteady.	0	1	2	3
9. Terrified.	0	1	2	3
10. Nervous.	0	1	2	3
11. Feelings of choking.	0	1	2	3
12. Hands trembling.	0	1	2	3
13. Shaky.	0	1	2	3
14. Fear of losing control.	0	1	2	3
15. Difficulty breathing.	0	1	2	3
16. Fear of dying.	0	1	2	3
17. Scared.	0	1	2	3
18. Indigestion or discomfort in abdomen.	0	1	2	3
19. Faint.	0	1	2	3
20. Face flushed.	0	1	2	3
21. Sweating (not due to heat).	0	1	2	3

Appendix K

Participant Consent Form

1. I, _____ , agree to participate in this study investigating pain perceptions conducted by Ms. Jennifer Garinger and supervised by Dr. Michael Thomas, Associate Professor of Psychology at the University of Manitoba.

2. I consent to the publication of the study results so long as my name is not included and my identity is kept confidential.

3. I understand that my participation in the study includes answering truthfully and to the best of my ability questions on a questionnaire for credit towards my course. If selected, I may choose to participate in a longitudinal study that may be conducted at some time in the future.

4. I understand that I may withdraw from this study at any time.

5. I understand that when the study is completed, the results will be made accessible to me.

_____ _____

Participant's Signature Date

_____

Phone Number

Appendix L

Debriefing Form

The purpose of this study was to investigate the occurrence of chronic pain and acute pain in a university young adult sample. In addition, this study looked at behavioral, psychological, and family functioning measures related to chronic pain.

We would like to thank you for participating in our study. The results will be made available in January, 2000 and the strictest of measures shall be taken to maintain confidentiality. If you have any further questions or concerns, please contact Dr. Michael Thomas at 474-9633. If you experience chronic pain and wish to seek treatment, please contact your family doctor.

We would ask that you do not discuss this study with persons in your class or from other sections of the introductory psychology course, as they may be potential participants in the future, if additional data are required.

Thank you for your time and cooperation.

Table 1

Demographic Characteristics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers

Variable	Acute/intermittent	Short-term	Longer-term
Age (yrs)	18.9	20.4	21.6
Males	41%	21%	28%
Females	59%	79%	72%

Table 2

Descriptive Statistics for Pain Duration and Severity for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers

Variable	Mean	Standard deviation	Range
Pain duration (in weeks)			
Acute/intermittent	1.3	0.97	0 - 5
Short-term	34.3	15.4	12 - 52
Longer-term	159.0	113.5	52 – 416
Pain severity			
Acute/intermittent	4.7	2.0	1 - 9
Short-term	6.0	1.8	3 - 9
Longer-term	5.6	2.0	1 – 10

Table 3

Percentage of Acute/Intermittent Pain Sufferers, Short-Term Pain Sufferers, and Longer-Term Pain Sufferers Reporting Pain in the Past Week for a Specific Location

Location	Acute/intermittent	Short-term	Longer-term
Head	65%	64%	59%
Muscle	56%	58%	66%
Back	49%	67%	66%
Neck	36%	46%	44%
Joint	23%	33%	44%
Stomach	22%	36%	16%
Cramps	26%	24%	22%
Internal	6%	12%	9%
Chest	11%	6%	13%
Tooth	13%	9%	19%
Nausea	13%	6%	6%
Ear	8%	0%	6%
Other	5%	15%	0%

Note. Multiple responses reported. Totals will add up to more than 100%.

Table 4

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the BDI, Rosenberg Self-Esteem Scale, WURS, and BAI

Variable	Mean	Standard deviation	Range
BDI			
Acute/intermittent	6.9	6.5	0 – 44
Short-term	7.6	6.9	0 – 36
Longer-term	8.4	6.8	0 – 23
Rosenberg self-esteem scale			
Acute/intermittent	32.7	5.9	10 – 40
Short-term	32.1	5.6	16 – 40
Longer-term	33.5	4.7	20 – 40
WURS			
Acute/intermittent	26.6	14.9	0 – 81
Short-term	28.5	14.1	6 – 62
Longer-term	26.4	14.5	0 – 81
BAI			
Acute/intermittent	9.3	7.4	0 – 38
Short-term	10.3	7.8	0 – 26
Longer-term	11.2	9.9	1 – 44

Table 5

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the WHYMPI

Subscale	Mean	Standard deviation	Range
Interference			
Acute/intermittent	1.6	0.87	0.10 - 5
Short-term	2.0	1.0	1 - 6
Longer-term	2.2	1.3	1 - 5
Support			
Acute/intermittent	3.8	1.7	0 - 7
Short-term	4.0	1.8	1 - 6
Longer-term	4.1	1.5	1 - 7
Pain severity			
Acute/intermittent	2.0	1.2	0.30 - 6
Short-term	2.8	1.5	1 - 6
Longer-term	2.9	1.4	1 - 6
Life-control			
Acute/intermittent	5.3	1.5	1 - 7
Short-term	5.8	0.90	4 - 7
Longer-term	5.1	1.6	2 - 7

(table continues)

Table 5

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the WHYMPI

Subscale	Mean	Standard deviation	Range
Affective distress			
Acute/intermittent	2.6	1.4	0.30 - 6
Short-term	2.4	1.2	0.30 - 5
Longer-term	3.0	1.4	1 – 6

Table 6

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the FES

Subscale	Mean	Standard deviation	Range
Cohesion			
Acute/intermittent	7.6	2.0	2 - 10
Short-term	7.3	2.2	3 - 10
Longer-term	7.2	2.0	3 - 10
Expressiveness			
Acute/intermittent	5.2	2.2	0 - 9
Short-term	4.8	2.3	0 - 9
Longer-term	4.7	2.1	0 - 8
Conflict			
Acute/intermittent	3.6	2.4	0 - 9
Short-term	4.0	2.5	0 - 8
Longer-term	3.5	2.3	0 – 8
Independence			
Acute/intermittent	6.8	1.6	1 - 9
Short-term	6.9	1.4	2 - 9
Longer-term	6.9	1.4	4 – 9

(table continues)

Table 6

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the FES

Subscale	Mean	Standard deviation	Range
Achievement orientation			
Acute/intermittent	5.7	1.6	1 - 9
Short-term	5.9	1.8	2 - 9
Longer-term	5.2	1.6	2 - 8
Intellectual - cultural orientation			
Acute/intermittent	5.6	2.3	0 - 9
Short-term	5.5	2.4	0 - 9
Longer-term	5.3	2.3	0 - 8
Active recreation orientation			
Acute/intermittent	6.5	1.9	1 - 9
Short-term	6.6	1.8	3 - 9
Longer-term	6.8	1.4	4 - 9
Moral religious emphasis			
Acute/intermittent	4.0	2.5	0 - 9
Short-term	3.9	2.3	1 - 8
Longer-term	3.7	2.4	0 – 9

(table continues)

Table 6

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the FES

Subscale	Mean	Standard deviation	Range
Organization			
Acute/intermittent	5.5	2.2	0 - 9
Short-term	4.9	2.3	0 - 8
Longer-term	5.1	1.6	1 - 7
Control			
Acute/intermittent	4.3	2.2	0 - 9
Short-term	4.6	2.4	0 - 9
Longer-term	4.0	2.6	0 - 9

Table 7

Analysis of Variance for FES

Subscale	F (2, 262)	p
Cohesion	0.60	.55
Expressiveness	1.3	.28
Conflict	0.55	.58
Independence	0.13	.88
Achievement orientation	1.9	.15
Intellectual - cultural orientation	0.20	.82
Active recreation orientation	0.59	.55
Moral religious emphasis	0.17	.85
Organization	1.0	.36
Control	0.61	.55

Table 8

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the IBQ

Subscale	Mean	Standard deviation	Range
General hypochondriacal			
Acute/intermittent	2.0	1.9	0 - 8
Short-term	1.8	1.8	0 - 6
Longer-term	1.6	1.8	0 - 6
Disease conviction			
Acute/intermittent	1.5	1.1	0 - 6
Short-term	2.2	1.5	0 - 6
Longer-term	1.8	1.2	0 - 5
Psychological vs. somatic			
Acute/intermittent	1.9	0.74	0 - 4
Short-term	1.5	0.67	0 - 3
Longer-term	1.7	0.87	0 - 4
Affective inhibition			
Acute/intermittent	0.84	0.79	0 - 2
Short-term	0.79	0.82	0 - 2
Longer-term	0.75	0.80	0 – 2

(table continues)

Table 8

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the IBQ

Subscale	Mean	Standard deviation	Range
Affective disturbance			
Acute/intermittent	1.1	1.0	0 - 3
Short-term	0.97	1.0	0 - 3
Longer-term	0.94	1.0	0 - 3
Denial			
Acute/intermittent	2.1	0.98	0 - 3
Short-term	1.9	1.1	0 - 3
Longer-term	1.9	1.0	0 - 3
Irritability			
Acute/intermittent	0.84	0.82	0 - 3
Short-term	0.76	0.79	0 - 3
Longer-term	0.78	0.83	0 - 2

Table 9

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the MHLC

Subscale	Mean	Standard deviation	Range
Internality			
Acute/intermittent	51.0	9.2	16 - 70
Short-term	53.3	8.8	31 - 72
Longer-term	50.2	11.7	27 - 66
Powerful other			
Acute/intermittent	34.9	9.1	13 - 62
Short-term	30.9	8.9	15 - 50
Longer-term	28.6	6.3	18 - 48
Chance			
Acute/intermittent	36.3	9.5	14 - 64
Short-term	32.3	9.2	12 - 50
Longer-term	32.1	8.1	19 - 47

Table 10

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the PDI

Subscale	Mean	Standard deviation	Range
Total score			
Acute/intermittent	8.3	11.5	0 - 64
Short-term	10.0	11.2	0 - 37
Longer-term	12.3	9.8	0 - 32
Family responsibilities			
Acute/intermittent	1.0	1.8	0 - 9
Short-term	1.5	2.1	0 - 7
Longer-term	1.9	2.1	0 - 7
Recreation			
Acute/intermittent	2.0	2.4	0 - 10
Short-term	3.2	3.5	0 - 9
Longer-term	3.0	2.5	0 - 8
Social activity			
Acute/intermittent	1.2	2.0	0 - 9
Short-term	1.4	2.2	0 - 8
Longer-term	1.3	1.9	0 – 8

(table continues)

Table 10

Descriptive Statistics for Acute/Intermittent Pain Sufferers, Short-Term Chronic Pain Sufferers, and Longer-Term Chronic Pain Sufferers on the PDI

Subscale	Mean	Standard deviation	Range
Occupational responsibilities			
Acute/intermittent	1.4	2.2	0 - 10
Short-term	1.8	2.4	0 - 7
Longer-term	3.0	3.0	0 - 9
Sexual behavior			
Acute/intermittent	0.90	2.0	0 - 10
Short-term	1.2	2.0	0 - 8
Longer-term	1.6	2.3	0 - 8
Self-care			
Acute/intermittent	0.66	1.6	0 – 10
Short-term	0.61	1.2	0 - 4
Longer-term	0.56	0.95	0 - 3
Life support activity			
Acute/intermittent	1.1	2.1	0 - 10
Short-term	0.39	0.93	0 - 4
Longer-term	1.1	2.1	0 – 8