Chronic Pain and Treatment in Multidisciplinary Programs: Factors Related to Success for Medicare versus Private Pay Patients

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Erin Laura Demirjian

University of Dayton

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Approved By:

Charles E. Kimble, Ph.D.
Chairperson, Thesis Committee

Frank J. DaPolito, Ph.D.
Thesis Committee Member

Roger N. Reeb, Ph.D.
Thesis Committee Member

Concurrence:

F. Thomas Eggemeier, Ph.D.
Chairperson, Department of Psychology

ABSTRACT

CHRONIC PAIN AND TREATMENT IN MULTIDISCIPLINARY PROGRAMS: FACTORS RELATED TO SUCCESS FOR MEDICARE VERSUS PRIVATE PAY INSURANCE

Name: Erin Demirjian

University of Dayton, 1997

Advisor: Charles E. Kimble. Ph.D.

This thesis examines whether functional activity, pain perceived, medication usage, and psychological status are related to success of Medicare patients who have participated in an abbreviated version of the Multidisciplinary Pain and Stress Rehabilitation Program at the Miami Valley Hospital. The participants were forty patients who completed either the one to two week or three to four week program. A control group, patients who were accepted into the program but chose not to participate, was also used. The purpose of this study was to compare patients who participated in the short version

of the program to patients who have completed the longer program.

Repeated measure analyses of variance (2 x 3 ANOVAs) by three groups and two times of measurement for the variables was performed. The three to four week and one to two week groups at each of the intervals was compared (time of admission, and one to four years later) in this analysis. Also, Newman Keuls tests were performed on all measures at intake and follow-up. Paired samples t-test were performed on variables that showed a significant difference in means between the intake and the follow-up. Correlations were also examined.

Results indicated that both treatment groups had more success than the control. However, significant differences were not found among the two treatment groups. Repeated measure ANOVAs indicated significant differences in means among treatment groups for perceived pain, psychological status and leisure activity. The paired sample t-tests indicated differences in means for all seven variables for both treatment groups and there was not a significant difference for the control group. Correlations showed that

the amount of relaxation was positively related to psychological status.

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CHAPTER 1

INTRODUCTION

Previous studies have evaluated multidisciplinary pain programs similar to the pain and Stress Rehabilitation program at the Miami Valley Hospital which consist of one to four weeks of inpatient therapy. This study will examine patients covered by Medicare and only those who participated in the program for one to two weeks. Whether the abbreviated version of the pain program is helpful in improving functional activity at home, reducing pain perceived, reducing medication usage, and improvement of psychological status one to four years later will be evaluated. This group will be compared to the success of private pay insurance patients who participated in the full three to four week program. The control group, approved Medicare patients who chose not to participate in the program, will be used to evaluate if the abbreviated program had any effect. The patients who have completed the three to four week program

through workers compensation will be excluded from this study due to confounding variables concerning possible motives for poor recovery.

Background of Chronic Pain

Chronic pain is one of the most common and challenging problems faced by the medical community. Over 50 million Americans are partially or completely disabled by pain for different amounts of time ranging from a few days (e.g., recurrent headaches) to years (Bonica, 1985; MacKenzie & Wakat, 1990). Many have permanent conditions. It has been estimated that over 700 million work days, annually, have been lost due to workers with chronic pain which, together with health costs and payments for compensation, litigation and ineffective care alternatives, totals nearly $60 billion a year (Bonica, 1985). Even more importantly than the economic repercussions are the costs related to human suffering. It is a troubling fact, when even science and technology are so sophisticated, that millions of patients still suffer from chronic pain (Bonica, 1985). Some patients with known but unremovable pathology, such as cancer, cannot rationalize the pain and become depressed and commonly

develop feelings of hopelessness and despair. The patients usually go from one doctor to another and from one clinic to another. Commonly, the pain sufferer will experience hopefulness and then disappointment, gradually becoming increasingly bitter and resentful towards doctors (Bonica, 1985).

Generation of Pain

The brain perceives pain as a result of signals that travel to the brain for processing. Pain is not actually present in the tissues, such as the joint or muscle, that are damaged (MacKenzie et al., 1990). The signal severity, intensity, and frequency determine the degree of pain perceived by the brain. The central nervous system automatically triggers a defensive or aversive response that is in direct proportion to the perceived intensity of the signal when acute pain is perceived. Without this response, serious tissue damage can often occur (Engelbart & Vrancken, 1984).

The Perception of Pain

At the moment the signals reach the central nervous system, they are translated into verbal, action, and/or

emotional responses. When acute pain signals are involved, the responses typically reflect the situation being confronted. For example, if a person touches a hot burner, he would immediately withdraw his finger and scream "ouch!" (MacKenzie et al., 1990).

Individuals have different coping abilities when dealing with pain, which establishes their functional activity level (Jensen, Turner, & Romano, 1991). Commonly, multidisciplinary pain programs teach patients cognitive-behavioral strategies to cope with their pain such as reinterpretation of symptoms, dissociation, self-hypnosis, and distraction (Lawson, Reesor, Keefe, & Turner, 1990).

Chronic Pain

Once healing is completed, the intensity and frequency of signal transmission to the central nervous system moderates. However, in some cases the perception of pain may persist after the tissue that has healed or in tissue has not healed (MacKenzie et al., 1990). Some clinicians use the arbitrary figure of six months to identify pain as chronic; however, this is not requisite due to the many diseases or injuries which should heal in two, three, or four weeks. If

pain is still present three to four weeks after expected healing time, it must be considered chronic (Bonica, 1985). The continued presence of pain is perceived due to the hypothalamus, thalamus, and limbic system which are still being stimulated. This stimulation frequently results in an elevated baseline of sympathetic nervous system function. Individuals experiencing chronic pain may experience increased heart rate, increased blood supply to the muscles and brain, decreased blood supply to the viscera and skin, and increased respiration. Because chronic pain induces a state of constant readiness, a vicious cycle that further escalates the amount of perceived pain is set up (MacKenzie et al., 1990). Another cause for chronic pain can be due to operant mechanisms (environmental factors) and psychopathology. Environmental and psychological factors play a prominent role in the etiology and development of chronic pain behavior in many patients. Chronic pain often imposes severe emotional, physical, economic, and social stress on the patient and the family (Bonica, 1985).

Measuring Pain

Previously, pain was understood as a sensation, which

has long been thought and taught. It is now recognized as a clinical symptom, specifically an unpleasant emotional experience. Despite the fact that in all of its manifestations pain is a neurological disorder, it does not belong in the same category of primary perceptual experiences as do vision, hearing, smell, touch, and kinesthesis. Rather, pain is an abnormal affective state that is generated in the sympathetic system of some of the same limbic regions of the cerebral cortex as are all other affective (i.e. emotional) states (Wyke, 1981). Pain is always a symptom and never a physical sign. When assessing pain, one is, therefore, entirely dependent on the patient's report of the severity of pain experienced. The physical signs that are usually indicators of pain are: changes in facial expression, muscle tone and posture, respiratory activity, and gastrointestinal functioning. However, the magnitude of these symptoms have no quantitative relationship to the intensity of the patient's suffering (Wyke, 1981).

Medication Usage

Multiple medications can cause behavioral changes, and often when medications are prescribed in high dosages, can

lead to intoxication. Some individuals with chronic pain, particularly when due to environmental or emotional factors, manipulate their families, persons at work, and physicians to prescribe multiple drugs. The number of people seeking assistance from mental health counselors for chronic pain has quadrupled in the past three decades. Individuals experiencing chronic pain may become depressed and irritable, over-medicate themselves, and decrease their social and physical activity. They may also have problems sleeping, and may experience a general reduction in the quality of living (MacKenzie et al., 1990).

The Multidisciplinary Approach

In most situations acute pain can be controlled by traditional interventions; however, in some cases, the pain becomes chronic and unresponsive to any single modality of treatment. Pain is a multidimensional phenomenon comprising sensory, affective, motivational, environmental, and cognitive components. Given that chronic pain is maintained by multifactorial components, multidisciplinary pain programs were initiated. Typically, multidisciplinary pain programs include physical therapy, body mechanics, posture training,

relaxation procedures, stress management, biofeedback, pain medication reduction, individual and group counseling, and vocational rehabilitation. Commonly, the clinic may include anaesthetists, neurosurgeons, neurologists, occupational and physical therapists, neurotherapists, psychiatrists and psychologists. Pain clinics emphasize a multimodal approach to the pain problem. Most programs strive to accomplish reduction of subjective pain ratings, pain medications, and health-care utilization, increased physical activity after treatment, and return to work (Deardroff, Rubin, & Scott, 1991). Often, these programs offer inpatient and outpatient programs according to the amount of care the patient requires. The inpatient programs are generally three to four weeks long. The patient is required to stay in the hospital during the week but has weekends off. The outpatient programs can be from short weekly sessions to several weeks of all-day treatment. Unfortunately, no research exists at present which examines abbreviated programs that could be found. All of the research found is concerning three to four week programs.

Usually individuals who have debilitating chronic pain

and are unresponsive to conventional inpatient approaches require a more comprehensive, multidisciplinary in-patient pain program. Their symptoms of pain, life disruptions, depressive illness, drug-seeking behavior, and entrenchment in the disability system, can be better managed on an in-patient basis (Aronoff,1985). In some situations, the patient will be recommended to enter a combination in/outpatient pain rehabilitation program.

Generally chronic pain patients are the consequence of previous medical treatment failures. The treatment goal for an acute pain patient is to cure the individual, which is unlike that of a chronic pain patient. For example, a traditional cure for chronic back pain, degenerative disk disease that has been present for years, is usually not possible. In fact, it is unlikely that the patient will ever return to his premorbid status. To give a patient the hope that he will return to that former status is not only non-therapeutic, but also unethical. What the patient should be told is that there is no corrective procedure available in his particular case, but that there are techniques to help him cope with his pain. It is possible that the patient can

learn to be more active and comfortable, with limited medications, and normalize his or her lifestyle (Aronoff, 1985).

Screening

The motivation and attitude of the patient, rather than his medical impairment, may be the most important factors in assessing prognosis and addressing the probable degree of future disability. The patient must be willing to make the changes the program recommends and want to be actively involved in the pain program prior to being accepted. Motivation on the part of the patient is essential. It is not enough that the individual's doctor or family has asked him to receive treatment. Pain Centers must be selective in their admission process. Behavior modification to reinforce adaptive behaviors and extinguish self-defeating maladaptive behaviors requires that the patient have the capacity for insight and self-change. Some patients are not capable of this and if the Pain Center can detect this early enough, this individual would not be appropriate for the program and is denied admission. Some patients with cognitive defects, dementia, severe hearing defects, or limited English language

capabilities would also not be suitable for a pain program (Aronoff, 1985).

Workers compensation patients are not appropriate for the study proposed because of possible motives to not succeed in the program or avoid returning to work. Many individuals who have chronic pain receive pain-related disability compensation whose primary factors are psychosocial as much as or more than organic factors that contribute to their pain. For example, a laborer with a high school education or less who has chronic low back pain and has had multiple procedures may be totally and permanently disabled from his previous job, which required heavy lifting, prolonged and repetitive bending, and excessive trunk twisting. There are, however, a number of vocational areas from which this individual is not exempt (Aronoff, 1985).

Programs must deal with individuals who are already receiving disability compensation. The program's team must assess whether the patient is motivated towards behavioral change or if he is content with collecting compensation, having others attend to him, and whether he is apt to assume the passive-dependent role. In this case, admission should

be deferred (Aronoff, 1985).

Counseling in Pain Centers

It has become apparent that psychological factors are insolubly connected with chronic pain (Kleinke, 1991). Pain clinics almost always offer counseling services, which are handled by a psychiatrist or psychologist. The psychiatrist or psychologist plays an important role in the multidisciplinary team. (Aronoff & Rutrick, 1985). The therapy that patients receive in most pain clinics is considered brief focal psychotherapy, which has been demonstrated to be beneficial in improving coping abilities and understanding chronic pain (Whale, 1992).

Mental health counselors must be acquainted with the many different approaches used for chronic pain treatment, including medical and nonmedical, to deal with the problem. Often these approaches incorporate the use of behavioral and/or cognitive behavioral methods and many include relaxation, visualization, biofeedback, behavior modification, and systematic desensitization (MacKenzie & Wakat, 1990). Research has shown that cognitive behavioral interventions are effective in reducing dysfunction and in

perception of pain in chronic pain patients (Subramanian, 1986).

Patients can learn relaxation, visualization, and/or biofeedback methods to help them reduce muscle tension and autonomic activity such as rapid breathing and increased heart rate, which are commonly experienced by those with chronic pain. By using these techniques the patient's level of perceived pain and the severity of emotional distress can be greatly reduced. Heinrich, Cohen, Michael & Naliboff (1982) examined the benefit of behavioral therapy, physical therapy and cognitive strategies and determined that these treatments showed significant positive outcomes in the areas of improved psychological and psychosocial functioning, and altered pain intensity and perception of pain (Heinrich, et al. 1982).

Counselors also teach patients how to modify their behavior patterns which helps them to regain or retain as much mobility as possible. Some patients will decrease their amount of physical activity when in pain and some tend to refuse to comply with exercises or other types of physical activity prescribed by the physician. Exercise programs have

become a crucial part of multidisciplinary pain programs. Their success, in the use of exercise quota systems, demonstrated by Dolce, Crocker, Moletteire, & Doleys (1986) showed an increase of activity levels among pain patients (Dolce, et al. 1986).

It is beneficial to the patient to help them work through their fears and anxieties about exercise, or simply moving in general. For some patients, pain experiences have been so exacerbating that they have withdrawn from friends, family, and other social contacts. Systematic desensitization has proven to be an effective way of helping such people return to a more active, social, and rewarding lifestyle.

Counseling sessions will also deal with the various non-pain-related factors and patterns of family dynamics that may be adversely affecting the client. These factors often need to be assessed and worked through in order to reduce their impact and provide some relief for the patient (Grant & Haverkamp, 1995).

Insurance Coverage

There are three situations concerning insurance that

would allow the patient referred to a pain program to be covered: private pay insurance, workers compensation, and Medicare. The private pay patients are either self-referred or referred by a physician who believes a multidisciplinary pain program would be beneficial. The patient is then evaluated by the program to ensure appropriateness for the three to four week program and in most cases the insurance company will agree to cover the patient for three to four weeks of inpatient therapy. The same process is performed for the Medicare patient. Medicare will, however, almost always limit the patient to one to two weeks of inpatient therapy. Medicare believes that the benefit of the remainder of the program is not cost effective and therefore requires the patient to participate in a shortened version of a pain program.

Importance of Recovery

A good pain management program will include psychosocial rehabilitation to assist the individual in returning to productivity whenever possible (Aronoff, 1985; Klapow, Slater, patterson, Atkinson, Weickgenant, Grant, & Garfin, 1995). It is important to encourage patients to return to

work as sick leave data shows that a person has almost no chance of returning to work after missing three months due to injury (Linton. 1987). Part of the problem for the pain patient may be due to lack of occupation and not solely the pain entirely (Linton. 1987).

In our society, lack of productivity will usually lead to lowered self-esteem, passive dependency, and depression. When a program assists a patient in becoming declared disabled unnecessarily, it should be considered a disservice. The assessment of disability is a legal issue, not a medical one, and should be resolved by the courts or an administrative judge of law. The Pain Center and its team should assess which functions an individual can no longer perform, what an individual is able to accomplish, and their prospects for future improved functioning. An objective assessment of medical status, restriction, and limitations must be made. In addition, an estimate of the patient's motivation and attitude should be concluded from the psychosocial evaluation (Aronoff, 1985).

Multidisciplinary Programs Studies Which Utilized a Control Group

There are very few outcome studies of multidisciplinary chronic pain programs which have included a no-treatment control. In reviewing the literature it can be found almost universally that there is a decrease in pain ratings, health care utilization, pain medications, and an increase in physical functioning (Cairns, Mooney & Crane, 1984; Cinciripini & Floreen, 1982; Keefe, Block, Williams & Surwitt, 1981; Tollison, Kriegel & Downie, 1985; Wiesel, Feffer and Borenstein, 1988). These four studies showed a range of 14% to 42% reduction in pain ratings. A reduction of health care utilization ranged from 45% to 90% and a reduction of pain medications ranged from 35% to 65%. An overall increase in physical functioning was reported in all four studies.

Follow-up

It is necessary to do long-term follow-ups to determine the efficiency of treatment programs. Often follow-up studies have common problems, such as lack of comparison and control groups, primarily using self-reported measures rather

than more objective methods of assessing outcome, and use of outcome measures with questionable validity and reliability (Aronoff, Evans, & Enders, 1983). In order to determine the success of a program, the improvement of functional activity of the patient must be examined. However, standardized tests are not available to determine functional activity, so it is necessary for the indices being measured to be unambiguous and to involve a minimum of clinical judgements (McArthur, Cohen, Gottlieb, Nalibof, & Schandler, 1987).

Follow-ups reveal which behaviors that patients learned in the program have still been helpful to them. For example, Subramanian and Rose (1988) found that, in a two year follow-up study of a pain program that taught cognitive-behavioral strategies for coping with chronic pain, almost all of the patients were still successfully using the strategies taught in the program. It was also shown in a study performed by Sturgis, Schaefer and Sikora (1984) that positive treatment outcomes continued at 2.5 year follow-up. In addition, Roberts and Reinhardt (1980) performed 1 - 8 year follow-up and found that 77% the patients who participated in the program were still employed or participating in appropriate

activities, were not receiving any compensation for pain, had no further hospitalizations, or surgeries for pain since evaluation, and not taking any pain medications. However, in the control group only one subject met the criteria listed above.

Hypothesis

The purpose of this study is to examine patients covered by Medicare, and therefore only covers patients' participation in the program for one to two weeks. Additionally, the study attempts to determine whether the abbreviated version of the pain program is helpful in improving functional activity at home, reducing pain perceived, reducing medication usage, use of relaxation techniques, reducing number of doctor visits and improving psychological one to four years later will be evaluated. This group's success was compared to that of private pay insurance patients' who participated in the full three to four week program. The control group, approved Medicare patients who chose not participate in the program, will be used to evaluate if the abbreviated program had any effect.

It is proposed that functional activity, pain perceived, medication usage, doctor visits, relaxation techniques and

psychological status are the moderating factors for the success of a Medicare patient who has participated in an abbreviated version of the Pain and Stress Rehabilitation program at the Miami Valley Hospital. The participants were divided into three groups: Medicare, private pay, and control. The participants consisted of forty participants, seventeen male and twenty three female, in total. twenty three Medicare patients, sixteen male and seven female, who have had one to two weeks of therapy in the inpatient pain program, seventeen private pay patients, six male and eleven female, who have participated in the full three to four week pain program and a control group comprised of ten patients, four male and six female, who were referred to the pain clinic but chose not to participate will be used in this study.

It was hypothesized that the three to four week treatment group will be the most likely to have success in the program which was measured by improving functional activity at home, reducing pain perceived, reducing medication usage, increasing exercise and relaxation techniques per week and improvement of psychological status

immediately after completing the program and one to four years later. It was hypothesized this group will have more success than the one to two week treatment group who will be more likely to have little change from their prior status when they entered the program. The control groups should show no change from the ratings they obtain in their evaluation and the ratings from the one to four year follow-up survey. In addition, it was hypothesized that the three to four week treatment would have the highest income, followed by the one to two week treatment and that the control group would have the lowest annual income.

CHAPTER II

METHOD

Subjects

Three groups were examined in this study. The first group was comprised of twenty three, (seven male and sixteen female), Medicare patients who have completed only one to two weeks of the pain program within a four year period. The second group was seventeen private pay insurance patients, (six male and eleven female), who completed the full three to four week program. These participants were between fifty-four and sixty-four years of age. This is the closest age group to the Medicare participants who have an average age of sixty-four. The third group was used as the control. The control group was composed of ten Medicare patients, (four male and six female), who were referred to the program but chose not to participate after being evaluated by the team at the Pain Center.

The patients in the treatment groups were comprised of both self-referred and physician-referred clients. Treatment

took place in the Miami Valley Pain Center. The patients in this study have developed their chronic pain as a result of various circumstances.

Program Description

The Miami Valley Hospital, located in Dayton Ohio, offers a multidisciplinary pain program, which is entitled The Pain and Stress Rehabilitation program. The Pain Clinic's team is comprised of a neurologist, a pain management clinical nurse specialist, physical and occupational therapists, registered nurses, a clinical psychologist, social workers, pharmacists, and a dietician. Other specialists are available on a consultative basis, such as psychiatrists, physicians specializing in rehabilitation, and anesthesiologists.

There are several ways a patient is referred to the Pain Center: by their physician, rehabilitation counselors, or another health care professional, and self-referral. An initial assessment is implemented by the neurologist, nurse clinical specialist, psychologist and others as needed on a consultation basis. Interdisciplinary team meetings are held on a weekly basis to review patient progress towards their

interdisciplinary goals and revise interventions and goals as necessary. This group then determines the eligibility of the patient by assessing the patient's communicative skills, willingness to understand and participate in program's recommendations, and the potential for successful pain rehabilitation rather than to look for a cure. Those patients with significant psychiatric disorders or terminal illnesses are not accepted into the program and other treatment options are recommended.

The Pain Center offers outpatient services, inpatient treatment, or a combination of the two to those individuals experiencing long-term chronic pain. The inpatient treatment requires the patient to complete a three to four week program, while the outpatient program may only demand the patient to spend one to two weeks or less as an inpatient client. Medicare patients would be considered to be in the outpatient program. The clinic clusters the new patients, combining inpatient and outpatient clients together, into groups of four to eight individuals, who will go through the program together.

The patients receive treatments which are similar to

those offered by other multidisciplinary programs, such as medical/nursing services, physical/occupational therapies, body mechanics, medication counseling, nutritional counseling, psychological services, relaxation, biofeedback, vocational counseling, aftercare, an available support group, and family services.

The primary goal of the Pain Center is to help the patient enjoy a more active lifestyle in addition to improving the health of the patient and eliminating unnecessary medications, particularly narcotics. Throughout the program, the patients' medications are adjusted according to their needs. In addition, the patients are educated about the types of medications and their proper uses that pertain to their situation. In order to increase the patient's strength and mobility, physical and occupational therapists educate them about body mechanics. The staff psychologist meets with the patients as a group and individually to discuss psychological and social issues associated with chronic pain. Immediately following the patient's graduation from the program, they are required to participate in the Aftercare program. This program is made up of four half-day

sessions for three to four weeks following completion of the program.

The costs involved for the evaluation and treatment of a patient are dependent on the patient's treatment needs. Most medical insurance plans will cover the cost of the pain program, but some programs such as Medicare may only cover one to two weeks of inpatient care.

Materials

Materials for subject participation include the the follow-up telephone questionnaire (see Appendix A), criteria for pain, activity and psychological status ratings (see Appendix B) and evaluative rating forms (refer Appendix C). Each participant was rated on a 5-point scale for each variable: functional activity, pain medications, and psychological status. The participants were rated on an 11 point scale for pain perceived. The criteria for the ratings were developed by the staff at the Miami Valley Pain Center. Data from the charts will be obtained and transferred to the data collection form and then the telephone interview data will be added to the follow-up column of the data collection form. A written consent form will be mailed to each participant

informing them of the purpose of the study and giving them the choice to participate or not (refer to Appendix D).

Validity and Reliability

The questions used in the telephone interview are the same questions the team at the Miami Valley Pain Center uses for the intake. The team at the Miami Valley Pain Center developed these questions seven years ago. The Pain Center is monitored for patient outcome by the Credential Association for Rehabilitation Facilities (CARFP). CARFP has approved the use of these questions by the Pain Center for seven years. The questions on the one to four year follow-up questionnaire concern the following topics: pain medication use, perceived pain, psychological status, functional activity (which is broken into three categories; self-care, work activity,and leisure activity), number of doctor visits, amount of exercise, amount of relaxation techniques used, and household income.

Pain Medication Use

Each patient was seen by the neurologist at the time of of admission to the program. The neurologist provided the medication rating based on how many medically unnecessary

pain medications the patient was taking (see Appendix B for criteria). This rating was recoded at both intervals. The experimenter recorded, from the follow-up interview, the medications the patient was taking one to four years later at which time the neurologist determined the new rating.

Perceived Pain

The participant gave a self-reported pain rating at the time of admission to the program. At that time they were asked to rate their pain "On a scale from 0 to 10 where 10 is the worst and 0 means no pain, where would you rate your pain now?". The experimenter, during the follow-up interview, assessed perceived pain by asking the same question.

Psychological Status

The patients were evaluated by the psychologist on staff and assigned a psychological status rating (refer to Appendix B for psychological criteria and rating scale). Each patient received a rating of 1-5 according to where they fit in the rating criteria. The psychologist made a new assessment after completing each week of therapy.

Functional Activity

The patients were evaluated by the occupational

therapist on staff and given a rating of 1-5 according to their functional activity. The physical therapist determined functional activity in three different areas: self care activities, leisure activities, and work activities and which were rated 1-5 (see Appendix B for criteria). The ratings were recorded at both intervals.

Number of Doctor Visits

Each patient was asked during their intake how many doctor visits they had within the last year for their pain problem, the same question was asked on the follow-up telephone interview.

Amount of Exercise and Relaxations Sessions

Each patient who participated in the pain program was taught to develop an exercise schedule and relaxation techniques. Each participant, including those in the control group, reported the amount of exercise in minutes and how many times they used their relaxation techniques per week during the follow-up interview.

Household Income

Each participant was asked, only during the follow-up interview, to report their household income which was rated

on a three-point scale. 1 = $10,000 - $25,000, 2 = $25,000 - $35,000, and 3 = above $35,000.

Procedure

Consent from the Miami Valley Hospital was obtained before beginning any telephone interviews which permitted information from the charts and from the patients to be used for research. Consent was obtained by the experimenter submitting a proposal to the Miami Valley Hospital and being approved by their Institutional Review Board (IRB). The experimenter then sent a consent letter to all potential participants informing them of the purpose of the study and a contact number which they could call if they did not wish to participate in the study. The consent letter was sent to each participant certified return receipt and the experimenter only contacted responding participants. This letter also explicitly stated what information the experimenters will be obtaining from their chart. After each participant had been sent the consent letter, the experimenter began the follow-up telephone interviews. After all of the data was collected from the charts and through the telephone interviews the experimenter removed all personal

identifiers. The data sheets will become Miami Valley Hospital property and be kept in a locked cabinet at the Miami Valley Hospital. The active charts were kept in locked cabinets and inactive charts stored in the locked hospital storage space. Each subject was debriefed at the end of the telephone interview. The participants were informed of the purpose of the study and assured that their identity would not be mentioned in the study.

All patients, during their first visit to the clinic, were evaluated by the members of the staff who provided ratings for functional activity, pain perceived, medication usage and psychological status. The ratings were made when the patient was admitted to the program. Approximately one to four years after completing the program, the last rating (follow-up) was obtained through phone interviews made by a graduate student at the University of Dayton. The graduate student asked the participants a series of questions regarding their current health status. These questions were asked under the supervision of the Investigator from the clinic following notification of the patient that they have the option not to participate.

Medicare participants who had gone through the program for one to two weeks were rated for all the variables on the date of their admission, and one to four years later. The rating for the one to four year follow-up were performed by an experimenter over the telephone. The experimenter asked the same questions the members of the staff asked at the prior interval.

The participants with private pay insurance were rated for functional activity, pain perceived, medication usage and psychological status at their date of admission and at the one to four years telephone interview for all the variables.

The control group, comprised of participants who would have gone though the program but refused, were rated at the date of their evaluation and contacted for the one to four year follow-up telephone interview for all the variables.

CHAPTER III

Results

The purpose of the present study was to examine whether the abbreviated version (one to two weeks) of the pain program is helpful in improving functional activity at home, reducing pain perceived, reducing medication usage, and improving psychological status one to four years later as compared to patients in the full program (three to four weeks). In order to do this, each patient's intake ratings for all variables was compared to the follow-up ratings. The control group, approved Medicare patients who chose not to participate in the program, were used to evaluate if the abbreviated program had any effect.

This study measured, on a 0-10 scale (with 10 meaning the most pain), subjects' rating of perceived pain at two times, intake and follow-up. Also, on 5-point scales, physician's rating of pain medication use (with 1 meaning the most medication), and patients' psychological status,(with 5

meaning the best)were assessed. Functional activity (with 5 meaning the best), which is broken into three categories; self-care, work activity, and leisure activity were also assessed before and after treatment. Number of doctor visits for each subject was recorded in the one year period prior to their pain clinic evaluation for intake, and was again recorded for the one-year period prior to the date of the follow-up interview. Amount of exercise and number of relaxation sessions per week were recorded in minutes per week. Amount of exercise, amount of relaxation session and annual household income were assessed only at the follow-up. The other seven variables were within-subjects dependent variables with measurements at intake and follow-up. On a three-point scale, household income was recorded only at the follow-up for each subject (1 = $10-$25,000, 2 = $25 - $35,000 and 3 = above $35,000).

Measures of Change From Intake to Follow-up

In order to address the hypotheses of the study, a 2 x 3 repeated measure analyses of variance (ANOVA) by three groups

and two times of measurement for the seven variables was performed in order to determine treatment effects on perceived pain, pain medications, psychological status, self-care activity, work activity, leisure activity, and amount of doctor visits. Refer to appendix E for the ANOVA tables. Additional t-test results between pre-post measurements will be presented if the analysis of variance on a particular item showed a significant interaction between pain treatment groups and time of measurement. The three paired t-tests are presented for the control, one to two week and three to four week groups.

The means for each condition (control, 1-2 week, and 3-4 week) of each of the seven variables for intake and follow-up can be found in Table 1. Univariate analyse of variance (ANOVA) were performed on the seven variables described earlier separately for the intake and follow-up measures. Refer to Appendix F for results of these simple effects.

Table 1

Means for Each Condition for Each of the Seven Variables

Variables	Intake	Follow-up
Pain Ratings		
Control	8.00	7.90
1-2 Weeks	8.76	6.56
3-4 Weeks	8.33	5.67
Pain Medications		
Control	2.70	3.40
1-2 Weeks	2.38	4.25
3-4 Weeks	2.79	4.14
Psychological Status		
Control	2.50	2.20
1-2 Weeks	2.71	3.29
3-4 Weeks	2.57	3.93
Work Activity		
Control	2.10	2.50
1-2 Weeks	2.25	3.29
3-4 Weeks	2.21	3.57
Self-Care Activity		
Control	3.50	4.20
1-2 Weeks	3.91	4.64
3-4 Weeks	4.38	4.85
Leisure Activity		
Control	2.50	3.40
1-2 Weeks	1.67	4.04
3-4 Weeks	2.07	4.57
Doctor Visits		
Control	12.80	6.30
1-2 Weeks	10.91	1.63
3-4 Weeks	27.67	3.92

Perceived Pain Rating

Each subject rated his/her perceived pain level at intake and follow-up. There was a significant interaction between pre-post measures pain rating and pain treatment condition on these pain ratings, F (2,47)= 3.67, p <.05, shown in Figure 1.

The paired sample t-test showed significance when comparing the pre-post means for both the three to four week and one to two week treatment groups; Three to Four Week t (14)= 3.92, p < .001, One to Two Week t (24)= 4.16, p < .001. No significant difference was found for the control treatment, t (9)= .26, p = .798. Both the one to two week program and the three to four week program showed improvement, while the control group did not.

Pain Medication Rating

There was no significant effect for the interaction of pain treatment conditions and intake and follow-up, F (1,47)= 1.64, p = .206 shown in Figure 2.

The paired sample t-test indicated significance when comparing the pre-post means for both the three to four week and one to two treatment groups; Three to Four Week t (13)= -

3.09 p = .00, One to Two Week t (24)= -4.97, p < .001. No significant difference were found for the control treatment t (9)= -1.35, p = .209.

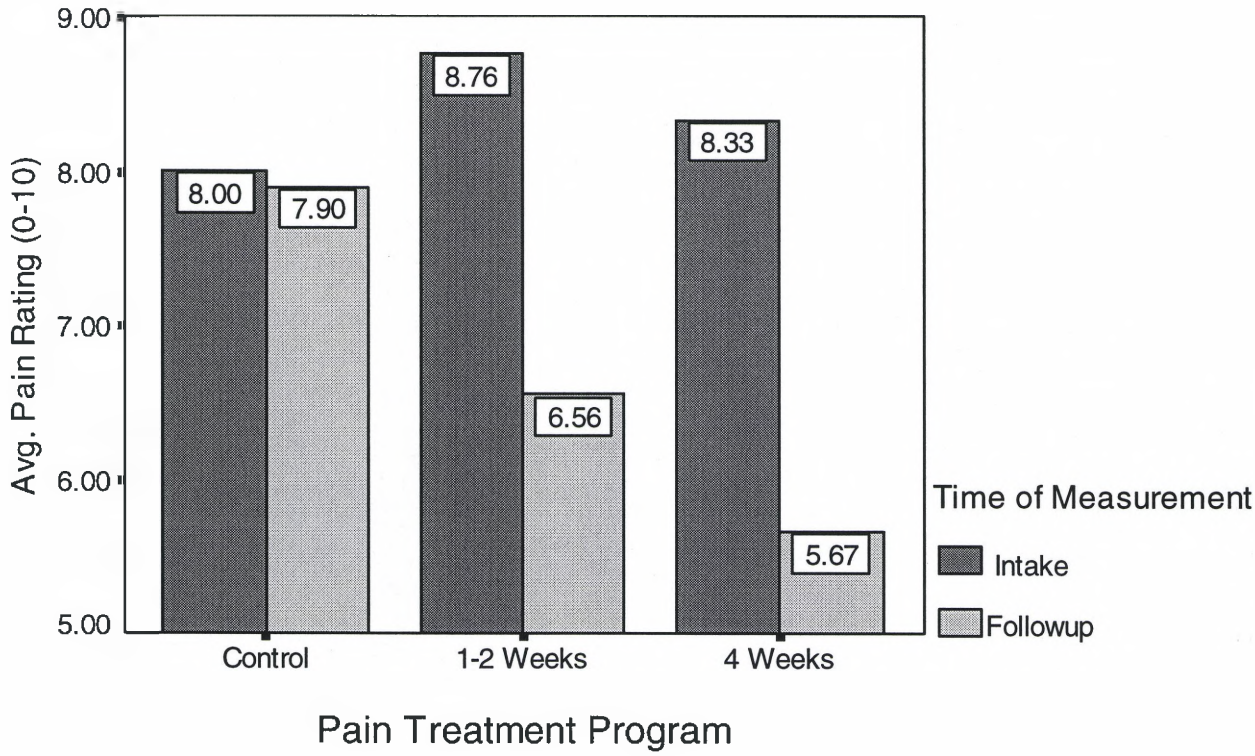

Figure 1. Average perceived pain rating for intake and follow-up.

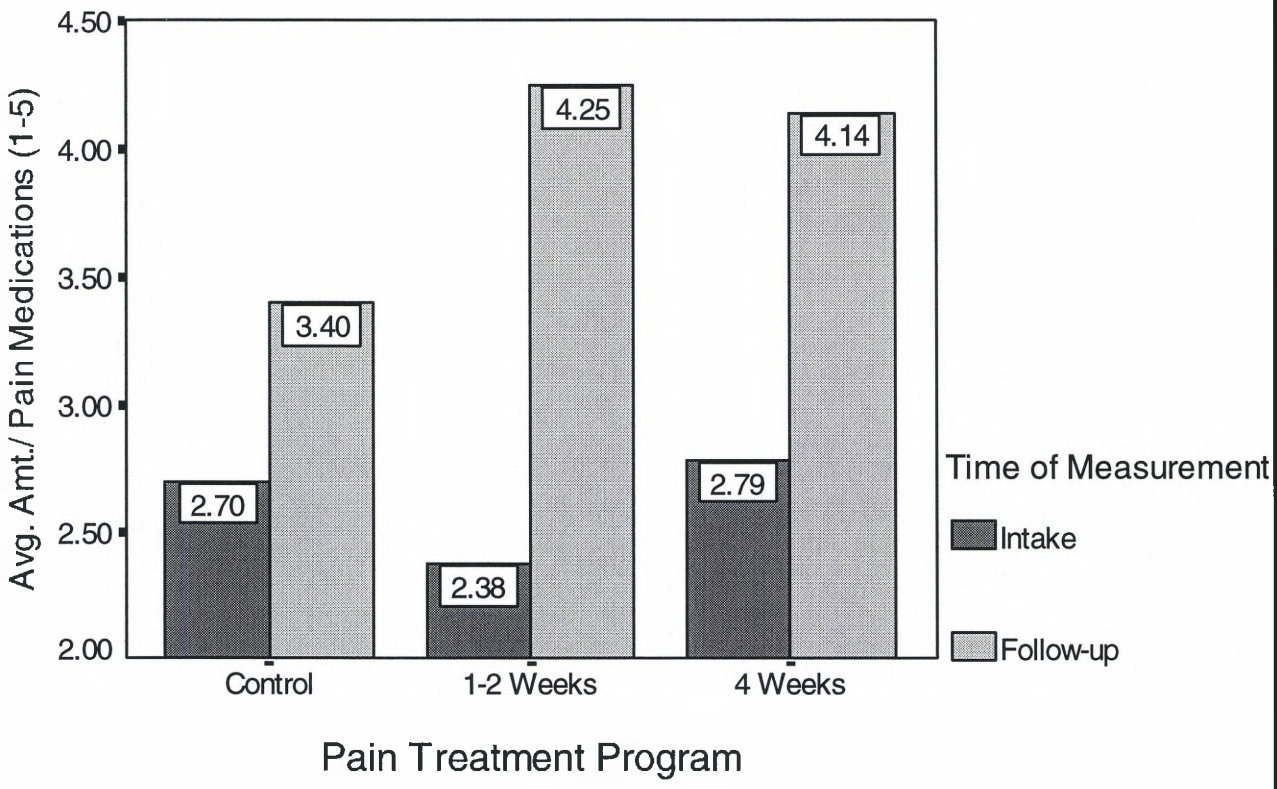

Figure 2. Average pain medication rating for intake and follow-up.

The nonsignificant interaction indicates that the pre-post improvement in pain medication among the three groups were not different.

Psychological Status

There was a significant effect for the interaction between intake and follow-up measures and pain treatment conditions on psychological status, F (2,47)= 5.56, p = .007 shown in Figure 3.

The paired sample t-test indicated significance when comparing the pre-post means for both the three to four week and one to two treatment groups; Three to Four Week t (13)= -3.80, p = .002; One to Two Week t (24)= -2.17, p = .040. No significant difference was found for the control treatment, t (9)= 1.96, p = .081.

Self-Care Activity

There was not a significant difference found for the interaction between intake and follow-up measures and pain treatment conditions on self-care activity, F (2,47)= .25, p = .783 as shown in Figure 4. So there was no significant difference in improvement for the three groups.

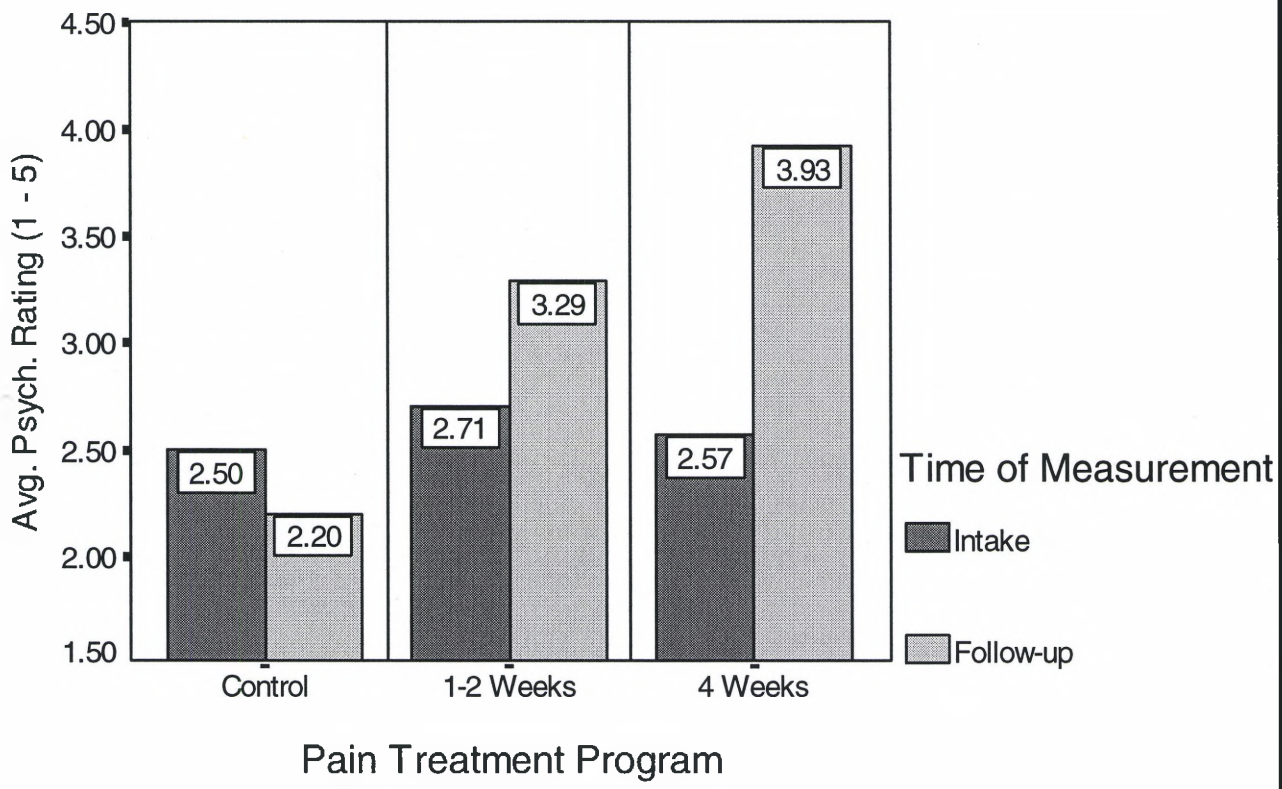

Figure 3. Average psychological status rating for intake and follow-up.

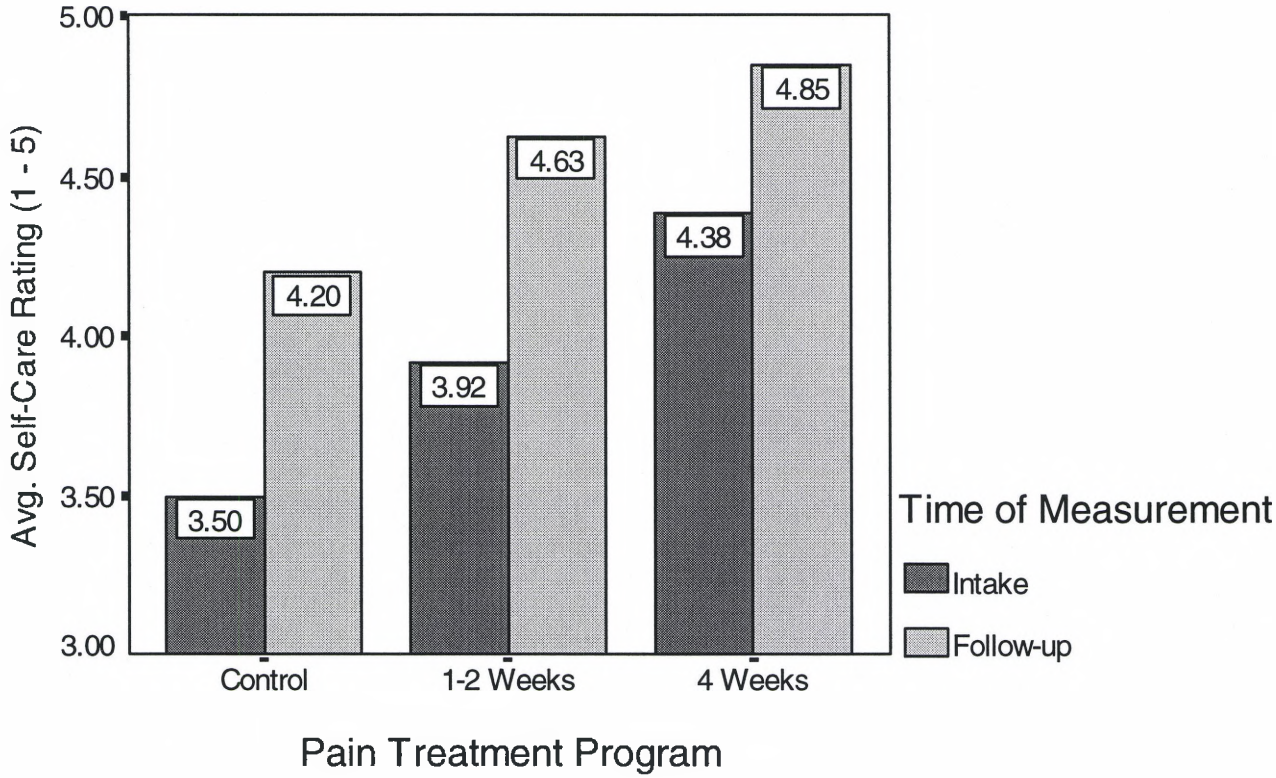

Figure 4. Average self-care activity rating for intake and follow-up.

Work activity

There was not a significant difference found for the interaction between intake and follow-up measures and pain treatment conditions on work activity, F (2,47)= 2.41, p = .101, shown in Figure 5.

The paired sample t-test indicated significance when comparing the pre-post means for both the three to four week and one to two treatment groups; Three to Four week, t (13)= -5.47, p < .001, One to Two Week, t (24)= -4.26, p < .001. No significant difference were found for the control treatment, t (9)= -1.50, p = .168. The nonsignificant interaction indicates that the pre-post improvement in work activity among the three groups were not different.

Leisure Activity

There was a significant interaction between intake and follow-up measures and pain treatment conditions on leisure activity, F (2,47)= 3.99, p =.025 shown in Figure 6.

The paired sample t-test indicated significance when comparing the pre-post means for both the three to four week and one to two week treatment groups; Three to Four Week

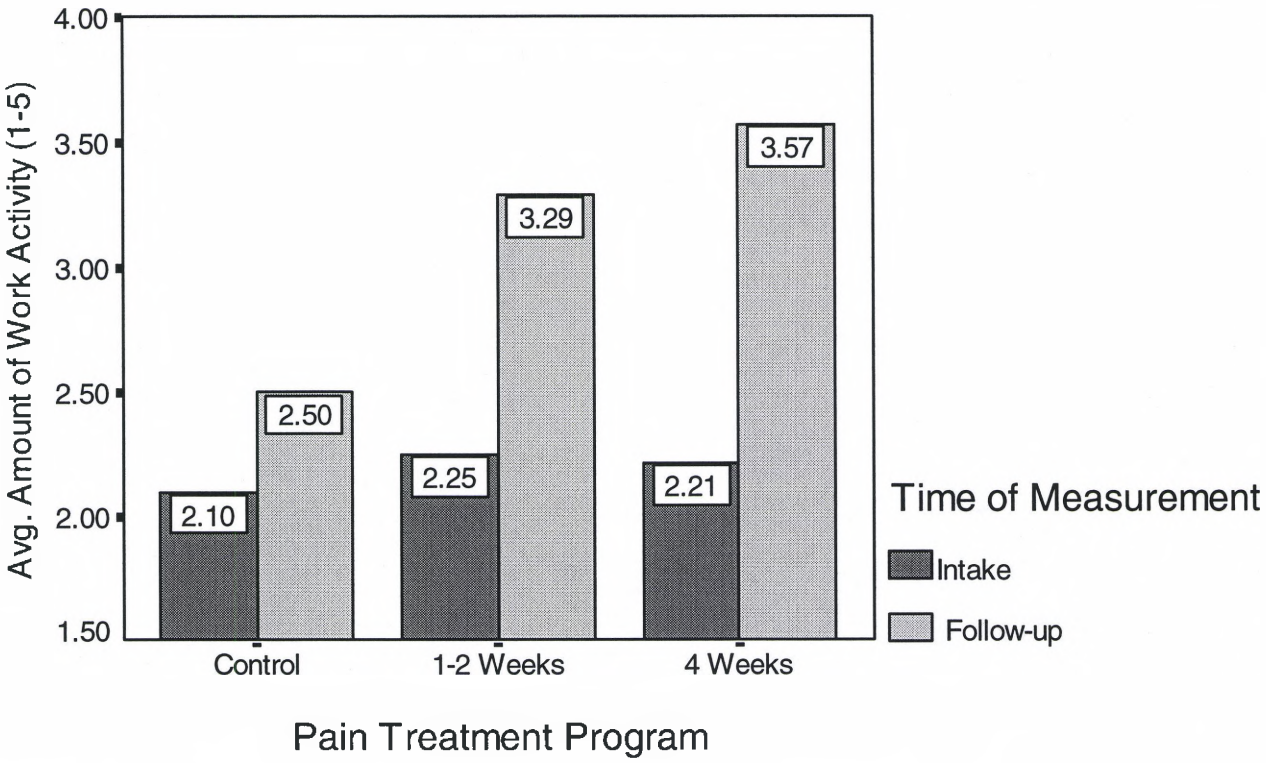

Figure 5. Average work rating for intake and follow-up.

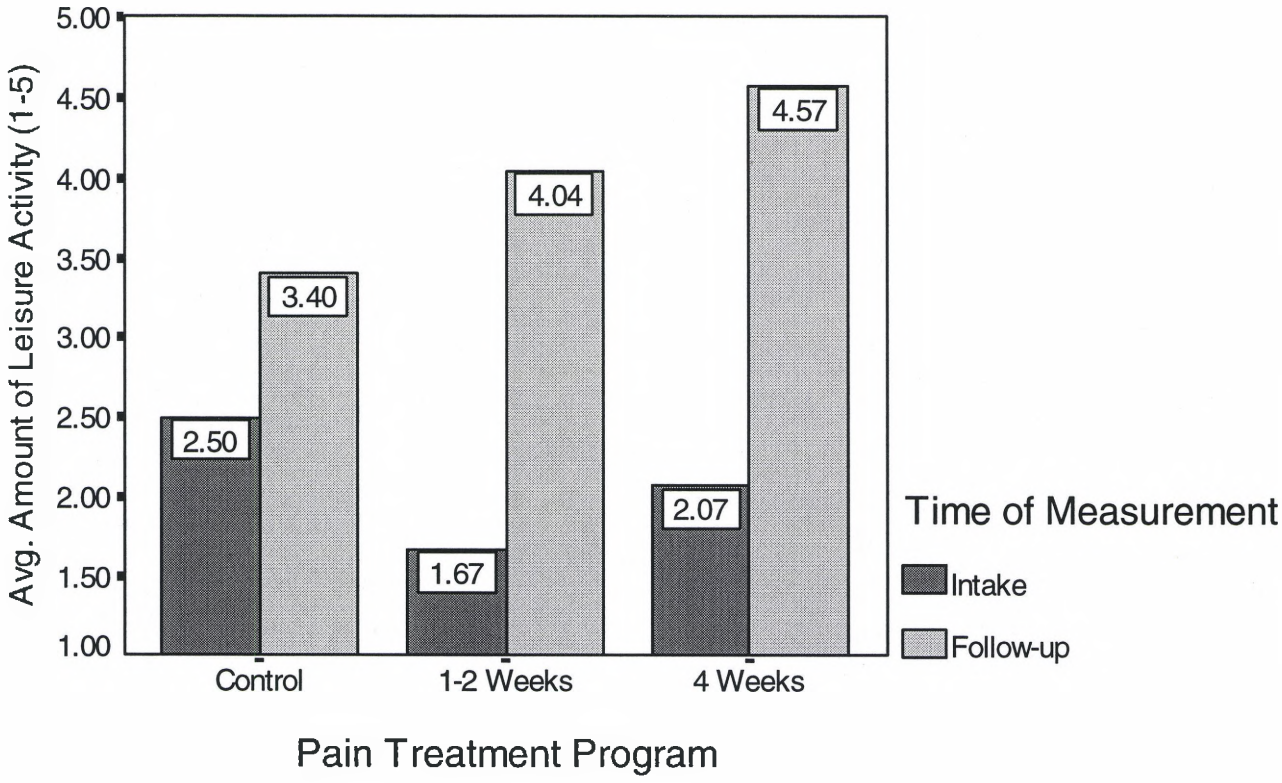

Figure 6. Average leisure activity rating for intake and follow-up.

t (13)= -8.57, p <.001, One to Two Week t (24)= -7.02, p < .001. No significant difference was found for the control treatment, t (9)= -1.65, p = .134. Both the one to two week program and the three to four week program showed improvement, while the control group did not.

Doctor Visits

There was a significant interaction between intake and follow-up measures and pain treatment conditions on the number of doctor visits, F (2,47)= 3.47, p = .041, shown in Figure 7.

The paired sample t-test indicated significance when comparing the pre-post means for both the three to four week and one to two treatment group; Three to Four Week t (12)= 2.99, p = .012, One to Two Week, t (24)= 5.63, p < .001. No significant differences were found for the control treatment, t (9)= 1.21, p = .257.

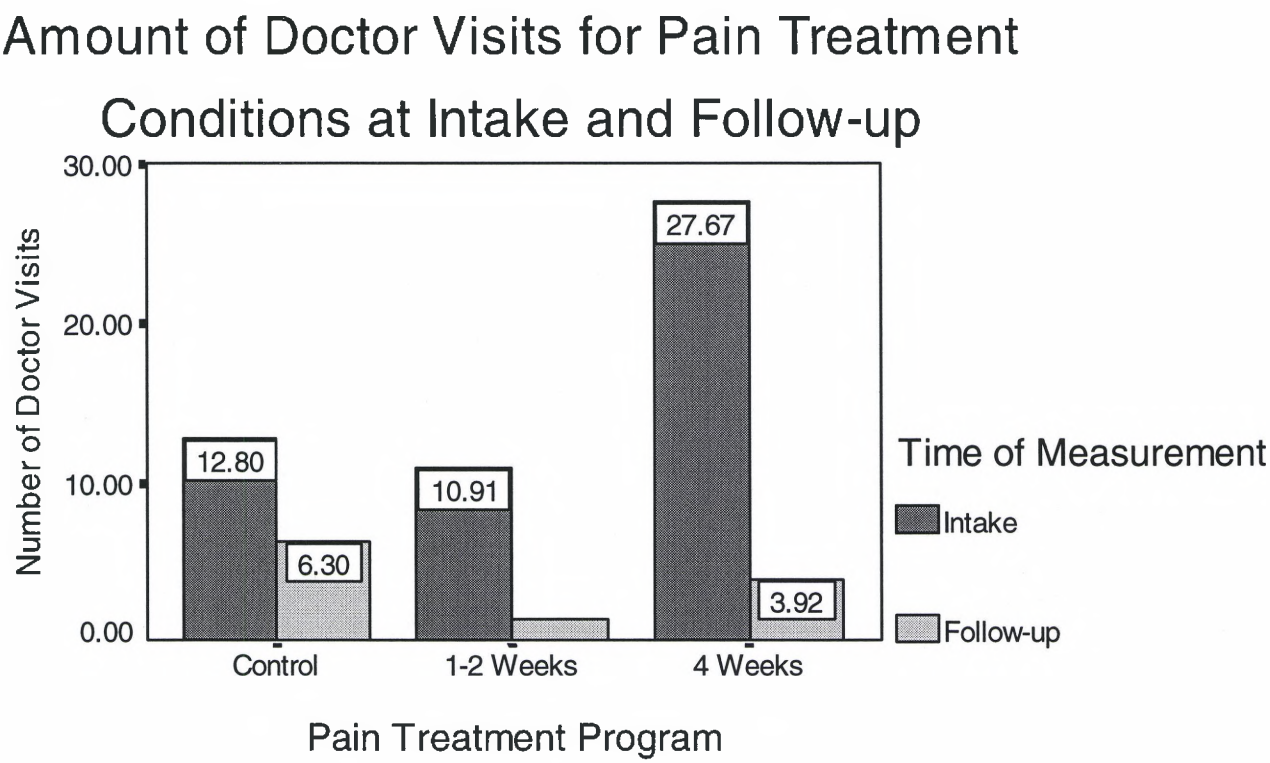

Figure 7. Average amount of doctor visits for intake and follow-up.

Measures of Patients' Exercise, Relaxation and Household Income

Exercise

A one-way ANOVA and Newman Keuls test showed that the one to two week and the three to four week treatments exercised much more than the control group, F (2,47)= 3.91, p =.027, shown in Figure 8.

Relaxation

A one-way ANOVA and Newman Keuls test showed that the three to four week treatments used relaxation techniques much more than the one to two week treatment and the control group, F (2,47)= 8.30, p < .001, shown in Figure 9.

Annual Household Income

A one-way ANOVA and Newman Keuls test indicated that the three to four week treatments had a higher annual income than the one to two week treatment and the control group F (2,35)= 10.79, p <.001 as shown in Figure 10.

Relaxation and exercise were extremely higher for the one to two week and three to four week group than the control. This is due to the instruction and training the

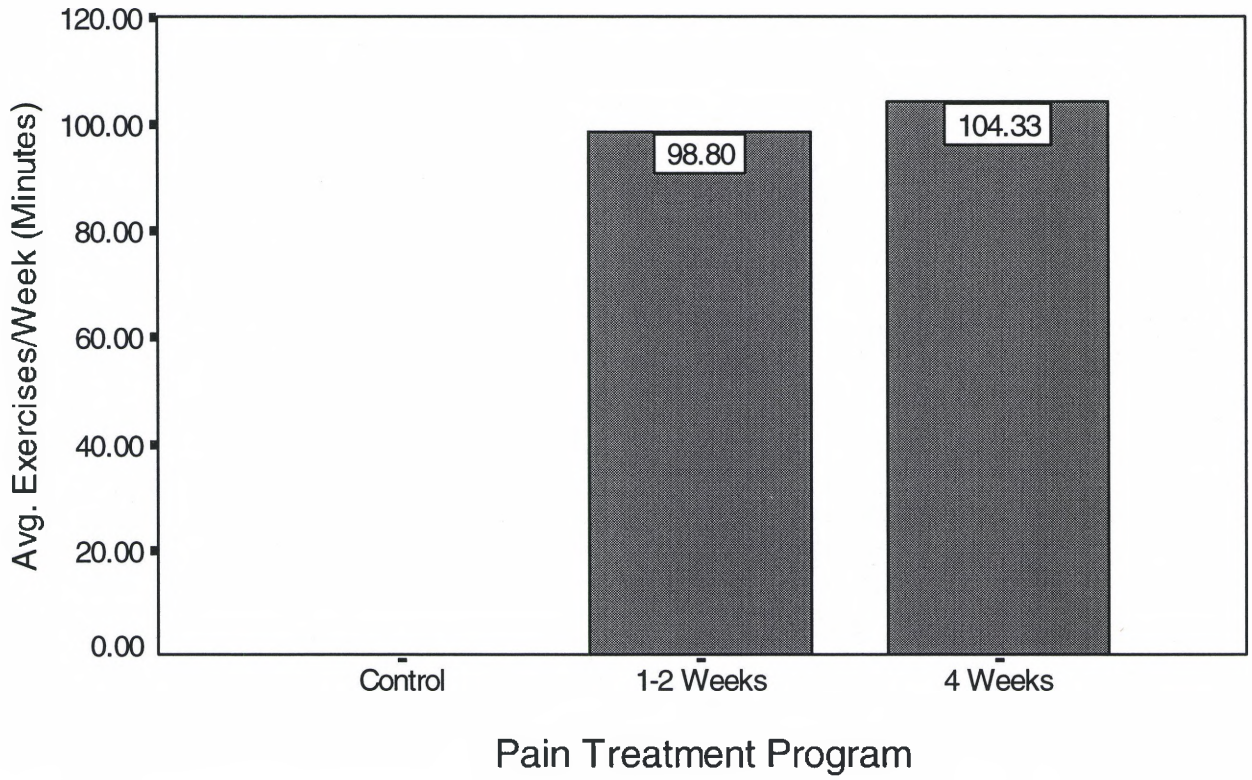

Figure 8. Average amount of exercise rating for follow-up.

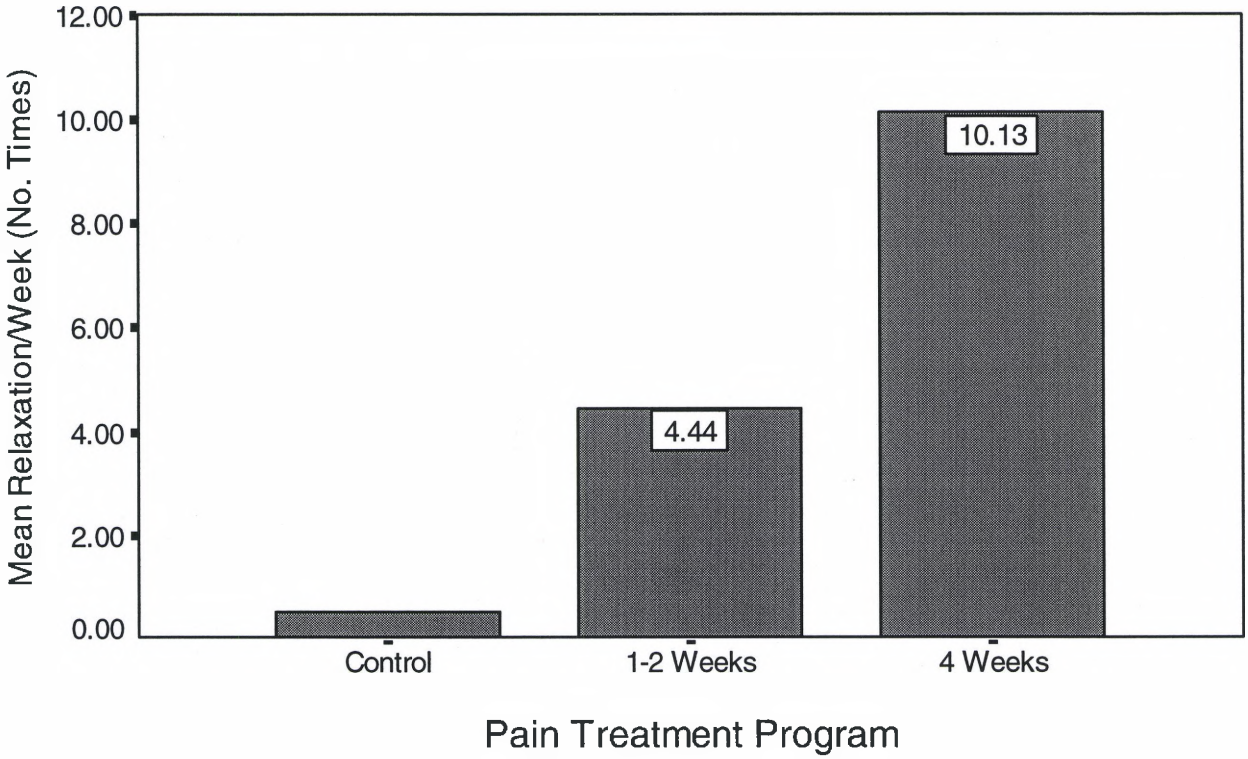

Figure 9. Average amount of relaxation sessions for follow-up.

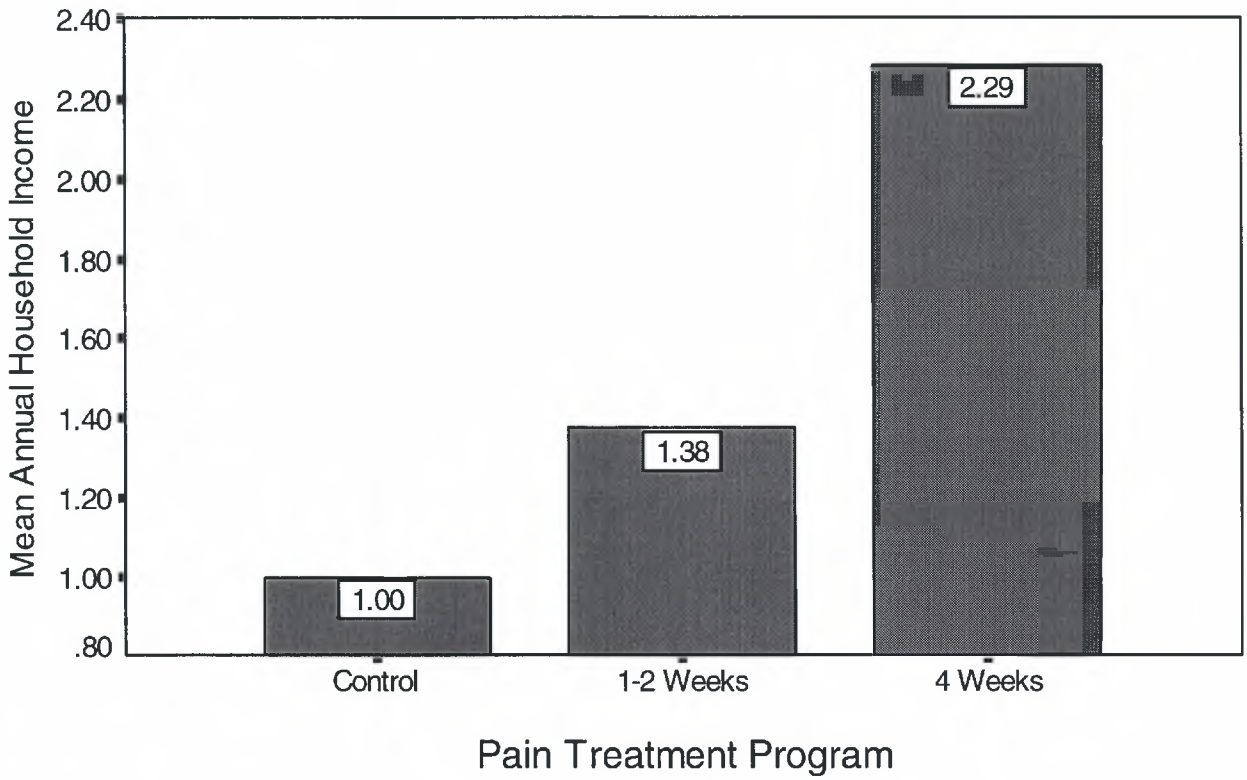

Figure 10. Average annual household income rating for follow-up.

treatment groups received in the Pain Clinic which the control group did not.

The household income was highest for the three to four week group, next for the one to two week group and lowest for the control group. The three to four week group had the best insurance which costs more money, so it seems logical that their annual income is the highest. The control group and the one to two week group all had the same Medicare insurance. However, while Medicare reimburses for most of the costs, the patient is responsible for a minimal portion. It is possible that some patients from the control group refused due to the costs involved, which they may not have been able to afford.

Exercise and Relaxation Techniques With Follow-up

Lastly, correlations are presented for all the seven follow-up variables with relaxation and exercise. Correlations between variables that showed significance appear in Table 2. Correlation of the variables, relaxation and psychological status, was significant, $r(50) = .2834$, ($p = .046$). Also the variables, exercise and doctor

Table 2

Correlations of Reported Weekly Exercise and Relaxation for Follow-up Measures

	Follow-up Measures						
	Pain	Meds.	Psych.	Self	Work	Leis.	Doc.
Exer.	-.0979	.0930	.2297	.0361	.1949	.1474	-.2798*
Relax.	-.2195	.0920	.2834**	.2383	.2763*	.1946	-.1795

Note: ** indicates a significant correlation, $p \leq .05$. * indicated that the correlation is approaching significance.

visits, approached significance, r(50) =.-2798, (p = .052) as well as variables, relaxation and work status, r(50) = .2736, (p = 0.55).

The relaxation techniques that are taught in the Pain Center aid in pain and stress relief which provides an explanation for the relationship to psychological status. Work and doctor visits were also related. Many of the patients avoid exercise, but those who do more exercise may be able to cope with their pain more effectively and therefore make less visits to the doctor. It was also shown that relaxation and work activity were related. Relaxation helps the patients relieve their pain which would enable them to do more work activity.

Chapter IV

DISCUSSION

The purpose of this study was to examine whether the abbreviated version of the pain program is helpful in improving functional activity at home, reducing pain perceived, reducing medication usage, reducing number of doctor visits, increasing amount of exercise and relations techniques, and improvement of psychological status one to four years later. The Medicare group's (one to two weeks) success was compared to private pay insurance (three to four weeks) group's success in the program. The control group, approved Medicare patients who chose not participate in the program, was used to evaluate if the abbreviated program had any effect.

It was expected that the three to four week treatment group would have the most success in the program, then the one to two week treatment group and lastly, that the control group would show the least change from the ratings obtained during their intake evaluation to the ratings from the one to

four year follow-up survey.

The findings of this study highly support the notion that patients who received treatment, in both the one to two week group and the three to four week group, improved for all seven variables, while the control group did not have a significant difference for any of the variables. In addition, it was found that pain rating, psychological status, leisure activity and doctor visits measures showed support for the hypothesis that pain treatment groups would improve more than the control group. These results are consistent with findings in follow-up studies performed by Cairns, et al (1984); Cinciripini, et al (1982); Keefe, et al, 1981; Tollison, et al (1985); Wiesel, et al (1988). Lastly, the correlations showed a positive correlation for relaxation and psychological status. Patients who reported using the relaxation techniques more had a greater improvement in psychological status. Nonsignificant positive correlations were found for relaxation and work activity and exercise and doctor visits. These two correlations, which were extremely close to showing significance, suggested patients who use relaxation techniques more were also able to

work more. Also, patients who exercised more had a higher reduction in doctor visits.

Two variables that may have greatly impacted the success of the patients in the treatment groups could be exercise and relaxation. It can be seen that the patients in the control group do not exercise at all and only one patient reported using relaxation techniques at the present time.

While, consistently the results showed that on seven different dimensions the two treatment groups benefited substantially from treatment, it varied for which treatment group did better, the one to two week treatment group or three to four week treatment group. For some variables the one to two week treatment group did slightly better than the three to four, however, these differences were not significant, therefore it can be concluded that the outcomes were equal for both treatment groups.

This study was a one to four year follow-up investigation. It should be noted that up to four years after the treatment program there was a long term effect on its participants. When examining the groups, it was found the one to two week group only had 14% of their participants

date back to a four year follow-up and 86% were one to three year follow-ups. The four week group had 24% of their participants in the four year follow-up and 76% in the one to three year follow-up. This indicates that the the participants in the one to two week group completed the program more recently than the three to four week group, providing a possible explanation of why the one to two week group did better for some of the variables than the three to four week group. It should also be noted that the size for the one to two week group was n = 23 while the three to four week groups was n = 17. The larger sample size, providing more power for the one to two week group, may account for the higher success for some variables.

Contrary to what was expected, when comparing means across conditions it was found that for all seven variables there was not a substantial difference between the two treatment groups.

Limitations of the Present Study and Suggestions of Future Research

The major purpose of this study was to test the

hypothesis that the three to four week treatment would have more effect than the one to two week treatment. While significant differences were not found between the two treatment groups, there were substantial differences found between treatment groups and the control.

One of the major limitations of this study was sample size. This study dealt with a specific population. In order to obtain like populations for each condition, it was very limiting to the number of patients that could be participants. The criteria for being a participant was that they had to be over sixty-three years of age, been selected to participate in the pain program. Lastly the condition, one to two weeks of treatment patients, had to have Medicare insurance.

Another limitation of this study was relying on self-report for the follow-up questionnaire. When the patients were evaluated at intake, they had to prove by actually doing the work activity or reporting their medication use by providing prescriptions form all their doctors, while in the follow-up survey the participant only had to report their levels.

Lack of research done in comparing treatment groups with different lengths of time in the treatment program made it difficult for the experimenter in this study to investigate possible confounds and create the most effective study. Some research has been done with brief focal psychological therapy in which success was found (Whale, 1992). Another study was performed on a three week chronic pain program that indicated high success: however, this particular study did not compare to a longer program (Jensen, Turner, Romano, 1994)

In addition, having to send a consent letter to subjects asking to call them at their home and for their time with no motivation deterred almost half of the potential subjects. Lastly, the Pain Clinic has not kept up with many of the patients after they completed the program and many of the phone numbers were not valid, again reducing sample size.

For future research then, having participants actually come into the Pain Clinic and be evaluated by the same team that evaluated them initially would enable more accurate ratings. Providing some incentive for the participation in this research, perhaps monetary, may have motivated more patients to participate. The Pain Clinic should also

periodically ask past patients to give their change of address and phone number to the clinic so such research can be done in the future.

A final consideration for future research is performing more studies that compare different treatment lengths such as what was done in this study.

Appendix A

Follow-up Questionnaire

Telephone Questionnaire

Name_____Date_____
Admission Date_____Insurance Type_____
Phone Number_____Interviewer_____

Hello, this is Erin Demirjian calling from Dr. Demirjian's Office. May I please speak to (patient name)

Hello, this is (interviewer name) calling from Dr. Demirjian's Office.I'm a graduate student at the University of Dayton and I'm calling to ask you some questions

I would like to inform you that you have the right to not answer any question or discontinue the interview at any

time. The interview should only take 5 to 10 minutes. All information obtained during this interview will remain confidential. The data gathered will be placed in a locked file cabinet.

This researcher will also review your medical record for information about your participation in the pain program. Any information that is obtained in connection with this research will remain confidential to the extent provided by the federal state and local law. No individual identifying information will be maintained and all information will be reported as group data.

I would like to ask you a few questions about how you've been doing since you completed the pain program. I would like to ask you for your verbal consent to continue with this survey Yes_____ No_____

Thank you for agreeing to participate in this study.
I must take your first response, so take a moment to think about the question before answering.

1. First, I would like to know what medications you are taking including the dosage amount and times per day. please include all medications such as aspirin, Tylenol, Motrin, and so on.

Medication Name	Dosage amount	Number of pills

Are there any other medications that you are currently taking that you haven't mentioned yet, such as for your blood pressure or nerves or antibiotics, allergy pills or other medications?

2. Next, on a scale from 0 to 10 where 10 is the worst and 0 means no pain, where would you rate your pain now? _____

5-point scale to be used for the next three questions

1= Very much less happy 2= less happy 3= about the same

4= more happy 5= very much more happy

---

3. Would you say that you are less happy, about the same, or more happy than when you completed the program in regard to dealing with your pain?

If response was less happy ask participant "would you say you are less happy or very much less happy?"

If response was more happy ask participant "would you say you are more happy or very much more happy?"

Rating 1-5_____

4. The next few questions concern self-care. I going to read five statements to you, please wait until I am finished and then indicate which statement best fits your situation.

1. I am totally dependent on others with my self-care?

2. I require maximal assistance in self-care. I only can wash my face and I stay in my pajamas all day.

3. I require minimal assistance in self care, such as getting in and out of the bath tub, donning pants, overhead garments, or styling hair.

4. I require minimal assistance in self-care, such as zipping up a zipper on the back of a dress or tying shoes.

5. I am independent in all areas of self-care which include but not limited to; dressing, bathing, toileting, grooming, eating, and transportation.

Rating 1-5_____

5. The next few questions concern your leisure activities. I going to read five statements to you, please wait until I am finished and then indicate which statement best fits your situation.

1. My leisure activities include only watching television and reading and I am reluctant to participate in structured recreational or social activities.

2. My leisure activities include some craft activities, or equivalent once a week, and I participate in one active leisure activity a week.

3. My leisure activities include some craft activity, or equivalent more than once a week.

4. My leisure activities include some pre-pain problem activities with some modifications.

5. My leisure activities involve a variety of leisure outlets which may include hobbies, sports, crafts, social, spiritual or cultural activities. Rating 1-5_____

6. The next few questions concern your work activities. I am going to read five statements to you, please wait until I am finished and then indicate which statement best fits your situation

1. I spend nearly the entire day in bed or on the couch.

2. I have an extremely low activity tolerance and I am only able to do activities such as pick up around the house.

3. I have a modestly active lifestyle and I am able to

perform basic daily household chores.

4. I am able to handle all my household chores except for heavy lifting.

5. I have returned to all my pre-pain problem activities and work duties. Rating 1-5_____

7. Since you have been to the Miami Valley Pain Center, how many visits have you had to your doctor for your pain problem?

Doctor visits_____

8. Do you have an exercise schedule?

Mins a week_____

9. Do you practice the relaxation techniques?

Times a week_____

10. What is your household income?

$10,000 to $25,000, $25,000 to $35,000 or above

11. Do you have any other comments about your current health condition?

_____

_____

_____

_____

Thank you very much for taking the time to answer these questions. The information you have provided will be helpful for improving our program. The purpose of this study is to follow-up on the patients who have participated in the pain program. You will be mailed a contact phone number if you have any further questions.

Thank you again, and goodbye.

Appendix B

Criteria for Pain Rating

MEDICAL

1. Pain Medication Use

a) Concept: Degree to which patient is using medically unnecessary medications for chronic pain conditions (e.g., analgesics, sedatives) as well as other problematic drugs (e.g., alcohol, tranquilizers, etc.). This variable excludes the use of medically necessary and prescribed medications, e.g., insulin for a diabetic. It also excludes medication usage prescribed on an interim basis to help the patient cope more effectively with a pain problem on the unit or to assist in resolution of secondary complicating problems associated with chronic pain. For example, Elavil is frequently used to help the patient on a temporary basis with: alterations in pain threshold, depression and sleep. Similarly, Trofan is sometimes prescribed to help with sleep. Medications such as Elavil and Trofan are not considered as part of this variable. Those that are involve the medications that are inappropriate for chronic pain and which frequently lead to addictions, tolerance and iatrogenic side effects. As the transition to healthy self-control techniques is made, changes will be noted in other Patient Progress Rating variables. For example, it is expected that as a patient becomes successfully detoxified from narcotic analgesics, there will be associated increases in such areas as: utilization of relaxation skills, activity levels, avocational outlets, etc.

b) Measures: Medication diary on admission, pharmacist interview, medical interview, drug screens, patient self-report with family corroboration, detoxification schedule.

c) Primary Raters: Physician, pharmacist, nurse

d) Behavioral examples:

- use of Codeine, Demerol and Valium on admission
- use of alcohol as pain reliever for sedative
- patient reports using pain meds over TLOA

e) Ratings:

1. Severely problematic

   - regular use of narcotic, sedative or other medications for pain relief
   - in-need-of carefully monitored (inpatient) detoxification
   - preoccupied with medication for pain relief

- patients in initial MDR just beginning detox with entering history of "severely problematic" drug use should be rated (1)

2. Problematic

- irregular or less severe use of narcotic, sedative or other medications for pain relief.
- in need of detoxification. (In some cases this can be managed as outpatient.)
- focus on medication use
- patient in initial MDR just beginning detox with entering history of "problematic" drug use should be rated (2)
- patients initially rated (1) who are coping successfully in program on decreasing schedules of analgesic or sedative cocktail should be rated (2)

3. Intermediate

- patients in final stages of successful (medically stable) detox or fully detoxified
- still concerned about medication and uses of other analgesics

4. Good

- detox must be complete for a rating of (4)
- minor medication concerns remain
- may report using non-narcotic analgesic on sporadic/irregular basis

5. Excellent

- no use of analgesics or other pain-related medications
- unconcerned regarding chronic pain meds

PSYCHOLOGICAL / BEHAVIORAL

Emotional and Cognitive Adjustment

Concept: Status of mood/emotional state ad noted in behavioral disturbances and affective state. Address the degree to which a patient's general psychological status (emotions, affect, behavior and/or cognitive disturbances) is a factor in supporting program participation. Alternatively, these factors include effective adjustment to the program or minimize treatment gains.

Measures: Subjective complaints, objective findings and/or demonstration of emotional difficulties (e.g., depression, anxiety, anger, agitation), or impaired cognitive functioning (e.g., concentration, orientation, memory).

Primary Raters: Psychologist, Team

Rankings:

Severe Disruption

Impaired cognitive status, judgement, memory, disorientation, disturbances in consciousness, need of intensive , ongoing psychological/psychiatric intervention (e.g., greater than five depressive symptoms, active mania, active suicide ideations, agitation which threatens self or others, hallucinations, delusions) severe disruption of unit milieu making it difficult for other patients to benefit from the program (e.g., offensive, impulsive or inappropriate behavior, angry outbursts).

Significant disruption

Emotional/affective disruption of a significant nature, but not necessarily precluding treatment (e.g., moderate-severe depression, three to five depressive symptoms, potential passive suicide ideations, more than four uncontrolled panic or anxiety symptoms. Disruption that significantly interferes with interpersonal functioning and may involve issues relating to impulse control. Brief cognitive, memory, orientation inefficiencies necessitates frequently input from psychologist or nurse. Frequently misses therapy appointments.

Moderate Disruption

Emotional/affective disturbances under reasonable control and amenable to treatments (e.g., mild-moderate depression, anxiety, insomnia).

-Patient begins to recognize deficiencies and work to change these in therapy program

-Patient with a personality disorder which minimally affects treatment or compliance

-Disruptions that occur are short-lived and manageable by relaxation, referral to psychologist, ect.

-Effect on unit milieu stull present, but manageable

-Need of ongoing psycho-therapy at program termination

Mild Disruption

-Minimal affectiveness, cognitive disturbances with little effect on daily activities (e.g., nonexistent to mild depression)

-Disruptions that are stimulus specific, and generally under good control

_Patient with underlying emotional problems (e.g., depression, anger, grief) which they do not acknowledge, or want to work on, but does not interfere with potential overall treatment gains

No Disruption

-Patient reports and demonstrates emotional/affective responses which are insightful, attuned and appropriate to circumstances (e.g., cheerfulness and happy feeling following good news, sadness and grief following a sudden loss)

-Few if any identified underlying emotional problems, wide range of activities interests

-Demonstrates an appropriate array of assertive aggressive and passive, behavioral/verbal responses

-No underlying personality disorder

OCCUPATIONAL

Functional Activity Status

Concept: This variable will assess the degree to which the patient can successfully perform his "activities of daily living (ADL's)." As such, there are a number of assumptions and definitions which must be made. First, ADL's will be defined as the patient's ability to engage himself in:

1. self-care activities
2. leisure activities
3. work activities

"Self-care activities" refers to the patient's ability to perform personal hygiene activities.

Leisure will evaluate the patient's self-report and staff's observations of avocational activities in which they are actually engaged.

Work activities involves an assessment and estimation of the patient's required activity levels for work or household tasks, and the degree to which their current activity levels meet these needs (i.e., their current functional activity status). Thus, this rating will be an evaluative one which takes data obtained by the "activity tolerance" variable (sitting, standing, walking, lifting, carrying, pushing tolerances) and estimates the degree to which these tolerances are sufficient to meet general work or household tasks. For a return-to-work patient, this rating will estimate functional activity status relative to projected work demands. For a non-return-to-work patient (e.g., a 70 year old retired bookkeeper who desires to do more house-chores, socialize more and take a two week vacation), this rating will be relative to projected household demands. This variable provides a context to the "activity tolerance" raw data which, in isolation, is meaningless. This "functional status" indicator makes use of a wide variety of data (discussed below) and also for variation produced by age, sex, life situation, general health status, etc.

Measures:

1. Self-care activities are measures by O.T. based on interview and observation by the end of Weeks I and IV.

2. Leisure activities are measured by having the patient fill out the Interest Checklist, patient's self-report, and observation in O.T., nursing leisure groups and on the unit. The leisure scale consists of three ratings reflecting the patient's level of involvement in leisure activities: "before injury," "at time of admission," and "at discharge." The first two ratings are identified by the end of Week I and the third rating is identified by the end of Week IV.

3. Work activities are measured using a variety of data. This data will include, but not be limited to: "activity tolerance ratings," work simulation information, P.T. and O.T. quotas, observations of patient activity levels on the unit, job analyses, patient reports of their job requirements, spousal reports, and vocational evaluations. What the patient is actually doing is then compared with what they need to be doing with resulting evaluative ratings. Because of the wide variation of patient activity levels and work/household demands it would be impossible to specifically quantify this variable in terms of, for example, "percentage of work preparedness." Instead, this rating will be subjective, but make as much use as possible to hard data, in order to make a global composite rating.

Primary Raters: O.T., Medical Director, Voc Counselor, RN, Team

Behavioral examples

a 65 year old retired housewife with cardiac disease and back pain demonstrates, Week IV, increased autonomy in terms of grooming, decision-making and self-confidence.

the same woman rates herself as more interested in five avocational outlets although she has yet to demonstrate this (behaviorally) on the unit.

a 20 year old back injured man with low initial activity tolerances, demonstrates rapid physical reconditioning in P.T. and work simulation. On the basis of the functional activity status assessment, a recommendation is made for the patient to complete a two week work hardening program before he returns to work full time.

Ratings:

Self-Care:

1. Patient demonstrates total dependence in self-care.

2. Patient requires maximal assistance in self-care. Patient only washes face and stays in pajamas all day.

3. Patient requires moderate assistance in self-care such as getting in and out of the bathtub, donning pants, overhead garments or styling hair.

4. Patient requires minimal assistance in self-care such as zipping up a zipper on the back of a dress or tying shoes.

5. Patient is independent in all areas of self-care which include, but are not limited to; dressing, bathing, toileting, grooming, eating, and transportation.

Leisure Activities:

1. - Patients only leisure activities are watching television and reading
   - Free time on the unit is spent in bed or in solitary activity
   - Reluctant or resistent to participate in structured recreational or social activities.

2. - Engages in craft activity in O.T. treatment
   - Involved in structured leisure group on the unit with moderate encouragement
   - Incorporates one active leisure activity in weekend plan

3. - Engages in a hobby or craft activity during free time on the unit (may be provided by O.T. or R.N.)
   - Activity involved in structured leisure groups on the unit, when provided by staff members

4. - Engages in some preinjury activities with modifications
   - Initiates activities for leisure group with minimal encouragement

5. - Actively involved in a variety of leisure outlets which may include hobbies, sports, crafts, social, spiritual or cultural activities
   - Uses free time on the unit productively through leisure activities
   - Suggests and initiates group social or recreational activities without prompting from staff

Work Activities:

1. Non-Functional

   - patient is performing none of the essential expectations of their vocational role.
   - patient spends nearly their entire day in bed or on the couch with evidence of extreme deconditioning.

2. Minimally Functional

   - extremely low activity tolerance in a back injured trucker hospitalized in a "return-to-work" plant.
   - modest gains being made in reconditioning in housewife wishing to return to cooking/cleaning.
   - patients only chore is picking up around the house.

3. Moderately Functional

   - a patient desirous of increased socialization plans and accomplishes a modestly active weekend, incorporating rest breaks and good pacing principles.

a Week II or III work injured patient ----- making steady gains in activity tolerance and endurance who no recognizes the need for work hardening post discharge from the Pain Center before return to his job as an inspector at Inland.
patient performs basic daily household chores.

Nearly Functional

a back injured assembly worker has completed reconditioning to the point that it is felt that he can meet 75% of the job's demands, provided efficiency expectations are modified for the first month and if job environment changes are made to accommodate good body mechanics.
a housewife with rheumatoid arthritis now feels she can handle her basic household tasks except heavy lifting and activity tolerance ratings support this.

Functional

a hand injured housekeeper at Delco Moraine has completed basic physical reconditioning, a three week work simulation program and has mastered the fundamentals of good body mechanics and pacing, now indicates she is ready to return to work.
a 45 year old househusband with chronic pelvic pain demonstrates a readiness to return to all previous home duties and is looking forward to making his sweetheart happy.

Appendix C

Evaluative Rating Form

Patient Progress Rating Schedule

Variable	Week 1	Week 2	Week 3	Week 4	F-up
1. Functional Activity					
Self care	____	____	____	____	____
leisure	____	____	____	____	____
Work	____	____	____	____	____
2. pain perceived	____	____	____	____	____
3. Medication Use	____	____	____	____	____
4. psych. Status	____	____	____	____	____

Appendix D

Written Consent Form

Dear Ms./ Mr. patient,

The Miami Valley Pain Center has been contacted by a student, Erin Demirjian, at the University of Dayton, to contact some of our patients to participate in a research project. Your participation is completely voluntary. Your participation will not influence your benefits or care received.

I am writing to inform you that I will provide this student with your name and phone number. You **do not have** to participate in this study. If you choose not to participate, please call Kathy Eckerle, RN at the Miami Valley Hospital Pain Center, 208-6639 and tell her you wish not to participate. If you call by July 15 , 1997 your name will not be provided to the student.

You have the opportunity to not participate. If, any time, you choose not to continue with the questionnaire, just tell the interviewer that you would like to stop. You have the right to quit the study at any time without incurring any penalty or loss of benefits otherwise available to you, including medical care at this institution.

This researcher will also review your medical record for information about your participation in the pain program. Any information that is obtained in connection with this research will remain confidential to the extent provided by the federal state and local law. No individual identifying information will be maintained and all information will be reported as group data.

Thank you,

Dr. Charles Demirjian

Appendix E

ANOVA Tables

Table 3

Pain Ratings

	SS	DF	MS	F	Sig of F
Within + Residual	201.17	47	4.28		
Conditions	12.79	2	6.40	1.49	.235
Within = Residual	139.12	47	2.96		
Pre-Post	59.68	1	59.68	20.16	.000
Pre-Post. by Conditions	21.72	2	10.86	3.67	.033

Pain Medications

	SS	DF	MS	F	Sig of F
Within + Residual	97.73	45	2.17		
Conditions	2.01	2	1.01	.46	.632
Within = Residual	68.97	45	1.53		
Pre-Post	36.28	1	36.28	23.67	.000
Pre-Post. by Conditions	5.02	2	2.51	1.64	.206

Psychological Status

	SS	DF	MS	F	Sig of F
Within + Residual	47.80	45	1.06		
Conditions	9.83	2	4.91	4.62	.015
Within = Residual	32.57	45	.72		
Pre-Post	6.31	1	6.31	8.72	.005
Pre-Post.by Conditions	9.83	2	4.03	5.56	.007

Self Care Activity

	SS	DF	MS	F	Sig of F
Within + Residual	53.18	44	1.21		
Conditions	6.63	2	3.31	2.74	.076
Within = Residual	25.14	44	.57		
Pre-Post	8.00	1	8.00	13.99	.001
Pre-Post by Conditions	.28	2	.14	.25	.783

Leisure Activity

	SS	DF	MS	F	Sig of F
Within + Residual	90.54	45	2.01		
Conditions	3.95	2	1.98	.98	.382
Within = Residual	71.01	45	1.58		
Pre-Post	78.25	1	78.25	49.59	.000
Pre-Post by Conditions	9.23	2	4.61	2.92	.064

Work Activity

	SS	DF	MS	F	Sig of F
Within + Residual	79.36	45	1.76		
Conditions	4.48	2	2.24	1.27	2.91
Within = Residual	25.29	45	.56		
Pre-Post	18.38	1	18.38	32.71	.000
Pre-Post by Conditions	2.71	2	1.36	2.41	.101

Doctor Visits

	SS	DF	MS	F	Sig of F
Within + Residual	36960.29	41	901.47		
Conditions	4761.28	2	2380.64	2.64	.083
Within = Residual	35307.46	41	861.16		
Pre-Post	6630.98	1	6630.98	7.70	.008
Pre-Post by Conditions	4095.76	2	2047.88	2.38	.105

Appendix F

Results of Simple Effects

Perceived Pain Rating

Simple effects analysis showed that there were no difference on intake, F (2,47)= 1.19 p =.310 or for follow-up, F (2,47)= 2.8, p = .070. Newman Keuls test showed that no two of the treatment groups are significantly different at the .05 level.

Pain Medication Rating

Simple effects analysis showed that there were no significant differences for intake, F (2,47)=.353 p =.704, in addition there were no significant differences found for follow-up, F (2,47)= 2.23, p = .118. Newman Keuls test showed that no two of the treatment groups are significantly different at the .05 level.

Psychological Status

Simple effects analysis showed that there were no significant differences for intake, F (2,47)=.282 p =.755. However, there were significant differences found for follow-

up, F (2,47)= 8.62, p = .000. Newman Keuls test showed that both the one to two week and four week treatment groups had better psychological status ratings than the control group for follow-up.

Self-Care Activity

Simple effects analysis showed that there were no significant differences for intake, F (2,47)= 1.788, p = .179. There also were no significant differences found for follow-up, F (2,47)= 1.24, p = .297. Newman Keuls test showed that no two groups are significantly different at the .05 level.

Work activity

Simple effects analysis showed that there were no significant differences for intake, F (2,47)= .069, p = .933 or for follow-up, F (2,47)= 1.24, p = .297. Newman Keuls test showed that no two groups are significantly different at the .05 level.

Leisure Activity

Simple effects analysis showed that there were no significant differences for intake, F (2,47)= 2.37, p =.104. However, there were significant differences found for follow-

up, F (2,47)= 3.88, p = .027. Newman Keuls test showed that three to four week treatment had better leisure activity ratings than both the control group and the one to two week treatment at follow-up.

Doctor Visits

Simple effects analysis showed that there were significant differences for intake, F (2,47)= 3.97, p = .026. Furthermore, there were significant differences found for follow-up, F (2,47)= 5.88, p =.005. Newman Keuls test indicated that three to four week treatment had more of a decrease in doctor visits than the one to two week treatment and control at intake. In addition, one to two week treatment had more of a decrease in doctor visits than the the three to four week treatment and the control group at follow-up. The paired sample t-test indicated significance when comparing means across condition, T (11)= 2.99, p =.012.

Exercise

Analysis of variance showed that there were significant differences for follow-up, F (2,47)= 3.91, p = .026.

Relaxation

Analysis of variance showed that there were significant

differences for follow-up, F (2,47)= 8.29, p < .001.

Annual Household income

Analysis of variance showed that there were significant differences for follow-up, F (2,47)= 10.78, p < .001 .

Table 4

Simple Effects Analysis

Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Pain Ratings	
		Intake	
8.00	8.76	8.33	1.9
		Follow-up	
7.90	6.56	5.67	2.8
		Pain Medications	
Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
2.70	2.38	2.79	.353
		Follow-up	
3.40	4.25	4.14	2.23
		Psychological Status	
Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
2.50	2.71	2.57	.282
		Follow-up	
2.20_a	3.29_b	3.93_b	8.62*
		Work Activity	
Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
2.10	2.25	2.21	.069
		Follow-up	
2.50	3.29	3.57	2.67

Self-Care Activity

Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
3.50	3.91	4.38	1.78
		Follow-up	
4.20	4.64	4.85	1.24

Leisure Activity

Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
2.50	1.67	2.07	2.37
		Follow-up	
3.40_a	4.04_a	4.57_b	3.88*

Doctor Visits

Control	1-2 Weeks	3-4 Weeks	F Ratio (2,47)
		Intake	
12.80_a	10.91_a	27.67_b	3.97*
		Follow-up	
6.30_a	1.63_b	3.92_a	5.88*

Note: * indicates significance, $p \leq .05$.
Note: Groups with different subscripts were different by Newman-Keuls test

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