COGNITIVE-BEHAVIORAL PAIN MANAGEMENT FOR ELDERLY NURSING HOME RESIDENTS

by

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Abstract

A cognitive-behavioral pain management program for elderly nursing home residents with chronic pain was compared with an attention/support control treatment in a randomized pre/post comparison group design with follow-up. Research has shown that pain is a substantial problem for elderly residents of nursing homes. Although psychologically based interventions for pain management with older adults have been shown to be effective through recent research, there are no controlled studies in the literature to evaluate the effectiveness of these interventions for elderly nursing home residents. Thirteen females and nine males, ranging in age from 61 to 98 (M = 77.2), from two large nursing homes participated in the treatment programs through 10 weekly group sessions. The average reported duration of pain was 25 years. Outcome measures were self-ratings of pain, pain-related disability, depression, caregiver pain behavior ratings, and physician medication ratings. Post-treatment and follow-up differences were evaluated through a series of 2 x 2 (Group x Site) multivariate and univariate analyses of covariance. Results revealed that subjects who received the cognitive-behavioral training reported less pain and pain-related disability, although the two programs were perceived as equally credible both before and after treatment. The improvements produced by the cognitive-behavioral training were clinically significant in terms of both frequency and magnitude. No significant treatment effects were found for depression and physician medication ratings. Subjects in the attention/support treatment were found to have lower caregiver pain ratings, but this difference was considered unreliable due to methodological problems with this variable. The benefits of the cognitive-behavioral training over supportive therapy were maintained at 4-month follow-up, despite an overall increase in reported pain. Subjects

rated the cognitive-behavioral training as more helpful than the supportive therapy for learning about pain, understanding and coping with their own pain, and feeling better in general. Findings indicate that the benefits of cognitive-behavioral pain therapy for elderly individuals in this type of setting are not simply non-specific effects of increased attention and support. Rather, they suggest that elderly nursing home residents without serious cognitive impairment can benefit substantially from training in cognitive and behavioral pain management strategies that are known to be effective for younger chronic pain patients and elderly patients living in the community.

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INTRODUCTION

Dramatic increases in life expectancy have resulted in an aging of the world's population. By 1981, the proportion of Canada's population age 65 and over had doubled since the turn of the century (from 5 to 10 percent), and is expected to double again by the year 2031 (to 20 percent) (Chappell, 1990). Similar patterns are being experienced in the United States (Guralnik, Yanagashita, & Schneider, 1988) and other nations throughout the world (Chappell, 1990). Although it is estimated that 80 percent of the elderly will never experience institutionalization in their lifetime (American Health Care Association, 1984), the rapid expansion of the elderly population will lead to dramatic growth in the absolute number of nursing home residents (U.S. Senate, 1987). Research has shown that "pain is a major problem in the elderly of a long-term care facility" (Ferrell, Ferrell & Osterweil, 1990, p. 412). In fact, nursing staff rate pain complaints as the second most frequent behavior problem among nursing home residents, surpassed only by depressed mood (Haley, 1983). Empirical studies of psychological interventions for pain management with elderly individuals in long-term care are scarce. There are no published evaluations of cognitive-behavioral interventions for pain management with elderly nursing home residents.

Pain and the Elderly

Beliefs about the relationship between pain and age have for many years been characterized by stereotypes and misguided generalizations. Pain has often been assumed to be a natural consequence of the aging process, and the elderly have been assumed to have greatly reduced sensitivity to many forms of nociception. This folklore is gradually being replaced by knowledge generated from the growing body of research

on age and pain (e.g., Cook & Thomas, 1994; Idler & Angel, 1990; Kwentus, Harkins, Lignon, & Silverman, 1985; Roy & Thomas, 1987a, 1987b). Although traditionally understudied, pain in the elderly is emerging as an area of increasing scientific and professional attention.

Pain Perception

It has been commonly assumed for many years that "pain perception and recognition and the recognition of noxious stimulation may be profoundly altered in the aged" (Hunt, 1980, p.144). After many years of research this issue continues to be discussed and argued in the scientific literature (e.g., Harkins & Price, 1992; Rapin, 1991). Although some research continues to suggest changing pain sensitivity and/or thresholds with age (e.g., Tucker, Andrew, Ogle, & Davidson, 1989), the majority of studies have indicated no or slight age differences in pain perception (Harkins & Price, 1992). Changes in pain perception with age are complex, and may involve labeling biases (Harkins & Chapman, 1976). In light of the general lack of consensus in the literature, Ferrell (1991) stated that "the consequences of stereotyping most elderly people as always experiencing less pain may include needless suffering and decreased quality of life" (p. 66).

The experimental pain literature has been criticized in terms of its relevance to clinical pain experiences (e.g., Harkins et al., 1984). Because elderly patients are underrepresented at specialty pain clinics (Harkins & Price, 1992; Melding, 1991), little research has examined the characteristics of this group. Available data suggest many similarities between elderly and younger chronic pain patients, including similar pain severity ratings, emotional reactions, reported interference from pain, and acceptance

of treatments (Sorkin, Rudy, Hanlon, Turk, & Stieg, 1990). Tait, Chibnall, and Margolis (1990) found no relationship between the extent of chronic pain (amount of body area reported as painful) and age.

Pain Prevalence

Community-resident. Estimates of the prevalence of pain among the elderly vary considerably. Surveys of community-resident elderly have resulted in estimates ranging from 25 to 78 percent (Brody & Kleban, 1983; Cook & Thomas, 1994; Crook, Rideout, & Browne, 1984; Ferrell, 1991; Roy & Thomas, 1987a; Sternbach, 1986a). Painful chronic ailments that are common in the elderly include chronic tension headache, migraine headache, cluster headache, rheumatoid arthritis, osteoarthritis, osteoporosis, low back pain, angina pectoris, dental pain, TMJ dysfunction, and trigeminal neuralgia (Jay & Miller, 1990; La Rue & McCreary, 1991).

Although pain complaints are common in the elderly, research has consistently demonstrated that they tend to report less pain than their younger counterparts (Bellville, Forrest, Miller, & Brown, 1971; Roy, Thomas, & Makarenko, 1989; Sternbach, 1986a; M. R. Thomas, Roy, & Makarenko, 1989), including headache, backache, muscle, stomach, and dental pain. The notable exceptions to this pattern are facial and joint pain, which are reported more frequently by the elderly (Ferrell, 1991; Harris, Louis & Associates, 1985; National Institutes of Health [NIH], 1979; Roy & Thomas, 1987a). Similarly, elderly patients undergoing surgery have been found to request less analgesic than younger patients for post-operative pain control (Oberle, Paul, Wry, & Grace, 1990). It has been suggested that better natural coping strategies for pain develop as one ages (Cook & Thomas, 1994; M. R. Thomas, 1993), or that the elderly

may tend to deny or minimize their pain (Ferrell, 1991; Melding, 1991).

To date, research has been inconclusive on whether this negative correlation between pain and age extends within elderly populations. The elderly who are included in clinical pain studies tend to be the "young old" (ages 65 to 75) (Melding, 1991). In a comparison study of older and younger elderly, M. R. Thomas and Roy (1988) failed to find a significant relationship between pain and age, though they noted a "strong trend" for the older elderly to report less pain. In a study that examined the role of pain in the last year of life of older persons, the older old were judged to have less pain than the younger old during their last year, after controlling for physical health (Moss, Lawton & Glicksman, 1991).

Long-term care. The incidence of pain among elderly individuals in long-term care settings has received very little attention in the literature. Available data suggest even higher prevalence rates than for community-resident elderly. In making comparisons, however, it is important to note that the majority of nursing home residents are "older elderly" (ages 75 and over) (U.S. Dept. of Health, Education and Welfare, 1979). Sengstaken and King (1993) evaluated 100 nursing home residents age 65 and older, 76 of whom were communicative, and identified 66 % as having chronic pain. Their results indicated that not only is chronic pain a common problem among elderly nursing home residents, it is also frequently undetected by physicians. Parmalee, Smith and Katz (1993) reported a pain prevalence rate of 80% in a sample of 758 elderly institution residents, 30% of whom resided in a nursing home. Roy and Thomas (1986) examined chronic pain problems in an elderly sample that was comprised mostly of nursing home residents (73% of 132 participants). They found that current pain was reported by 83% of these individuals, the vast majority of this

pain being attributed to connective tissue disorders. Half of the respondents reported low levels of pain, a third reported pain of moderate severity, and the remainder reported high to intolerable pain. The vast majority were being treated with analgesics (84%), and most reported this treatment to be effective. Yet, three quarters of these elderly individuals felt that pain interfered with their daily living.

Ferrell et al. (1990) reported similar findings from a study of 97 elderly nursing home residents. The prevalence of pain complaints in this sample was 71%. Of the residents with pain, two-thirds reported pain that was either continuous or experienced on a daily basis. The most common sources of pain were low back (40%), previous fractures (14%), and neuropathies (11%). For residents with pain at the time of the interviews (25%), half reported the intensity as mild or discomforting, and half as severe to excruciating. An examination of the functional correlates of pain revealed that pain was significantly negatively correlated with (a) ability to participate in enjoyable activities, and (b) ambulation. Nearly half of the residents with pain also reported related sleep disturbances. The majority of subjects (84%) had physician's orders for analgesic medications, but only 15% had received any in the previous 24 hours. Many medications for nursing home residents are prescribed on a *prn* (as needed) basis, and are significantly under used. Residents may be hesitant to request medication for fear of being "a bother", and staff may not respond to all requests because they are viewed as extra work. Pain ratings by caregivers have been found to be positively correlated with verbally agitated behaviors, such as (a) constant requests for attention, (b) screaming, and (c) complaining, in elderly nursing home residents (Cohen-Mansfield, Billig, Lipson, Rosenthal, & Pawlson, 1990). It is possible that pain medications are more likely to be given when these behaviors are present, in

order to "quiet" the resident.

Within long-term care settings, the prevalence of depression is high (Parmalee, Katz & Lawton, 1992) and the relationship between pain and depression has received considerable research attention. Melding (1991) has argued that, particularly in institutional settings, abnormal illness behavior may be a means to obtaining attention, social contact and love. Relationships between pain, depression, and physical health have been established in the general pain literature (see Romano & Turner, 1985; Roy, Thomas, & Matas, 1984, for reviews) and have been upheld in a few studies of elderly outpatients (Magni, Schifano & DeLeo, 1985; Williamson & Schulz, 1992a, 1992b), although further research with this population is needed (Harkins & Price, 1992). Data support both the views that depression promotes pain and pain promotes depression, although the magnitude of the relationships is generally weak (Magni, Moreschi, Rigatti-Luchini, & Merskey, 1994). One theory that has obtained some empirical support is that illness-induced lifestyle disruptions produce depressive symptoms (e.g., Devins, Edworthy, Guthrie & Martin, 1992). Parmalee, Katz and Lawton (1991) found a strong association between pain and depression among elderly institution residents, which was not attributable solely to functional disability or health status. Cohen-Mansfield and Marx (1993) reported corroborating results with a larger sample of elderly nursing home residents. The relationship between pain and depression was found to exist regardless of the presence of cognitive impairment. Ferrell et al. (1990) failed to obtain a significant relationship between pain and depression in their study of nursing home residents, but noted that this result may have been due to the overall high depression scores in their sample.

Psychological Management of Chronic Pain

Psychological interventions for pain management have been developed and refined extensively over the past few decades. They have become standard and integral parts of multidisciplinary programs for chronic pain throughout the world. The application of these modalities to pain management in the elderly is a relatively new and growing area of research. Psychological interventions, including (a) relaxation training, (b) biofeedback, (c) operant conditioning, (d) behavioral self-management, (e) hypnosis, and (f) cognitive- behavioral therapies, have been evaluated extensively in the literature. They have been found to be effective for reducing pain and associated disability for a wide range of chronic pain problems (Benjamin, 1989; Keefe, 1982; Turner & Chapman, 1982a, 1982b; Turner & Romano, 1984). Some of these interventions have been found to be most effective with particular pain problems, such as relaxation training and biofeedback for headaches (Turner & Chapman, 1982a).

Limitations of Research

Unfortunately, the treatment outcome literature has suffered from design problems that make it difficult to answer the question: "What specific interventions are effective for which pain problems with which patient populations?". This question becomes especially difficult to answer when patients have multiple pain problems (e.g., comorbid headache and back pain), as is common among the elderly (Cook & Thomas, 1994). Design weaknesses have included (Benjamin, 1989; Keefe, 1982; Turner & Romano, 1984):

1. Lack of standardized treatments within and across studies. Evaluations across studies usually compare treatment programs with the same name as though

they are functionally identical. Yet programs labelled the same often have significantly different treatment components. "Operant" programs, for example, may or may not include other active treatments such as physical therapy, occupational therapy, and marital sessions (Turner & Romano, 1984). Researchers can address this issue by using more standardized programs and by evaluating what other treatments are being used by participants in pain management studies. In the area of cognitive-behavioral pain treatments, Turk, Meichenbaum, and Genest (1983) have outlined in detail a program that has been adopted as a standard treatment approach by many researchers (e.g., Keefe et al., 1990a; Kerns, Turk, Holzman, & Rudy, 1986; Puder, 1988; Randich, 1982). However, modifications of the program for different client groups must still be taken into account when making comparisons across studies.

2. Lack of adequate control conditions. In evaluating new treatments or established treatments with new patient groups, credible control conditions are needed to equate for nonspecific treatment effects such as expectation of improvement (Turner & Romano, 1984). Some studies suffer from a lack of any control conditions. Others fail to consider the types of controls that are most appropriate. For example, when dealing with pain patients who have inadequate social interaction and support, an attention/support control condition is apt to be very relevant. Experience from past research also suggests the types of control conditions that may be most relevant.

3. Lack of confirmation of adherence to treatment protocols and interpretation of treatments. Treatment integrity and credibility are important areas of evaluation if conclusions are to be drawn as to why a specific intervention was or was not effective. Recent research has shown greater concern for these issues (e.g., Keefe et al., 1990a; Kerns et al., 1986).

4. Inadequate assessments and questionable psychometric properties of instruments. The use of standardized assessment instruments with well-demonstrated psychometric properties is important in any form of clinical research. With thoroughly evaluated instruments such as the McGill Pain Questionnaire (Melzack, 1975) and the Sickness Impact Profile (Bergner, Bobbitt, Carter, & Gilson, 1981) readily available, there are few reasons for using measures with questionable reliability and/or validity.

5. Lack of follow-up evaluations. The thoughts, feelings, and behaviors associated with chronic pain are generally the result of a lifetime of experience and learning. Accordingly, it takes time to replace old ways of responding to pain with new ones. The full effects of a treatment program may not be evident immediately, but may evolve over a period of weeks or months. Alternatively, gains achieved through a treatment program may not be maintained after the regular treatment contact and attention is discontinued. It is therefore important that at least one, and preferably multiple, follow-up evaluations be conducted for any chronic pain treatment program.

Other problems in research on chronic pain treatment programs have included lack of adequate descriptions of treatments in reports, patient compliance, missing data, and ethical issues surrounding control conditions (Turner & Chapman, 1982b; Turner & Romano, 1984, 1990).

Conclusions from Research

Of the available psychological interventions, operant conditioning and cognitive-behavioral therapies have received the most systematic evaluation in the literature. Turner and Chapman (1982b) noted that these interventions have been applied to a wider range of chronic pain problems in a more comprehensive manner.

Operant conditioning can increase physical activity levels and decrease medication use, while cognitive-behavioral therapies have been found to reduce self-ratings of pain (Turner & Chapman, 1982a; Turner & Romano, 1984, 1990).

Turner and Chapman (1982) argued that because of overlap in treatment principles and strategies, the dichotomy of these two approaches may be somewhat forced. This overlap is not surprising because cognitive-behavioral therapies, by definition, include behavioral components such as operant conditioning. Yet the two can easily be distinguished by the inclusion of cognitive interventions in the cognitive-behavioral therapies. Although there is a profound difference in the assumptions underlying cognitive and behavioral interventions, the tendency to blend them together in treatment packages makes it difficult to separate their effects (Sternbach, 1986a). Turk et al. (1983) have noted similarities between psychological approaches to pain management in terms of conceptualization of pain and therapy, acquisition and rehearsal of skills, specification of steps to achieve goals, and generalization and maintenance strategies. However, they concluded that the methods for achieving desired changes differ between the approaches.

The cognitive-behavioral approach to pain management has been most systematically developed and evaluated by Turk and his colleagues (e.g., Turk et al., 1983). Their detailed treatment approach, based on the Stress Inoculation Training (SIT) paradigm (Meichenbaum & Jaremko, 1982), involves three major phases: (a) assessment, (b) skills acquisition and consolidation, and (c) application and follow-through. Standard treatment components include education and reconceptualization of pain, relaxation training, cognitive strategies such as attention diversion and reinterpretation of sensations, and involvement of significant others.

Variants of this treatment approach have been used extensively in pain management programs with many positive outcomes reported in the literature (e.g., Kerns et al., 1986; O'Leary, Shoor, Lorig, & Holman, 1988; Puder, 1988).

It is noteworthy that several evaluations of psychological interventions for chronic pain management have been carried out without specific regard for age, and have included elderly patients. Most of these studies have involved small samples of patients, making individual subjects highly influential in terms of averaged results. Yet differential efficacy of treatment for older subjects has not been reported by any of these researchers. The vast majority have reported positive outcomes of the psychological interventions for pain, activity levels, and emotional variables. The interventions employed include relaxation training (Strong, 1991; Turner, 1982), hypnosis (Lewis, 1992; Toomey & Sanders, 1983), behavioral field management (Cott, Anchel, Goldberg, Fabich, & Parkinson, 1990), cognitive-behavioral (Kerns et al., 1986; Nicholas, Wilson & Goyen, 1991; Puder, 1988; Skinner et al., 1990; Subramanian, 1994), integrative group therapy (Gamsa, Braha & Catchlove, 1985), and multidisciplinary interventions (Lipchik, Milles, & Covington, 1993; Roberts, Sternbach, & Polich, 1993). Findings of poor maintenance of treatment gains at follow-up (e.g., Subramanian, 1994) are common enough to highlight the need for increased attention to methods for enhancing maintenance.

Only one published study has provided an age analysis of outcome data. Puder (1988) reported that age was unrelated to outcome for a cognitive-behavioral group treatment that was successful for reducing pain interference and coping. A treatment program based on that outlined by Turk et al. (1983) was employed with 69 patients between the ages of 27 and 80. The treatment was found to be effective for

pain interference, coping with pain, and decreased use of some medications and other treatments, but not for perceived pain intensity, at 1- and 6-month follow-ups. Puder concluded that "there is every reason to include older adults in these programs because they can and do benefit from treatment" (p. 207).

Psychological Interventions for Pain in the Elderly

As Carstenen (1988) has noted, very little attention has been paid to the assessment and treatment of pain problems in the elderly in general, despite clear evidence for need. Pharmacologic treatment has been virtually the exclusive focus of recommended interventions (e.g., Enck, 1991; Hunt, 1976). As a result, there is a high prevalence of single and multiple analgesic use among the elderly (Chrischilles, Lemke, Wallace, & Drube, 1990; Cook & Thomas, 1994; Roy & Thomas, 1986). These medications are often taken in addition to other prescription drugs, such as antiobiotics and cardiovascular agents. The resultant risk of adverse drug reactions and drug interactions is significant (Hughey, 1989; Sturgis et al., 1987).

However, there is a growing literature on psychological interventions for pain management with non-institutionalized, or "healthy", elderly. The importance of psychological factors in this age group is starting to be recognized. Attitudes, beliefs, preferences, environmental contingencies, behavioral functioning, and mood are recommended areas of assessment in planning pain treatments for elderly patients (Corran, Helme, & Gibson, 1991; Haley & Dolce, 1986; Herr & Mobily, 1991, 1993). Another important factor is the meaning attributed to pain. Research suggests that the elderly may attribute very different meaning to their pain than other age groups, as a result of prior experience, expectancies, and/or social factors (Cook & Thomas, 1994;

Harkins, 1988).

The increasing attention to psychological interventions for pain management in the elderly has accompanied the decrease in negative stereotypes. Beliefs that the elderly do not have the cognitive capacity to benefit from psychologically-based treatments are being refuted by empirical research. There are few factors to distinguish pain patients based on age, and age has been found to be unrelated to treatment outcome for psychological pain interventions (Sorkin et al., 1990). Portenoy and Farkash (1988) stated that "while it is likely that a proportion of older patients cannot successfully engage in these approaches, limited data and clinical experience suggest that many elderly patients with chronic pain are willing to undertake such treatments and can benefit" (p. 40).

Coping strategies. Research regarding cognitive and behavioral coping strategies for pain has begun to identify strategies that differentiate pain patients who cope effectively from those who cope poorly (Keefe & Williams, 1989). Keefe and Williams (1990) investigated the relationship of age to cognitive-behavioral coping strategies in chronic pain patients. They compared the frequency of use and perceived effectiveness of coping strategies for patients in young, middle, older, and geriatric age groups. No significant age differences were found for either use or perceived effectiveness of strategies. Coping self-statements were a generally effective strategy, while catastrophizing, diverting attention, and increasing behavioral activities were generally maladaptive strategies. A study that investigated factors influencing quality of life for elderly individuals with painful conditions found that personal strategies such as exercise, massage and physiotherapy were important in maintaining control over chronic pain (Walker, Akinsanya, Davis, & Marcer, 1990).

These "natural" behavioral and cognitive strategies are common components of cognitive-behavioral pain management programs for the elderly.

Psychological interventions. The variety of psychological interventions available for elderly pain patients includes all of those used with younger patients. These different approaches to pain management in older adults have been reviewed and discussed extensively (e.g., Jay & Miller, 1990; Saxon, 1991), and include the following:

1. Operant conditioning.

2. Cognitive approaches for increasing self-control. These include imagery, cognitive relabeling, reinterpretation, problem-solving, autogenics and assertiveness training.

3. Behavioral techniques, including systematic desensitization, relaxation training, and exercise.

4. Biofeedback.

5. Hypnosis.

6. Family therapy.

Clinical experience has indicated that these approaches can have a substantial impact on the experience of pain and associated disability in the elderly (Ferrell, 1991; Portenoy & Farkash, 1988), often superior to pharmacologic approaches (Kwentus et al., 1985). However, none of these approaches has been systematically evaluated in the geriatric pain literature, although most have at least been introduced.

The vast majority of this initial research has been positive. Despite early scepticism about the effectiveness of biofeedback with elderly pain patients (Carstenen, 1988), more recent research that has tailored approaches to the elderly,

where appropriate, has produced positive findings (Andrasik, 1991). Improvements in several pain dimensions have been reported for biofeedback training alone (Arena, Hannah, Bruno, & Meador, 1991), and for a multidisciplinary pain program involving biofeedback training (Middaugh, Woods, Kee, Harden, & Peters, 1991). Similarly, positive results have been reported from preliminary investigations of pain management for elderly patients employing operant conditioning (Miller & LeLieuvre, 1982), cognitive-behavioral (Puder, 1988), and social work interventions (Roy, 1986).

Multidisciplinary approaches have been recommended to deal with the complexity resulting from factors such as comorbid illnesses (Haley and Dolce, 1986; Helme & Katz, 1993). B. L. Thomas (1990, 1991) has described a "holistic" approach to pain management for the elderly, using multidisciplinary strategies to reduce reliance on medications. Harkins and Price (1992) have stated that "the geriatric pain clinic is an idea whose time has come" (p. 329). Sandin (1993) has recently reported on the successful use of a multidisciplinary pain treatment program for elderly patients. Psychological services address common comorbidities such as anxiety, grief, substance abuse, and social isolation. A group format has been found to be more efficacious than individual therapy (Sandin, 1993). Preliminary data have also been reported for a multimodal program implemented through a multidisciplinary pain clinic for geriatric patients in Australia (Corran et al., 1991). Significant improvements were found for some measures of pain following treatment, but not for others. Cutler, Fishbain, Rosomoff and Rosomoff (1994) have recently reported that results of a large scale age analysis of treatment outcomes in a multidisciplinary pain center. Their findings indicate that elderly chronic pain patients (a) are different in several respects from younger pain patients, (b) show significant and meaningful improvement from the

multimodal treatment, and (c) achieve treatment gains equal to those of middle aged and younger patients on the majority of assessment measures.

Pain of Musculoskeletal Disease

There is a growing body of research regarding psychological interventions for pain of arthritis and other musculoskeletal diseases (MSD). Although these conditions affect individuals from all age groups (e.g., Jacobsen & Bredkjaer, 1992), they are most common in old age (Demlow, Liang, & Eaton, 1986). Eighty percent of persons over age 55, and all those over age 70 suffer some form of degenerative joint disease (Tonna, 1987). Over 70 percent of older adults suffer from osteoarthritis alone (Keefe & Williams, 1989). In the U.S. National Nursing Home Survey, MSD was found to be the fourth most common primary diagnosis among institutionalized elderly, with a prevalence rate of 4.3 percent, and had been diagnosed in 25 percent of residents (US Department of Health, Education and Welfare, 1979). Thus much of the treatment research has involved predominantly elderly subjects. The importance of psychological factors to pain in MSD has gradually been established in the literature (Molodofsky & Chester, 1975; Shoor & Holman, 1984; Skevington, 1986).

As with other chronic pain conditions, some arthritis patients cope well with their pain and lead active and satisfying lives, while others cope poorly and lead very restricted lives (Keefe et al., 1987). A comparison of coping strategies for older (age 65 and over) and younger (under age 65) adults with rheumatoid arthritis (RA) or osteoarthritis (OA) revealed that younger adults use more methods and rate relaxation techniques as being significantly more helpful (Davis, Cortez, & Rubin, 1990). Methods most often employed by the elderly patients included medication, rest, heat, distraction,

exercise, and talking with others. These results highlight the importance of psychological factors in pain management in MSD, and suggest that cognitive-behavioral strategies should be an important part of pain management interventions.

The initial empirical evaluations of cognitive-behavioral (CB) interventions for pain of MSD have been positive and encouraging. Keefe and Williams (1989) reviewed several of the initial studies that evaluated cognitive-behavioral interventions for arthritis pain. They argued that these studies were well designed and presented some promising initial results. Treatment outcomes included reductions in pain behavior and increased ratings of ability to control pain. Maintenance of treatment effects was a weakness of these interventions, and Keefe and Williams recommended identification of methods for enhancing maintenance as one focus of future research.

Fry and Wong (1991) compared three interventions for pain management with 69 homebound elderly individuals (ages 65 to 78) with chronic knee pain. Problem-focused coping included 3 weeks of daily instruction in pain education, relaxation training, physiotherapy, cognitive self-statements, and problem-solving activities, while emotion-focused coping included expressing hope and faith, seeking sympathy and support, and talking with friends. Subjects were assessed for coping styles (problem- or emotion-focused) and assigned to the matching intervention. A control group received a mixed-focus intervention. All three interventions resulted in reduced pain and anxiety and increased satisfaction at post-treatment and a 2-month follow-up. Interventions matched to subjects' coping styles were more effective than the control group, with the problem-focused (cognitive-behavioral) intervention being the most effective.

Applebaum, Blanchard, Hickling, and Alfonso (1988) compared a CB treatment

with a symptom monitoring control condition in 18 Veterans with RA (ages 43 to 76). The CB treatment consisted of 10 sessions over 6 weeks with relaxation training, thermal biofeedback, and instruction in cognitive pain management. The CB group improved relative to the control group on perceptions of pain, self-rated coping, reported difficulty with functional tasks, and range of motion indices. However, these differences were not maintained at an 18-month follow-up. Similarly, Calfas, Kaplan and Ingram (1992) compared 10 weekly sessions of cognitive-behavioral therapy with a traditional education program in forty OA patients. The average ages of participants in the two groups were 66.7 and 67.3, respectively. Although both groups demonstrated initial improvement in quality of well being, depression, and pain, only the improvement in depression was maintained at 6 and 12 month follow-up.

Parker et al. (1988) evaluated a 12-month cognitive-behavioral treatment for RA that consisted of a 1-week inpatient stay followed by support meetings every 1 to 3 months. This treatment was contrasted with attention placebo and waiting-list control groups. Outcome was evaluated in terms of pain, coping, stress, depression, arthritis helplessness, and disease status. Although most outcome variables were not significantly affected by the treatment, the cognitive-behavioral group showed greater use of coping strategies and were significantly more confident in their ability to manage their pain relative to the other groups. O'Leary et al. (1988) compared a CB treatment condition with a control group who received an arthritis self-help book. Subjects were 33 female RA patients, ages 22 to 75 years (mean 49.3 yrs). The CB treatment was a 5-week program of education, pain management strategies (e.g., attention refocusing, dissociation), and goal setting with self-reward for increased activity. Results showed significant decreases in pain and joint impairment and increased self-efficacy for the

treatment group relative to the self-help control group. Unfortunately, the statistical analyses were hampered by missing data and violations of assumptions so that the results must be interpreted tentatively.

Randich (1982) compared a 6-week CB group therapy program with attention and no-treatment control conditions for 44 rheumatoid arthritis patients. Significant increases were found in activity levels for patients receiving the CB treatment, and were maintained at an 8-week follow-up. No differences in treatment effects on pain perception were noted between the groups. In another comparison group study, 33 RA patients received either biofeedback plus CB group therapy, social support group therapy, or no adjunct treatment in addition to conventional medical therapies (Bradley et al., 1985). Only the biofeedback/CB patients showed significant decreases in pain measures across assessment periods. Patients perceptions of control over symptoms were not associated with outcome. Decreases in rheumatoid factor titer in the patients blood suggested that the biofeedback/CB treatment produced positive effects on immune system activity.

Cognitive-behavioral interventions designed to improve pain coping skills have been evaluated with OA knee pain patients by Keefe et al. (1990a, 1990b). Ninety-nine patients (mean age 64 yrs) were randomly assigned to one of three treatment conditions: a CB intervention, arthritis education, or a standard care control (Keefe et al., 1990a). The 10-week CB intervention included training in reducing irrational thoughts, attention diversion techniques, and changes in activity patterns to control and decrease pain. Results indicated significantly lower levels of pain and psychological disability for the CB group, though no changes in pain behaviors were obtained.

Data from a 6-month follow-up were presented in a subsequent report (Keefe et al., 1990b). The results were mixed: there was a clear deterioration in treatment gains for the CB group, but it was the only one of the three groups that showed a trend toward reducing physical disability over time. Variability in long-term outcome among patients was noted, with scores on a pain coping strategies measure from the end of treatment being predictive of outcome at the 6-month follow-up. Improvement in physical disability over time for the CB group was interpreted as indicating that patients may need time and experience in applying the skills they learn in order to realize gains in this area.

Conclusions. The results of these empirical evaluations of CB treatments for pain of musculoskeletal disease are generally encouraging. Yet there are significant variations in findings for treatment impact on different aspects of pain and associated functioning. This highlights the importance of evaluating pain as a multidimensional variable in treatment outcome research.

Skevington (1986) suggested that cognitive-behavioral therapies for pain in RA may be counterindicated for patients who are uncooperative, do not understand the principles involved, are excessively passive or dependent, have neurotic or psychotic disorders, are extremely sick or badly injured, or whose medication makes concentration and required performance difficult. Although these exclusion criteria seem reasonable, her concern that they encompass a large proportion of RA patients is unreasonably pessimistic.

Pain Management in Long-Term Care

Pain assessment and management are understudied in nursing home

populations (Ferrell, 1993). Ferrell et al. (1990) reported that pain management strategies were very limited in a sample of 97 elderly nursing home residents, consisting primarily of analgesic drugs, physical therapy, and heating pads. The existing literature focuses on pharmacological interventions (e.g., Cooper, 1992; Kinzel, 1992). Haley (1983) found that although "pain complaints" was rated as the second most frequent behavior problem by nursing home staff, it rated much lower in terms of the staff's interest in learning strategies to reduce the behavior. He suggested that staff may either see behavioral techniques as irrelevant for this problem, or may be accustomed to "living with" it.

The only published study of an operant conditioning program for elderly pain patients in a nursing home involved a very small sample of residents. Miller and LeLieuvre (1982) used attention and verbal reinforcement (ABAB design) to increase exercising in a sample of 4 elderly residents with chronic pain. Data from these four case studies revealed that this simple behavioral procedure reduced intake of *prn* pain medication, pain behaviors, and subjective pain reports. The results were consistent with those from a previous study of the effects of a token reinforcement system on exercise activity in hospitalized geriatric patients (Libb & Clements, 1969). Though promising, these results must be interpreted tentatively because of the very small samples and the absence of any published replications.

An interesting area of research on pain management in the elderly involves the use of humor. Adams and McGuire (1986) reported that elderly residents of a long-term care facility who watched humorous movies over a period of 6 weeks generally reported less pain at the end of the treatment, decreased their use of *prn* pain medications, and had significantly higher affect scores than individuals viewing

non-humorous movies. Unfortunately, only the changes in affect were analyzed statistically (at p=.10 level), and a no-treatment control condition was excluded for ethical reasons. Further research on the value of humor in pain management programs for the elderly is warranted.

Elderly nursing home residents generally do not fall into the category of the "healthy" elderly. They typically have chronic physical and/or mental health problems, often serious, and associated disability. The research that has been reviewed reveals that they have a higher prevalence of pain than the community-resident elderly. This pain is treated almost exclusively through medication, though research has shown that this treatment is often not used systematically nor effectively. The few reported uses of psychological pain management techniques in nursing homes have been exploratory studies that have suffered from significant design weaknesses. "Outcome research focusing on the most effective pain management strategies in long term nursing home settings is desperately needed" (Widner & Zeichner, 1993, p.16). There have been no investigations of the effectiveness of cognitive-behavioral interventions for pain management in elderly nursing home residents.

Purpose and Hypotheses

The purpose of this study was to provide a controlled experimental evaluation of the effectiveness of a cognitive- behavioral pain management program for elderly nursing home residents. The CB program was compared with an attention/support condition involving minimally structured, supportive group therapy. Although attention-only treatment has been found to be ineffective for pain management in rheumatoid arthritis patients in the community (O'Leary et al., 1988), its impact in the

nursing home setting had not been evaluated. The lack of adequate social interaction and support that is common in long-term care settings suggested that this form of control condition would be very relevant in this setting.

Helme and Katz (1993) recently stated that the pathophysiological changes of aging dictate that improvement of functioning may sometimes be a more important treatment goal for elderly patients than the relief of pain. Research has shown that cognitive-behavioral interventions often have a differential impact on pain, physical functioning, and psychosocial functioning (e.g., Keefe et al., 1990a; Puder, 1988; Randich, 1982). Pain and measures of functioning are distinct but interrelated aspects of well-being, and should both be considered in planning interventions and measuring outcomes (Williamson & Schulz, 1992). In this study, evaluation of treatment outcome was multidimensional, incorporating measures of pain, pain-related physical disability, depression and medication use.

It was hypothesized that:

1. Residents in the CB treatment group would report less severe pain and less pain distress

(a) at post-treatment, and

(b) at follow-up

than residents in the attention/support (AS) control group.

2. Residents in the CB treatment group would report less pain-related physical disability

(a) at post-treatment, and

(b) at follow-up

than residents in the AS control group.

3. Residents in the CB treatment group would report less depression

(a) at post-treatment, and

(b) at follow-up

than residents in the AS control group.

4. Physician ratings of concern regarding pain medication use would be lower for residents in the CB treatment group

(a) at post-treatment, and

(b) at follow-up

than for residents in the AS control group.

5. Residents in the CB treatment group would be rated by caregivers as showing fewer pain behaviors

(a) at post-treatment, and

(b) at follow-up

than residents in the AS control group.

6. Qualitative analysis would show that residents in the CB treatment group found the treatment to be helpful in terms of reducing pain and interference with activities, and improving coping.

METHOD

Subjects

The subjects for this study were 28 elderly residents of two personal care homes in Winnipeg, Manitoba. The two settings are described below.

Taché Nursing Centre. Taché Nursing Centre (site A) is a 311 bed personal care home founded by the Grey Nuns of St. Boniface. Approximately 80% or 245 of the residents at the time of this project were age 60 or older. Fourteen of the total beds are allocated to a unit for residents with Alzheimer's Disease. In order to secure Site A's participation in this project, a series of meetings were held with the facility's Behavior Specialist, a proposal summary was submitted (see Appendix A), and presentations were made to the physiotherapy department and head nurses. After the project was approved by the facility's Executive Director, referrals of potential project participants were obtained from the physiotherapy department (46), Head Nurses (11), and Behavior Specialist (3). Of the 60 residents referred, 12 became part of the initial project sample and 11 completed the treatment program (see Table 1).

Deer Lodge Centre. Deer Lodge Centre (site B) is a large geriatric health facility with a mandate for providing services to the city's veteran population. The facility's long term care component comprises 198 beds, 38 of which form an Alzheimer's unit. One floor (40 beds) is available for non-veteran residents. There is also an interim care component (55 beds) for individuals awaiting placement in a long-term care facility. At the time of this project 246 (99%) of the residents in these two components were age 60 or older. In order to secure Site B's participation in this project, individual meetings were held with the Associate Director of Quality/Research/Programs and Associate Director of Care, and a presentation was

Table 1
Summary of Subject Recruitment by Site

Subjects	Site A	Site B	Total	Percent[a]
Ineligibles:				
Age (<60 yrs)	7	0	7	6.7%
Poor cognitive	16	5	21	20.2
Language barrier	3	0	3	2.9
Bedridden	1	0	1	1.0
Functionally deaf	1	1	2	1.9
No reported pain	3	9	12	11.5
Other	0	2	2	1.9
	31	17	48	46.1
Refusals:				
Not interested/busy	16	11	27	26.0
Health concerns	1	0	1	1.0
	17	11	28	27.0
Moved:				
Prior to treatment	0	1	1	1.0
Discontinued:				
Prior to treatment	1	0	1	1.0
During treatment phase	0	2	2	1.9
	1	2	3	2.9
Deceased:				
During treatment phase	0	2	2	1.9
Completed program:				
Deceased prior to followup	1	1	2	1.9
Dropped from analysis	0	1	1	1.0
Completed all phases	10	9	19	18.3
	11	11	22	21.2
Total referrals received	60	44	104	100

[a]Percentages do not sum to 100 due to rounding.

made to the Unit Coordinators. A written application was submitted to the facility's research access committee, including a copy of the full research proposal. After approval was obtain, referrals of potential participants were obtained from the Unit Coordinators (41) and Associate Director of Care (3). Of the 44 residents referred, 16 became part of the initial project sample and 11 completed the treatment program. (see Table 1).

Recruitment. Criteria for referral of potential participants were (a) age 60 or older, (b) English speaking, (c) experiencing persistent or chronic pain of any type for a minimum of 3 months, and (d) cognitive functioning intact or mild impairment (see Appendix B). All potential participants were screened for willingness to participate and eligibility through interviews, including a brief mental status evaluation with the Short Portable Mental Status Questionnaire (SPMSQ) (Pfeiffer, 1975) (see Appendix C). The SPMSQ was developed as a tool for identifying cognitive deficits associated with organic brain syndrome in elderly patients (age 50 and over). The instrument provides an accurate and brief assessment of cognitive competence in such basic areas as recent memory, simple computation, and orientation to time, place, and person (Gregory, 1987). It has been shown to have good reliability (test-retest r=.82 to .83), concurrent validity (r=.57 to .66 with several neuropsychological measures), and clinical validity (92% agreement with clinical diagnosis of organic brain syndrome) (Gregory, 1987; Pfeiffer, 1975). Scores on the SPMSQ are classified into four levels of mental function; only residents scoring in the intact or mild impairment ranges were eligible for inclusion in this study.

Presence of chronic pain was based on the International Association for the Study of Pain (IASP) definition: Pain that has lasted for 3 months or more and is refractory

to treatment. Primary medical diagnoses for pain for the initial subjects were osteoarthritis (36%), rheumatoid arthritis (11%), old fractures (11%), unspecified arthritis (7%), neuropathies (7%), CVA residuals (7%), spinal cord injury/tumor (7%), osteoporosis (4%), multiple sclerosis (4%), Parkinson's disease (4%), and angina (4%). Subjects who met the elibility criteria were asked to sign a consent form (see Appendix D). As treatment assignments were not known at this time, only the general structure of the program was described to potential participants (i.e., weekly group meetings of approximately 6 to 8 residents to discuss pain problems and other issues). For residents who consented to participate, written consent was also obtained from their physicians indicating the absence of medical reasons that would preclude their participation (see Appendix E).

Table 1 shows that of the 104 referrals received, 48 (46%) were deemed ineligible for a variety of reasons, and 28 (27%) refused participation. For comparison purposes, in a non-treatment study of the incidence of pain and depression in a nursing home/congregate apartment complex 28% of an initial sample of 1,302 residents were deemed ineligible for similar reasons (i.e., cognitively too impaired, physically too ill, and speech/hearing problems), and 26% refused participation or provided insufficient data (Parmalee, Katz & Lawton).

Of the 28 eligible and consenting residents in this study, 14 of whom were assigned to each treatment condition, 1 moved prior to the initiation of the treatment program (AS condition), 3 dropped out (1 CB, 2 AS), 2 died prior to completing the treatment program (1 CB, 1 AS), and 1 was deleted from the final analyses (1 CB) (see Results section), leaving a final sample of 21 residents (11 CB, 10 AS). Of the 3 subjects who dropped out, one (AS group) left the study prior to the first treatment session, and the

other two (1 CB, 1 AS) after the first treatment session. All three subjects stated they were no longer interested in continuing with the program. Table 2 provides comparison demographic and pre-treatment data for the lost subjects and final sample. No statistically significant differences were found between the final sample and the group of lost subjects on any of these variables. The final sample consisted of 8 males and 13 females, ranging in age from 61 to 98 years (M = 77.6), 11 from site A and 10 from site B.

At post-treatment and follow-up, one subject in the CB group refused to complete the full assessment, despite several attempts and encouragement from nursing home staff. The reason for her refusal could not be determined. Partial data were obtained for this subject at both times. At the 4-month follow-up assessment, two subjects who had completed the program were deceased (1 CB, 1 AS), and one subject (CB group) was hospitalized for an extended period. Thus follow-up data was obtained for 17 of the 21 subjects in the final sample (8 CB, 9 AS).

Measures

A multidimensional assessment approach is most appropriate for evaluating treatment efficacy with chronic pain. Pain assessment strategies that are effective with younger patients are equally applicable to geriatric pain, in the absence of substantial cognitive limitations resulting from dementia (Harkins & Price, 1992). Self-report instruments for pain, mood and activities have been found to be reliable and valid with an elderly patient population at a multidisciplinary geriatric pain clinic (Corran, Helme, & Gibson, 1991). The following measures were administered pre- and post-treatment and at the 4-month follow-up assessment.

Table 2
Descriptive Data for Lost Subjects and Final Sample

Variable	Subjects				
	Moved	Quit	Deceased	Deleted	Final
n	1	3	2	1	21
Location - Site A/B	0/1	1/2	0/2	0/1	11/10
Treatment Group - CB/A	0/1	1/2	1/1	1/0	11/10
Sex - male/female	0/1	2/1	0/2	1/0	8/13
Age - Range	76	74-86	78-84	69	61-98
- *M*	-	78.3	81.0	-	77.6
- *SD*	-	(6.7)	(4.2)	-	(8.1)
Education - *M*	13	7.7	10.0	12	10.0
- *SD*	-	(3.5)	(1.4)	-	(2.9)
Years at current home[a]	1	5.3	4.5	3	4.9
	-	(2.9)	(5.0)	-	(3.7)
Cognitive: SPMSQ score	1	2.0	3.0	4	1.7
	-	(2.7)	(0)	-	(1.4)
Duration of pain (Yrs)[a]	35	25.3	25.0	6	25.3
	-	(30.8)	(21.2)	-	(24.4)
Pre-treatment:					
Pain: PRI(Total)	18.0	14.3	21.0	17.0	18.2
	-	(5.7)	(5.7)	-	(6.7)
NRS	8.0	7.0	6.8	8.0	5.6
	-	(2.1)	(1.7)	-	(2.2)
Pain-related disability:					
RMDQ subset	5	9.7	9.5	13	7.9
	-	(2.5)	(3.5)	-	(3.3)
Caregiver ratings:					
Inverse CPRF	.60	.68	.71	.19	.68
	-	(.16)	(.40)	-	(.29)
Depression: GDS	12	14.3	18.5	10	10.4
	-	(1.5)	(5.0)	-	(4.7)
Physician med ratings	2	1.7	1.0	4	1.4
	-	(.6)	(0)	-	(.8)
Credibility rating	-[b]	4.2[c]	7.6	7.2	7.0
	-	(1.5)	(3.4)	-	(2.2)

Note. No significant differences (2-tailed *t* and chi-square) for final sample (*n*=21) vs. all lost subjects (*n*=7). *n*'s too small for analysis by subgroups.
[a]Log transformed for statistical analyses. [b]Missing data. [c]Data missing one subject (*n*=2).

Short-form McGill Pain Questionnaire. The McGill Pain Questionnaire (MPQ) (Melzack, 1975) is a widely used assessment instrument for chronic pain. It consists of 20 groupings of word descriptors that are used by patients to specify subjective pain experience (Pain Rating Index (PRI)), along with an intensity scale (Present Pain Intensity (PPI)), and pain drawings. The MPQ is typically administered orally in an interview format. Evaluative research has demonstrated that the MPQ is a valid, reliable, consistent, and useful measure of subjective pain experience (Melzack & Katz, 1992). The discriminative capacity of the instrument has been demonstrated through studies that have found 77 to 90% concordance between classification based on the MPQ and medical diagnoses (Melzack & Katz, 1992). The instrument provides three primary scale scores (sensory, affective, and evaluative) based on the pain rating index, though the validity of this 3-factor structure has been an issue of considerable debate in the literature (e.g., Holroyd et al., 1992; Melzack & Katz, 1992).

A short-form version of the MPQ (SF-MPQ) has been developed for use in situations where the standard MPQ requires too much time to administer (Melzack, 1987). It consists of 15 descriptors from the pain rating index (PRI) of the MPQ that are rated on a 0 to 3 intensity scale, and provides scores for sensory, affective and total descriptors. It also contains the present pain intensity (PPI) index from the MPQ and a visual analogue scale (VAS) for measures of overall pain intensity. Correlations between the three scales (sensory, affective and total) on the SF-MPQ and the corresponding MPQ indices have been found to be moderate to high (.65 to .94) with various clinical samples (Melzack, 1987). The SF-MPQ has also been found to be sensitive to traditional clinical pain therapies (Melzack, 1987), and has been used with a variety of pain patient populations (Melzack & Katz, 1992). Initial data suggest that

the short-form has maintained the capability of discriminating among different pain syndromes (Melzack, 1992).

Adams and McGuire (1986) have reported difficulties using the standard MPQ with elderly nursing home residents. Because of anticipated fatigue and/or comprehension difficulties with the standard MPQ, the short-form version was used in this study (see Appendix F). One modification to the instrument was made: the visual analogue scale of the SF-MPQ was replaced with a numerical rating scale (NRS), as the latter is more readily understood and thus more suitable for use with geriatric patients (Jensen & Karoly, 1992).

In pain clinic settings the MPQ is often used in the context of a more detailed pain assessment (e.g., Melzack, 1975; Monks & Taenzer, 1983; Turk et al., 1983). In the present study portions of these comprehensive pain assessment protocols (e.g., history of pain and treatments, medication usage, pain drawings) were used in conjunction with the SF-MPQ (see Appendix F). Diagnosed conditions, treatment, and medication information were also obtained from patient medical charts.

Roland and Morris Disability Questionnaire. The Sickness Impact Profile (SIP) (Bergner et al., 1981; Department of Health Services, 1977, 1978) is a 136-item measure of functional disability. It profiles 12 dimensions of patient functioning that produce 3 dimension scores: Physical, Psychosocial, and Total disability. The SIP has been comprehensively tested and revised, and has been demonstrated to be a psychometrically sound instrument (Bradley, Haile, & Jaworski, 1992; Kerns & Jacob, 1992). It was found to have high overall internal consistency (alpha .94) and test-retest reliability (.92), and good convergent and discriminant validity (Bergner et al., 1981). The SIP has been used as an outcome and criterion measure in numerous

studies of chronic pain and chronic pain treatments (Bradley et al., 1992). In studies with arthritis patients the SIP has been found to be equally or more efficient and sensitive than several other instruments with regards to changes in mobility and functioning (Liang, Larson, Cullen, & Schwartz, 1985).

A 24-item version of the SIP, the Roland and Morris Disability Questionnaire (RMDQ), has been developed for use with low back pain patients (Roland & Morris, 1983). All of the items were drawn from the original SIP, with the phrase "because of my back" added to each in order to distinguish disability due to back pain from disability due to other causes. The short-form version has been found to correlate strongly with the Overall (.85) and Physical Dimension (.89) scores of the SIP, and moderately with the Psychosocial dimension score (.59) (Deyo, 1986). Deyo noted that the items in the short-form version appear to measure physical disability much better than psychosocial disability. The shortened scale has been found to have good test-retest reliability (.76 to .91), good test-retest agreement on individual items (.83), moderate construct validity (correlations with pain history and physical examination variables higher than the full SIP and comparable to the SIP Physical Dimension), and sensitivity to change with treatment that is at least as good as the SIP and its subscales (Deyo, 1986; Roland & Morris, 1983). Waddell and Turk (1992) reported that they have found the Roland and Morris Disability Questionnaire to have good factor structure, score distribution, and clinical utility.

Jensen, Strom, Turner and Romano (1992) examined the reliability and validity of the RMDQ as a measure of dysfunction for inpatients with chronic pain of a variety of types. Their results were consistent with prior research on the instrument, showing it to be as reliable and sensitive to treatment effects as the original SIP scales.

Concurrent validity of the scale was also found to be good. Their results supported the reliability and validity of the RMDQ as a measure of physical dysfunction in chronic pain patients with pain in sites other than the low back.

Due to anticipated fatigue and/or comprehension difficulties for the full SIP with elderly nursing home residents, the RMDQ version was adapted for use in this study (see Appendix G). Deyo (1986) stated that the qualifier added to the questionnaire items ("because of my back") reduces patient complaints about the SIP by improving its specificity. To maintain this specificity, the modifier for each item was maintained, but changed to "because of my pain". Several other wording changes were made to the items to make them appropriate to the nursing home residents, such as replacing "home" and "house" with "room", and changing two items referring to difficulties going upstairs to refer simply to "moving around" (no residents of the nursing homes in this study used stairs). In the process of using the RMDQ with this study's subjects it was determined that 8 of the 24 items were not applicable to many of the participants because their responses were affected by disability that was not pain-specific. Therefore, all subjects completed the full questionnaire at each administration but these items were marked as not applicable where appropriate (see Appendix G). Scores were calculated based on both the complete set of items (RMDQ) and the 16 remaining items (RMDQ subset). Pearson correlations between the RMDQ and RMDQ subset scores were found to be .94 at pre-treatment, .91 at post-treatment, and .90 at follow-up. In order to ensure comparability of ratings across subjects and maximize sensitivity to treatment effects, the RMDQ subset scores were used for the remaining analyses. The high correlations with full RMDQ scores indicate that the psychometric properties of the instrument were not substantially influenced.

Geriatric Depression Scale. The Geriatric Depression Scale (Brink et al., 1982; Yesavage et al., 1983) is a 30-item self-report instrument for screening depression in the elderly (see Appendix H). The scale covers areas of particular geriatric relevance such as cognitive impairments, self-image, and losses, and makes an important distinction between physical symptoms and their affective repercussions (Hovaguimian, 1986). Its yes/no response format is considered preferable to typical 4-point rating scales for administering to older individuals (Kaszniak & Allender, 1985). The GDS can be self-rated by a patient or administered orally by an evaluator. The scale has been found to have good internal consistency (Chronbach's alpha=.94), split-half reliability (r = .94), test-retest reliability (r = .85 at one week), concurrent validity (r > .80 with other depression self-rating scales), and clinical validity (reliably different and ordered means for subject groups classified by clinical diagnostic criteria) in a mixed sample of community-resident nondepressed and depressed (receiving outpatient or inpatient treatment) elderly individuals (Brink et al., 1982; Yesavage et al., 1983). Two studies have examined the psychometric properties of the GDS with samples of elderly nursing home residents. In a sample of congregate apartment (n=496) and nursing home (n=310) residents ranging in age from 61 to 99 years (M=84 years) and with intact to moderately impaired cognitive functioning, the GDS was found to have high internal consistency (Chronbach's α=.91), and good test-retest reliability (r = .85 at one month for a subsample of 55 residents) (Parmalee, Lawton & Katz, 1989). Concurrent validity was moderate when compared with direct-care staff ratings of depression (r = .34), but higher when compared with DSM-III-R (American Psychiatric Association, 1987) diagnositic criteria (agreement on presence or absence of depression in 80% of cases, complete agreement on major, minor, or no depression in 73%), and clinical diagnoses

(agreement on presence or absence in 78%, agreement on depression classifications in 68%). In a sample of 51 nursing home residents with intact or mildly impaired cognitive functioning (*M* age = 83 years, *SD* = 5.9), the GDS was found to have high internal consistency (Chronbach's α = .99) and split-half reliability (*r* = .84), and good validity in terms of ability to discrimate between subjects with major, minor or no depression based on research diagnostic criteria (Lesher, 1986).

Caregiver Pain Rating Form. Observer ratings of pain behaviors were obtained from caregivers (RNs and LPNs) at the nursing homes, to provide an external measure of pain and a means of socially validating any self-reported changes in pain. The Caregiver Pain Rating Form (CPRF) (see Appendix I) was developed for this study based on 13 unprompted pain indicators rated as most useful by registered nurses and nursing assistants in a study of pain assessment indicators in the nursing home (Mohide, Byles, & Chamers, 1983). Scores were calculated by summing the number of items endorsed plus any pain behaviors noted in the comment section that were not marked in the checklist. This second scoring addition was made because it was found that in several cases pain behaviors were described in the comment section but not marked in the checklist. During the post-treatment assessment period it was decided to add a numerical rating scale to the CPRF for caregivers to rate the subjects' apparent level of pain (see Appendix J). This additional rating was added because of the low correlations between pre-treatment CPRF scores and self-ratings of pain, and to provide an indication of whether the CPRF scores were highly correlated with the caregivers' perceptions of subjects' level of pain.

Physician ratings of concern regarding medication use. A measure of pain medication intake that has been found to be easily obtained and sensitive to treatment

effects (McCauley & Frank, 1983) was used. Medications and dosages are recorded for each subject at each assessment point (i.e., pre and post-treatment and at follow-up). The medication usage for each subject at each assessment point is recorded on individual cards. In a Q-sort procedure, these cards are randomized and presented to 3 physicians, who are asked to rate each combination with regard to their concern about abuse potential, possible side effects, over-medication, or other issues (see Appendix K). Ratings range from 0, no pain medication taken, to 5, very concerned about intake. The physicians are blind to the treatment groups and assessment points for all of the recorded medication combinations. The modal evaluation is used as the measure of physician concern for each medication combination, and if no modal rating exists the median is used. This approach avoids common problems that arise in attempts to calculate medication equivalencies from extant tables, and has been found to be sensitive to treatment effects for a psychological intervention for chronic pain (McCauley & Frank, 1983). The authors of this measure found evidence of concurrent validity through similar patterns of change for the medication ratings and subjects' average hourly pain ratings.

Participant feedback questionnaire. A participant feedback questionnaire was designed to solicit information at post-treatment regarding perceptions of the treatments, including benefits and drawbacks, and value of coping skills learned (see Appendix L). The first part of the questionnaire consisted of seven dimensions on which the participants rated the helpfulness of the treatment program on a 4-point rating scale (0=not helpful to 3=very helpful). Participants were also asked to provide feedback on whether they would have preferred fewer, more, or no change in the number of weekly treatment sessions, and whether they would recommend the

program in which they participated to a friend. The remainder of the questionnaire consisted of open-ended questions regarding what parts of the program were most and least helpful, skills or information they expected to use for coping with pain, recommended changes for the program, and reasons that they would or would not recommend the program to a friend. At follow-up, the participants were asked to rate the helpfulness of the program on the same seven dimensions, and were asked two open-ended questions regarding skills or information they were using from the program and what, in general, they were doing to cope with their pain (see Appendix M).

Experimental Design

The design of the study was a pretest/posttest control group comparison with follow-up, using stratified block randomization. After the screening interviews and pre-treatment assessments, subjects were matched as closely as possible in pairs based on gender, age, pain diagnosis, duration of chronic pain, and other treatments (i.e., medications, physiotherapy). The members of each matched pair were then randomly assigned to one of the two experimental groups.

Therapists

The therapists for the study were two Ph.D. candidates in clinical psychology, with clinical experience in cognitive-behavioral, supportive, and group psychotherapy, and psychogeriatrics. The treatment groups were counterbalanced by therapist across the two treatment settings. The primary therapist conducted all of the pre-treatment assessments, and approximately half of the post-treatment and follow-up assessments.

The remaining assessments were conducted by the second therapist and a Ph.D. clinical psychologist. Several of the SF-MPQ questionnaires were administered at the follow-up assessment at one setting by a undergraduate psychology honors student with appropriate supervision.

Procedure

Pre-treatment assessment. Residents who met the inclusion criteria based on the screening interviews and chart reviews, and consented to participation, underwent a multidimensional pain and functioning assessment. This assessment consisted of a structured interview, with administration of all questionnaires and inventories, medical chart review, and caregiver ratings. Because self-ratings of pain are known to vary within and across days for chronic pain patients, and memory for pain is known to be highly susceptible to bias (e.g., Bryant, 1993; Fienberg, Loftus & Tanur, 1985), multiple evaluation points were used at the pre-treatment, post-treatment and follow-up assessments. Each participant was administered the SF-MPQ a minimum of three times within a 1-week period. If it was not possible to administer the complete instrument at each assessment, the NRS and PPI rating were obtained. Caregiver ratings using the CPRF were also obtained at multiple points during each assessment period. Six ratings were obtained for each subject at pre-treatment, post-treatment and follow-up assessments, with ratings varied across nursing shifts (time of day). Mean scores for PRI, NRS, PPI, and CPRF were calculated for each subject at each assessment period for use in statistical analyses.

Cognitive-behavioral (CB) treatment. The cognitive-behavioral treatment was modeled after the procedures of Turk et al. (1983), with information and activities

tailored to the setting where appropriate. Subjects in this treatment met for 10 weekly group sessions of approximately 60 to 75 minutes duration. Components of training included (a) education and reconceptualization of pain (two sessions); (b) training in behavioral and cognitive coping skills, including progressive relaxation, imagery, attention diversion, and cognitive restructuring (five sessions); and (c) consolidation of skills and follow-through using planning, practice, and role-playing (three sessions) (see Appendix N). The general format of each session was (a) review of previously discussed material and homework assignments, (b) presentation and practice of new information and skills, (c) discussion of the application of the new skills using a problem- solving framework, and (d) review of the session and assignments for home practice. The treatment program was adapted as necessary in order to maximize its effectiveness for the program participants, but did not deviate from the general structure of the cognitive-behavioral protocol.

Attention/support (AS) treatment. Subjects assigned to the attention/support treatment condition also met for 10 weekly group sessions of approximately 60 to 75 minutes duration. These sessions were semi-structured and involved discussions by group members about pain experiences, coping, and other topics of interest. The content of each session was left open to the desires or interests of the participants, but because they did not provide topics to generate enough discussion for each session the therapist provided topics and/or activities to generate discussion. The majority of these topics and ideas were adapted from Corey and Corey's (1987) suggestions for group therapy with the elderly. Activities included having participants bring favorite items or photographs for discussion, describing important memories, current events discussion, and a sentence-completion exercise. The therapists provided empathy and

support, and moderated group discussion.

Treatment credibility. After the first group session when the treatment program was outlined, participants in both treatments completed a treatment credibility rating form, adapted from Borkovec and Nau (1972) and previously used in group comparison studies of cognitive-behavioral pain management (Kerns et al., 1986) (see Appendix O). These ratings serve as an indicator of comparability of the treatments in terms of perceived credibility and expectation for improvement. This rating form was re-administered at the post-treatment assessment.

Treatment integrity. Treatment integrity was evaluated through a procedure commonly used in group comparison studies of psychologically-based pain management programs (Keefe et al., 1990a; Kerns et al., 1986). All of the group treatment sessions were audiotaped, and two independent raters were given randomly selected 5-minute segments from 30 percent of the sessions (see Appendix P). The raters were doctoral-level therapists who were experienced in providing both cognitive-behavioral and supportive psychotherapy. Without knowledge of the treatment conditions they were asked to listen to the therapist's statements and indicate which treatment (CB or AS) was being administered. The percentage of correctly identified segments serves as an indicator of treatment integrity.

Treatment compliance. Checklists of treatment components were used to monitor treatment compliance for the CB treatment. A checklist was completed by the therapists after each treatment session to document the information presented and skills taught during the sessions (see Appendix Q). At the beginning of all sessions, the therapists also completed checklists to document homework activities carried out by participants between sessions (see Appendix R). Where possible, participants who

did not complete a portion of the training were given extra instruction and/or assistance as needed in order to complete the omitted components. Participants who missed group sessions in the treatment program were given individual make-up sessions prior to the next session, unless prevented by illness or unavailability, in which case they were seen after the next session.

Post-treatment assessment. All study participants were reassessed at the end of the 10-week treatment period. The assessment procedures were the same as for the pre-treatment assessment, with the exception that historical information on the pain questionnaire (see Appendix F) was not collected, and the participant feedback questionnaire was administered.

Follow-up assessment. Available study participants were reassessed 4 months after the post-treatment assessment. The procedures were the same as for the post-treatment assessment.

RESULTS

Data analysis consisted of eleven steps: (a) preliminary data screening; (b) selection of covariates; (c) examination of CPRF scores; (d) evaluation of physician medication ratings; (e) evaluation of attendance at group sessions, treatment credibility, integrity, and compliance; (f) evaluation of pre-treatment comparability by group (CB and AS) and site (A and B); (g) comparison of post-treatment outcome by group and site; (h) comparison of outcome at follow-up by group and site; (i) evaluation of maintenance of treatment effects from post-treatment to follow-up; (j) clinical significance, and (k) evaluation of quantitative and qualitative data from participant feedback questionnaire.

Data Screening

Prior to analysis, procedures for screening of grouped data were employed (Tabachnick & Fidell, 1989). The data were examined with regards to accuracy of data entry, normality of sampling distributions, presence of univariate and multivariate outliers, pairwise linearity, homogeneity of variance, and potential multicollinearity. Caregiver pain behavior ratings, caregiver NRS ratings, and duration of pain were found to have skewed distributions with univariate outliers. Inverse transformation of the CPRF scores and caregiver NRS ratings, and logarithmic transformation of the pain duration variable resulted in improved distributions with no remaining outliers. Physician medication ratings was also moderately to highly skewed, but its distribution was not improved by any of the attempted transformations and therefore was not modified for the analyses.

One subject was found to produce multivariate outliers because of extreme

scores on several variables. Further examination revealed that this individual was not part of the intended sampling population because, in addition to a history of chronic pain, he was experiencing intense acute pain secondary to a recent above-the-knee amputation. As this subject was part of the larger CB treatment group, it was decided to drop this case from the analysis. Two other subjects produced multivariate outliers because of extreme scores on one of the dependent variables (DVs). Their scores on these variables were therefore altered to be less extreme while maintaining their position in the distribution of scores (Tabachnick & Fidell, 1989). One subject's score on CPRF (inverse transformed) at post-treatment was changed from .33 to .50. Another subject's score on the NRS pain rating at follow-up was adjusted from 10.0 to 8.6.

Pairwise linearity was examined using within-group scatterplots and found to be satisfactory. Examination of correlations among all DVs and covariates revealed a near multicollinearity between NRS and PPI pain ratings from the SF-MPQ. The correlations between these variables at pre-treatment, post-treatment, and follow-up were .81, .78, and .85 respectively. Therefore, only the NRS ratings were used in the multivariate analysis. After the above-noted adjustments and modifications, the assumptions of multivariate analysis with grouped data were satisfied. Therefore, the final sample consisted of 11 subjects in the CB condition and 10 subjects in the AS condition, for a total of 21 subjects. Multivariate analyses were performed using the general linear model with unweighted cell means because the study was an experimental design with apparently random dropout of subjects (Tabachnick & Fidell, 1989).

Covariates

Based on the chronic pain literature, potential covariates for the multivariate analyses included cognitive functioning, sex, age, number of pain locations, other treatment modalities (i.e., physiotherapy), and duration of chronic pain. In order to maintain maximum statistical power with the small sample size, it was desirable to limit the covariates to those that would provide meaningful adjustment to the multivariate analyses. Therefore, scatterplots and correlations among the potential covariates and DVs were examined to select the subsets of covariates that were maximally correlated with each DV while minimally correlated with each other (Tabachnick & Fidell, 1989). For the post-treatment and follow-up analyses, pre-treatment scores on the respective dependent variables were used as covariates and therefore included in the process of selection for additional covariates. Reliability of potential covariates was evaluated by examining correlations with DVs and other covariates across assessment times (pre, post, and follow-up).

The selected covariates were (a) pre-treatment scores for the pain self-ratings multivariate analyses of covariance (MANCOVAs), (b) pre-treatment scores, age, and pain duration (log transformed) for pain disability analyses of covariance (ANCOVAs), (c) pre-treatment scores and age for caregiver pain behavior ratings ANCOVAs, (d) pre-treatment scores for depression ANCOVAs, and (e) pre-treatment scores, sex, and number of pain locations for physician medication ratings.

Caregiver Pain Rating Form

The distribution of scores on the CPRF was examined closely because it was a new measure. The instrument was found to have low sensitivity and variability.

Scores ranged from 0 to 5 and were highly positively skewed, with the majority of the subjects receiving scores of zero. Across the six pre-treatment assessments for each subject, 52 to 90% scored zero with 5 to 24% scoring in the 3 to 5 range. At post-treatment, 62 to 81% scored zero, with 0 to 5% scoring in the 3 to 5 range. At follow-up, 44 to 89% scored zero, with 0 to 17% scoring in the 3 to 5 range. Inverse transformation substantially improved the distribution of the variable at each assessment point, so that the null hypothesis of normality was accepted at α=.05 for the Shapiro-Wilk test of normality (Shapiro & Wilk, 1965). However, the low sensitivity and variability would be expected to reduce the likelihood of obtaining statistically significant treatment effects for this measure.

Reliability of the CPRF scores was difficult to assess. CPRF scores were obtained at multiple points during each assessment period because of expected fluctuations in subjects' pain and associated behaviors. Because of this expected variability, correlations between consecutive CPRF scores (rated 8 to 40 hours apart) during each period would be expected to provide a poor measure of the test-retest reliability of the scores. Additionally, the extremely low variability in scores at some assessment points renders some of these correlations invalid. Using inverse transformed scores, correlations between consecutive scores ranged from .40 to .73 at pre-treatment, -.02 to .42 at post-treatment, and .14 to .53 at follow-up.

The relationships of CPRF scores to other DVs in the study provides one source of information regarding the concurrent validity of the CPRF scores. Although some of these correlations were moderate, they were extremely unreliable across time. The correlations with RMDQ (subset), GDS, PRI, NRS and PPI were predominantly negative at pre-treatment, as would be expected because of the inverse transformation

of the CPRF scores, ranging from -.43 to .19. However, at post-treatment the correlations were all positive, ranging from .14 to .57. At follow-up the correlations were mixed, ranging from -.40 to .51. None of the other DVs was reliably correlated with CPRF scores (inverse) across the three assessment periods.

As previously mentioned, a numerical rating scale for subjects' apparent level of pain was added to the CPRF during the post-treatment assessments. It was hoped that this would provide an indication of whether the CPRF scores reflected the caregivers' perceptions of the subjects' pain levels. Correlations between the CPRF scores (inverse) and caregiver NRS ratings (inverse) were generally high, ranging from .47 to .99 at post-treatment, and .14 to .99 at follow-up. Thus the caregiver pain behavior ratings (CPRF scores) were closely associated with their perceptions of subjects' pain levels. However, when these caregiver NRS ratings were compared with the subjects own NRS ratings, the correlations were generally low and highly variable. The overall correlations between caregiver NRS (inverse) and subjects' NRS ratings were .33 at post-treatment and -.46 at follow-up. Thus the caregivers' ratings of subjects' apparent pain did not reliably reflect the subjects' self-ratings of pain.

Physician Medication Ratings

Mean ratings of concern over medication use by the three physicians were 1.48 (*SD* = .98), 1.43 (1.03), and 1.33 (.80) at pre-treatment, 1.67 (1.07), 1.62 (.67), and 1.71 (1.01) at post-treatment, and 1.65 (.93), 1.65 (1.00), and 1.71 (1.11) at follow-up. These mean ratings were comparable to those reported by McCauley and Frank (1983), which averaged 1.49, 1.85, and 1.85 for the three physicians in their study.

As a measure of interrater agreement, kappa was calculated for the

classifications provided by the three raters. The values for kappa were .31 for pre-treatment ratings, .22 for post-treatment ratings, .42 for follow-up ratings, and .32 overall. Although all of these values were significantly different from zero ($p<.005$), they suggest weak to mediocre agreement beyond chance (Fleiss, 1981). However, the method of determining the ratings to be used in the outcome analyses (i.e., the modal ratings, or median when no mode exists) was deemed appropriate given that agreement occurred between two of the three raters in 89% of instances. Agreement among all three raters occurred in 40% of instances.

Attendance, Treatment Credibility, Treatment Integrity, and Treatment Compliance

Attendance at both the CB and AS group sessions ranged from moderate to high. Overall attendance ranged from 60 to 100% of sessions, with an average of 82%. A 2 x 2 (Group x Site) analysis of variance was run for attendance at treatment sessions. There was no significant main effect for group ($F(1,17) = .99$, $p=.33$), but the main effect for site was significant ($F(1,17) = 4.27$, $p=.05$). Average attendance at Site A was 89% ($SD = 4.5$) as compared to 75% ($SD = 4.7$) at Site B. The Group x Site interaction was not significant ($F(1,17) = .01$, $p=.94$). The majority of absences were due to illness. Participants who missed sessions in the either treatment program were seen individually for make-up sessions prior to the next session, unless prevented by illness or unavailability, in which case they were seen after the next session.

Treatment integrity was exceptional, with both raters correctly identifying 100% of the taped segments. Treatment credibility ratings were moderate to high for both CB and AS conditions. The mean rating (0 to 10 scale) for the CB subjects following the first treatment session was 7.1 ($SD = .65$) and at the post-treatment assessment was

7.4 (*SD* = .69). The mean rating for the AS subjects following the first session was 7.0 (*SD* = .72) and at the post-treatment assessment was 6.3 (*SD* = .68). A 2 x 2 x 2 (Group x Site x Time) repeated measures analysis of variance comparing the pre and post-treatment ratings of the two treatment groups revealed no significant group, site, time, or interaction effects ($F(1,33) = .04$ to 2.30, $p>.05$).

Compliance for the CB treatment was found to be high for the therapists and moderate for the subjects. Therapist checklists for treatment session content indicated an average of 88% (*SD* = 11.4) of agenda items covered in the treatment sessions. Items not covered in a session were carried forward to the subsequent session. Session compliance levels for the two therapists were 92.3% (*SD* = 5.5) and 83.8% (*SD* = 14.2), and the difference was not statistically significant ($t = 1.77$, $p>.05$). Weekly homework checklists for subjects in the CB treatment indicated an average of 57.7% (*SD* = 31.4) of subjects attempted the homework assignments each week. The range in homework compliance across sessions was great (0 to 100%). Homework compliance served as an indicator of how well the subjects understood or adopted material presented in the sessions, and a basis for adapting the program material in future sessions.

Pre-Treatment Group and Site Comparability

Table 3 provides data on age, sex, education, years in nursing home, cognitive functioning, duration of chronic pain, number of pain locations, and treatment credibility ratings by site for subjects from the two nursing homes. Table 4 provides data on the same variables by treatment group for subjects in the CB and AS treatment conditions. A series of 2-tailed *t*-tests and chi-square analyses with Welch-Satterwaite adjustment

Table 3
Descriptive Data by Site for Final Sample

Variable	Site	
	A	B
n	11	10
Treatment Group - CB/A	6/5	5/5
Age - Range	61-87	71-98
- *M* (*SD*)	76.5 (7.8)	78.8 (8.6)
Sex - male/female	0/11[a]	8/2[a]
Education	9.9 (2.6)	10.0 (3.3)
Years at current nursing home[b]	6.4 (4.0)	3.3 (2.8)
Cognitive functioning: SPMSQ score	1.5 (1.6)	1.9 (1.2)
Duration of pain (Yrs)[b]	25.6 (25.7)	24.9 (24.3)
Number of pain locations	4.5 (2.0)	7.1 (4.9)
Pre-treatment: Pain: PRI(Total)	17.9 (6.0)	18.6 (7.6)
NRS	5.3 (2.1)	5.9 (2.3)
Pain disability: RMDQ subset	7.5 (3.9)	8.3 (2.8)
Caregiver ratings: Inverse CPRF	.70 (.30)	.67 (.29)
Depression: GDS	9.1 (5.1)	11.8 (4.0)
Physician medication ratings	1.2 (.8)	1.6 (.8)
Treatment credibility ratings	6.4 (2.0)	7.7 (2.3)

Note. Differences (2-tailed *t* and Chi-square) non-significant unless otherwise indicated.
[a]$\chi^2(1)=14.22$, $p<.001$. [b]Log transformed for statistical analyses.

Table 4
Descriptive Data by Treatment Group for Final Sample

Variable	Group	
	Cognitive-Behavioral	Attention/ Support
n	11	10
Location - Site A/B	6/5	5/5
Age - Range	68-98	61-90
- *M* (*SD*)	78.1 (8.5)	77.0 (8.1)
Sex - male/female	4/7	4/6
Education	9.6 (3.6)	10.3 (2.0)
Years at current nursing home[a]	5.5 (3.6)	4.3 (4.0)
Cognitive functioning: SPMSQ score	1.4 (1.4)	2.1 (1.4)
Duration of pain (Yrs)[a]	32.4 (28.6)	17.5 (16.9)
Number of pain locations	6.6 (4.5)	4.7 (2.4)
Treatment credibility ratings	7.0 (2.2)	6.9 (2.3)

Note. No significant differences (2-tailed *t* and chi-square) between groups.
[a]Log transformed for statistical analyses.

of the alpha error rate for multiple comparisons (overall alpha error rate = .05, individual comparison rate = .006) revealed no significant differences by site or group on any of these variables, with the exception of sex ratios by site. The subjects at site A were all females, while the majority of subjects at site B (8 of 10) were males, and this difference was statistically significant ($\chi^2(1) = 14.22$, $p<.001$).

Unadjusted pre-treatment scores on all dependent variables by site and group are presented in Table 3 and Table 5, respectively. Pre-treatment comparability on the dependent variables was assessed through 2 x 2 (Site x Group) univariate and multivariate analyses of variance and covariance. Covariates were selected as previously discussed. The analyses were: (a) MANOVA on the pain ratings (PRI total score, NRS) from the SFMPQ; (b) ANCOVA on the pain-related disability scores from the RMDQ, with age and duration of pain (log transformed) as covariates; (c) ANCOVA on the caregiver pain behavior ratings from the CPRF (inverse transformed), with age as a covariate; (d) ANOVA on the depression scores from the GDS; and (e) ANCOVA on physician medication ratings, with sex and number of pain locations as covariates. There were no significant differences ($p>.05$) by site, group or the Site x Group interaction for any of these dependent variables.

Although the group difference in pre-treatment depression scores was not greater than that which would be expected due to chance (at $\alpha = .05$), the mean score for the AS group fell within the range suggesting possible mild depression (11 to 16) while the mean CB score did not (see Table 5). In recommending classification scores, Yesavage et al. (1983) reported that a cutoff score of 11 on the GDS yielded an 16% false negative rate (i.e., depressives classified as nondepressed) and a 5% false positive rate (i.e., nondepressives classified as depressed) for clinical depression, while

Table 5
Pre-Treatment, Post-Treatment, and 4-Month Follow-up Means and Standard Deviations for Dependent Variables

Variable	Treatment Group	
	Cognitive-Behavioral (CB)	Attention/ Support (AS)
n	11	10
Pain:		
Pain Rating Index (PRI)		
Pre	18.0 (6.1)	18.5 (7.6)
Post	10.6 (7.5)	21.6 (8.3)
Follow-up	13.3 (6.6)	21.4 (10.3)
Numerical Rating Scale (NRS)		
Pre	6.1 (1.8)	5.0 (2.5)
Post	2.9 (1.5)	4.8 (2.1)
Follow-up	4.9 (2.0)	5.9 (2.5)
Pain-related disability:		
RMDQ subset		
Pre	7.7 (4.1)	8.0 (2.5)
Post	5.1 (3.5)	7.1 (3.6)
Follow-up	5.8 (2.9)	8.9 (3.6)
Caregiver pain behavior ratings:		
CPRF (inverse)		
Pre	.67 (.29)	.69 (.30)
Post	.70 (.18)	.85 (.16)
Follow-up	.66 (.24)	.74 (.20)
Depression:		
Geriatric Depression Scale (GDS)		
Pre	8.7 (3.9)	12.2 (5.1)
Post	8.1 (4.8)	11.6 (6.3)
Follow-up	8.3 (3.5)	11.0 (7.0)
Pain Medication:		
Physician ratings		
Pre	1.5 (.9)	1.3 (.7)
Post	1.7 (.9)	1.4 (1.0)
Follow-up	1.9 (1.1)	1.3 (.7)

Note. No significant differences between groups on pre-treatment scores for all variables after adjustment by covariates (MANCOVA and ANCOVAs, $p>.05$).

a cutoff score of 14 yielded an 20% false negative rate but a 0% false positive rate, based on clinical diagnoses. Parmelee et al. (1989) reported false negative rates of 7 to 36%, and false positive rates of 8 to 14% in their combined sample of congregate apartment and nursing home residents, using the cutoff score of 11. Lesher (1986) reported a false negative rate of 0% for nursing home residents with major depression and 31% for those with depressive features (mild depression), and a false positive rate of 26%, using the same cutoff score.

Therefore, the relationship of depression scores to other treatment variables was examined. The range of scores for the AS group was 6 to 17, with 70% scoring over 10 and 50% scoring 14 or more. The range for CB subjects was 2 to 16, with 27% scoring over 10 and 18% scoring 14 or more. Thus only one subject fell within the suggested range for possible major depression (17 or above) (Yesavage et al., 1983). The mean GDS scores were consistent with previously reported means for nursing home samples of 10.5 (Parmelee et al., 1989) and 13.5 (Lesher, 1986). Pre-treatment depression scores were found to account for only 6% of the variance in attendance at group sessions, 3% of the variance in pre-treatment credibility ratings, and 18% of the variance in post-treatment credibility ratings. Additionally, the depression scores accounted for 1 to 9% of the variance in subjects' pre-treatment pain ratings, 6% of variance in pain disability scores, and 1% of variance in caregiver pain behavior ratings. Similarly, at post-treatment, depression scores accounted for only 3 to 4% of variance in pain ratings, 2% of variance in pain disability scores, and 7% of variance in caregiver pain behavior ratings. None of these relationships was statistically significant (i.e., significantly different from zero) at α=.05.

Post-Treatment Group Differences

Unadjusted means and standard deviations for each of the dependent variables at post-treatment are presented in Table 5. Differences between groups for these measures were evaluated through a series of MANCOVA and ANCOVAs, with covariates for each analysis including the respective pre-treatment scores and other variables chosen through the described selection process.

For self-reported pain, a MANCOVA on the PRI (total score) and NRS from the SF-MPQ adjusted for pre-treatment scores revealed significant main effects, using Wilk's lambda criterion, for group ($F(2,13) = 10.69$, $p<.005$) and site ($F(2,13) = 4.47$, $p<.05$), but no significant difference for the interaction ($F(2,13) = 1.37$, $p>.05$). The adjusted means, as displayed in Figure 1, show that subjects in the CB treatment group reported less pain at post-treatment than subjects in the AS group after adjustment for pre-treatment ratings. The strength of the relationship between treatment group and self-reported pain was strong, with $\eta^2 = .62$. Thus, 62% of the variance in reported pain at post-treatment was accounted for by treatment group, after adjustment for pre-treatment ratings. Subjects at site B reported less pain at post-treatment than subjects at site A after adjustment for pre-treatment ratings. The strength of association between site and reported pain was moderate, $\eta^2 = .41$. An examination of covariates revealed no significant relationships between the pre-treatment PRI and NRS scores and the combination of DVs ($F(2,13) = 1.38$ and 3.74, respectively, $p>.05$).

Effects of treatment group and site on the self-reported pain DVs after adjustment for covariates were investigated through stepdown analysis, in which PRI was given the higher priority, and NRS the lower priority. After adjusting for

Pain

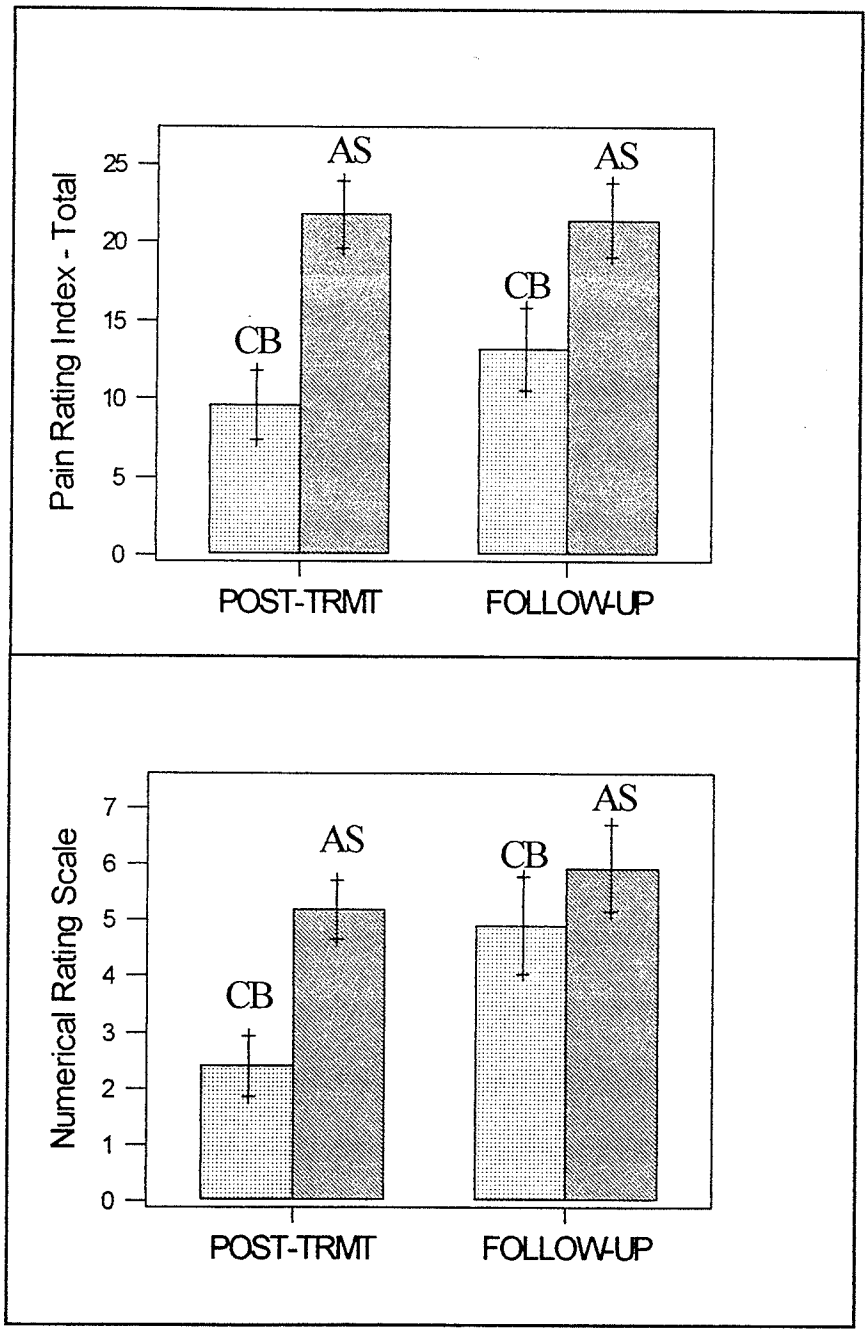

Figure 1. Adjusted post-treatment and 4-month follow-up means with 99% confidence intervals for pain self-ratings of subjects in the Cognitive-Behavioral (CB) and Attention/Support (AS) treatment conditions. Means are adjusted for pre-treatment scores for each measure. Significant group differences at both times (MANCOVAs, $p<.01$).

differences on the covariates, PRI was found to make a significant contribution to distinguishing between CB and AS subjects (stepdown $F(1,15) = 15.91$, $p<.001$, $\eta^2 = .39$), and between subjects at site A and site B (stepdown $F(1,15) = 9.43$, $p<.01$, $\eta^2 = .23$). After the pattern of differences measured by PRI was entered, there was no significant contribution by NRS to the differences on group (stepdown $F(1,14) = 4.01$, $p>.05$) or site (stepdown $F(1,14) = .11$, $p>.05$).

For pain-related disability, an ANCOVA on the RMDQ subset scores adjusted for pre-treatment scores, age, and log of pain duration revealed a significant main effect for group ($F(1,13) = 7.22$, $p<.05$). There were no significant differences for site ($F(1,13) = 4.05$, $p>.05$) or the Group x Site interaction ($F(1,13) = .03$, $p>.05$). The adjusted means, as displayed in Figure 2, show that subjects in the CB treatment group reported less pain-related disability at post-treatment than subjects in the AS group after adjustment for pre-treatment scores, age, and duration of pain. The strength of association between treatment group and pain-related disability was moderate, with $\eta^2 = .30$. Thus, 30% of the variance in pain-related disability at post-treatment was accounted for by treatment group, after adjustment for the covariates. Examination of the covariates indicated a significant relationship for log of pain duration ($F(1,13) = 5.51$, $p<.05$). Individuals with higher log of pain duration (and thus longer duration of pain) had lower pain-related disability scores at post-treatment.

For caregiver pain behavior ratings, an ANCOVA on the inverse CPRF scores adjusted for pre-treatment scores and age revealed a significant main effect for group ($F(1,15) = 5.15$, $p<.05$). There were no significant differences for site ($F(1,15) = 1.30$, $p>.05$) or the Group x Site interaction ($F(1,15) = .94$, $p>.05$). The adjusted means, as displayed in Figure 3, show that subjects in the CB treatment group had lower inverse

Pain Disability

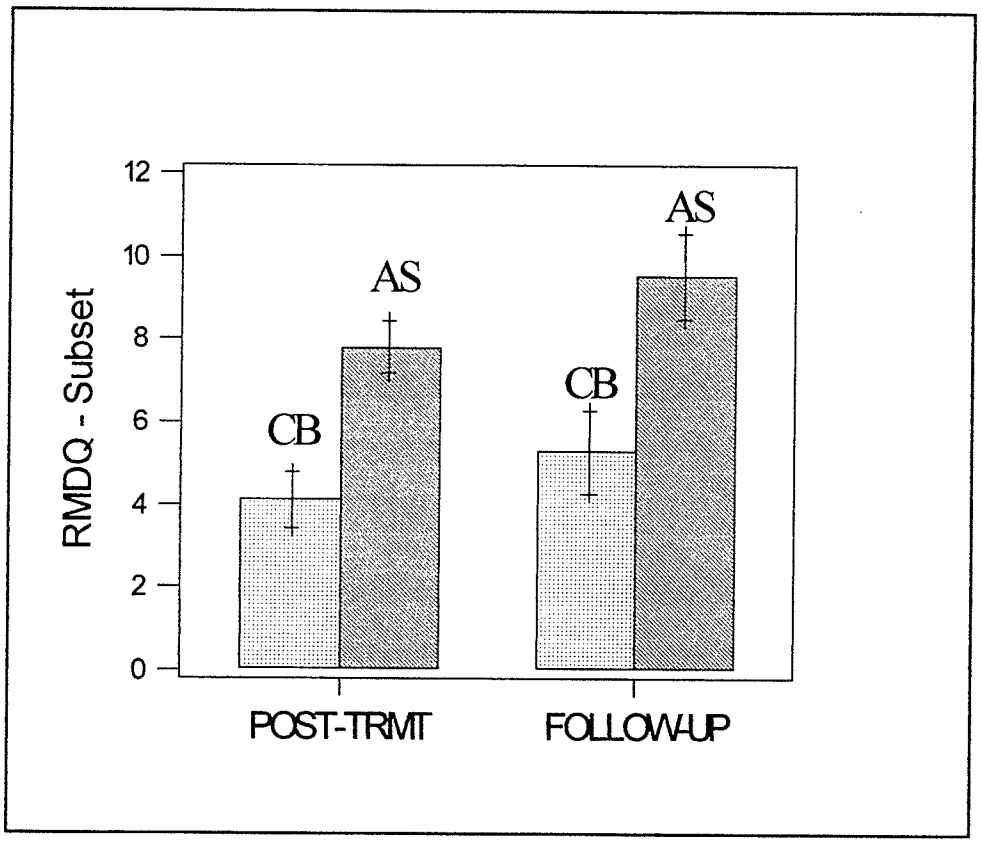

Figure 2. Adjusted post-treatment and 4-month follow-up means with 95% confidence intervals for pain-related disability of subjects in the Cognitive-Behavioral (CB) and Attention/Support (AS) treatment conditions. Means are adjusted for pre-treatment scores, age, and duration of pain (log transformed). Significant group differences at both times (ANCOVAs, $p<.05$).

Caregiver Pain Ratings

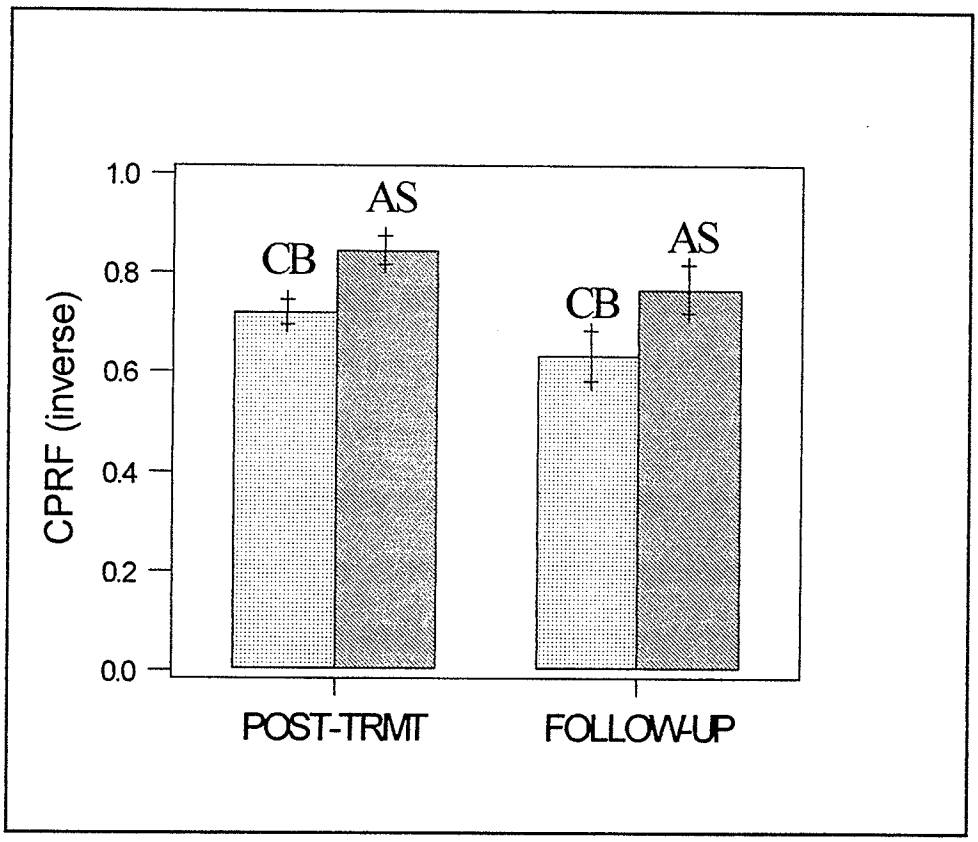

Figure 3. Adjusted post-treatment and 4-month follow-up means with 95% confidence intervals for caregiver pain ratings (inverse transformed) of subjects in the Cognitive-Behavioral (CB) and Attention/Support (AS) treatment conditions. Means are adjusted for pre-treatment scores and age. Significant group difference at post-treatment (ANCOVA, $p<.05$), but not at follow-up ($p>.05$).

CPRF ratings, and therefore higher CPRF ratings, at post-treatment than subjects in the AS group after adjustment for pre-treatment scores and age. The strength of association between treatment group and inverse caregiver ratings was low, with η^2 = .23. Thus, 23% of the variance in inverse caregiver pain behavior ratings at post-treatment was accounted for by treatment group, after adjustment for pre-treatment scores and age. Examination of the covariates indicated a significant age effect ($F(1,15) = 6.92$, $p<.05$). Older individuals had lower inverse caregiver pain behavior ratings, and therefore higher caregiver pain behavior ratings, at post-treatment.

For depression, an ANCOVA on GDS scores adjusted for pre-treatment scores revealed a significant main effect for site ($F(1,15) = 5.02$, $p<.05$). There were no significant effects for group ($F(1,15) = .03$, $p>.05$) (see Figure 4) or the Group x Site interaction ($F(1,15) = .06$, $p>.05$). The adjusted means revealed that subjects at site A had higher depression scores at post-treatment than subjects at site B, after adjustment for pre-treatment depression scores. The strength of association between site and depression was low, with η^2 = .25. Thus, 25% of the variance in depression scores at post-treatment was accounted for by site of residence, after adjustment for pre-treatment depression scores. Examination of the covariate indicated a significant effect for pre-treatment depression scores ($F(1,15) = 22.60$, $p<.001$). Individuals with higher pre-treatment depression scores had higher depression scores at post-treatment.

For physician medication ratings, an ANCOVA on medication ratings adjusted for pre-treatment scores, sex, and number of pain locations produced no significant effects for group ($F(1,13) = .07$, $p>.05$) (see Figure 5), site ($F(1,13) = 2.88$, $p>.05$), or the Group x Site interaction ($F(1,13) = .84$, $p>.05$). Examination of the covariates indicated

Depression

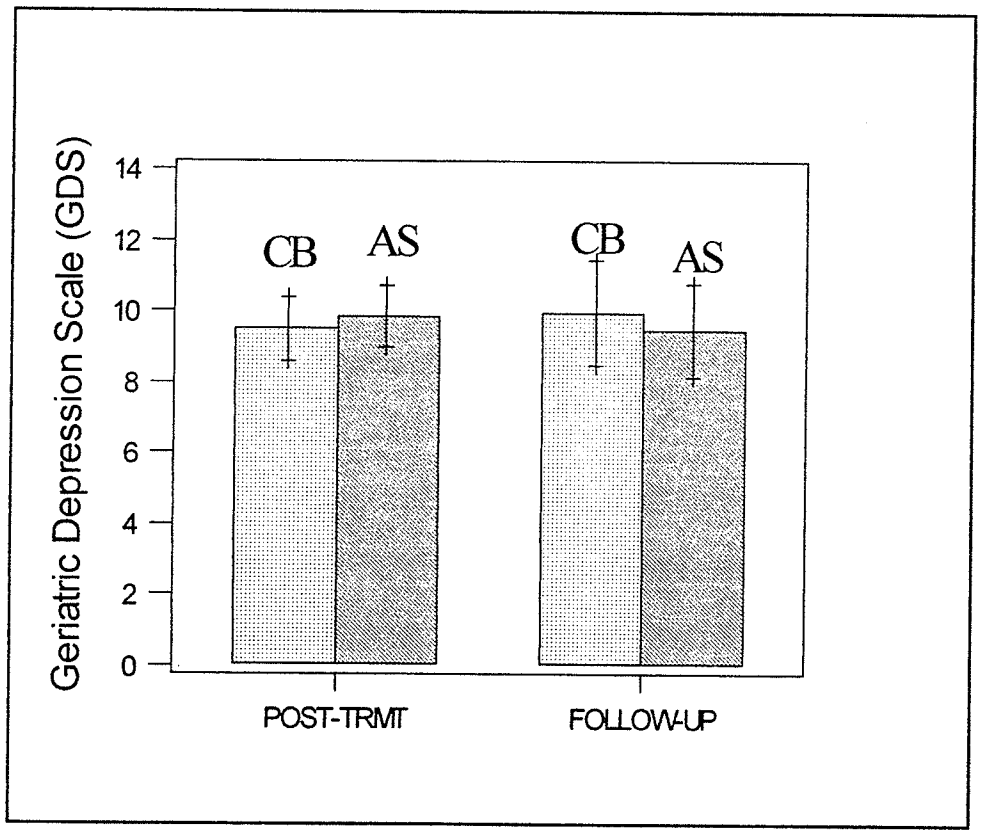

Figure 4. Adjusted post-treatment and 4-month follow-up means with 95% confidence intervals for depression scores of subjects in the Cognitive-Behavioral (CB) and Attention/Support (AS) treatment conditions. Means are adjusted for pre-treatment scores. Group differences non-significant (ANCOVAs, $p>.05$).

Medication Ratings

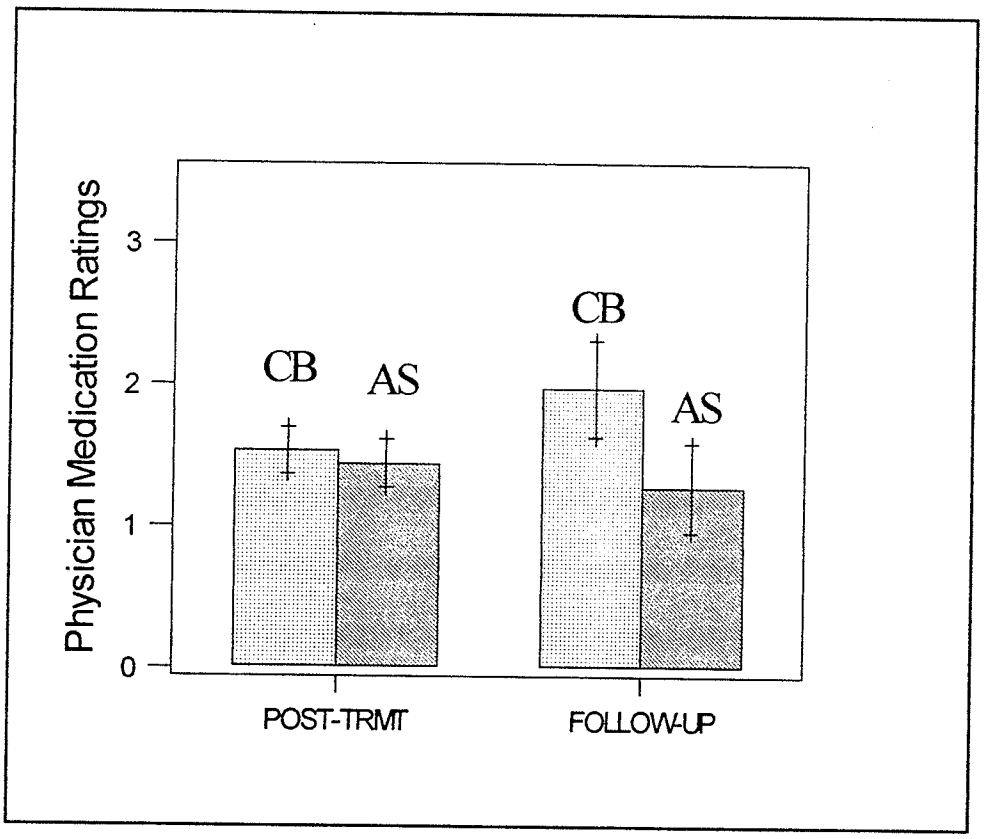

Figure 5. Adjusted post-treatment and 4-month follow-up means with 95% confidence intervals for physician medication ratings of subjects in the Cognitive-Behavioral (CB) and Attention/Support (AS) treatment conditions. Means are adjusted for pre-treatment scores, sex, and number of pain locations. Group differences non-significant (ANCOVAs, $p>.05$).

significant adjustment to the DV for pre-treatment ratings ($F(1,13) = 6.41$, $p<.05$) and sex ($F(1,13) = 5.73$, $p<.05$). Women and individuals with lower pre-treatment medication ratings had lower medication ratings at post-treatment.

Follow-up Group Differences

Table 5 presents the unadjusted means and standard deviations for each of the dependent variables for the 17 subjects remaining at the 4-month follow-up assessment. Differences between groups at follow-up were evaluated through a series of MANCOVA and ANCOVAs, with the same covariates as used in the post-treatment analyses.

A MANCOVA on the PRI (total) and NRS scores from the SF-MPQ adjusted for pre-treatment scores revealed that the significant treatment effect on pain ratings was maintained at follow-up. Significant main effects, using Wilk's lambda criterion, were obtained for group ($F(2,9) = 8.19$, $p<.01$) and site ($F(2,9) = 5.95$, $p<.05$), but no significant difference was found for the Group x Site interaction ($F(2,9) = 1.85$, $p>.05$). The adjusted means, as displayed in Figure 1, show that subjects in the CB treatment group reported less pain at follow-up than subjects in the AS group after adjustment for pre-treatment ratings. The strength of the relationship between treatment group and self-reported pain was strong, with $\eta^2 = .65$. Thus, 65% of the variance in pain reports at follow-up was accounted for by treatment group, after adjustment for pre-treatment ratings. Subjects at site B reported less pain again at follow-up than subjects at site A after adjustment for pre-treatment ratings. The strength of association between site and reported pain was also strong, $\eta^2 = .57$. An examination of covariates revealed no significant relationships between the pre-treatment PRI and NRS scores and the

combination of DVs ($F(2,9) = 3.20$ and .47, respectively, $p>.05$).

Effects of treatment group and site on the two self-reported pain DVs after adjustment for covariates were again investigated through stepdown analysis, with PRI given the higher priority. After adjusting for differences on the covariates, PRI was found to make a significant contribution to distinguishing between CB and AS subjects (stepdown $F(1,11) = 6.87$, $p<.05$, $\eta^2 = .27$), with adjusted means showing that CB subjects reported lower PRI ratings. The Group x Site interaction was also significant (stepdown $F(1,11) = 5.88$, $p<.05$, $\eta^2 = .23$), with the difference between treatment groups on PRI being significantly greater at site A. There was no significant difference for PRI by site (stepdown $F(1,11) = 1.95$, $p>.05$). With the pattern of differences measured by PRI accounted for, NRS ratings made a significant incremental contribution for distinguishing between treatment group (stepdown $F(1,10) = 5.11$, $p<.05$, $\eta^2 = .23$) and site (stepdown $F(1,10) = 7.52$, $p<.05$, $\eta^2 = .33$). Adjusted means revealed that after adjustment for pre-treatment scores and PRI ratings, subjects in the AS group had lower NRS ratings at follow-up than subjects in the CB group, and subjects at site A had lower NRS ratings than subjects at site B.

The ANCOVA on RMDQ subset scores revealed that the significant treatment effect on pain-related disability was also maintained at follow-up. After adjustment for pre-treatment scores, age, and log of pain duration, there was a significant main effect for group ($F(1,9) = 5.63$, $p<.05$). There were no significant differences for site ($F(1,9) = .01$, $p>.05$) or the Group x Site interaction ($F(1,9) = .83$, $p>.05$). The adjusted means, as displayed in Figure 2, show that subjects in the CB treatment group reported less pain-related disability at follow-up than subjects in the AS group after adjustment for pre-treatment scores, age, and duration of pain. The strength of association between

treatment group and pain-related disability was moderate, with η^2 = .36. Thus, 36% of the variance in pain-related disability at follow-up was accounted for by treatment group, after adjustment for the covariates. Examination of the covariates revealed no significant relationships ($F(1,9)$ = .89 to 2.08, $p>.05$) with RMDQ subset scores.

Analysis of caregiver pain behavior ratings at follow-up showed that the weak treatment relationship at post-treatment was not maintained. An ANCOVA on the inverse CPRF scores adjusted for pre-treatment scores and age revealed no significant effects for group ($F(1,12)$ = 2.14, $p>.05$) (see Figure 3), site ($F(1,12)$ = 1.88, $p>.05$), or the Group x Site interaction ($F(1,12)$ = .00, $p>.05$). Examination of the covariates indicated no significant relationships with inverse CPRF ratings ($F(1,12)$ = 2.41 and 4.62, $p>.05$).

For depression, an ANCOVA on GDS scores at follow-up showed that the weak post-treatment relationship with site of residence was not maintained. After adjustment for pre-treatment scores, there were no significant effects for group ($F(1,12)$ = .03, $p>.05$) (see Figure 4), site ($F(1,12)$ = .00, $p>.05$), or the Group x Site interaction ($F(1,12)$ = .00, $p>.05$). Examination of the covariate indicated that pre-treatment depression scores provided significant adjustment of depression scores at follow-up ($F(1,12)$ = 7.32, $p<.05$). Individuals with higher pre-treatment depression scores had higher depression scores at follow-up.

The ANCOVA on physician medication ratings at follow-up revealed similar results to the post-treatment analysis. After adjustment for pre-treatment scores, sex, and number of pain locations, there were no significant effects for group ($F(1,9)$ = 1.37, $p>.05$) (see Figure 5), site ($F(1,9)$ = .64, $p>.05$), or the Group x Site interaction ($F(1,9)$ = .16, $p>.05$). Examination of the covariates indicated no significant relationships with

the DV ($F(1,9) = .02$ to $.89$, $p>.05$).

Post-Treatment to Follow-Up Differences

Repeated measures MANCOVA and ANCOVA's were used to determine whether group or site differences in outcome occurred from the post-treatment to follow-up assessments. The between-subjects factors were treatment group and site, and the within-subjects factor was time of assessment. Covariates were the same as used in the post-treatment and follow-up analyses. Only the 17 subjects for whom follow-up data were available could be included in these analyses.

The MANCOVA for self-reported pain revealed a significant effect for time ($F(2,26) = 3.46$, $p<.05$), but no significant Time x Group ($F(2,26) = .64$, $p>.05$) or Time x Site ($F(2,26) = .71$, $p>.05$) interactions. The strength of association between time and pain ratings was .21, indicating a weak relationship. Adjusted means, as shown in Figure 6, indicated that PRI and NRS pain ratings were slightly higher at follow-up than at post-treatment across all subjects. Examination of covariates revealed significant adjustment for pre-treatment PRI ($F(2,26) = 3.76$, $p<.05$) and NRS ($F(2,26) = 3.77$, $p<.05$) scores. Stepdown analysis, with higher priority assigned to the PRI variable, indicated no significant time effect for PRI scores (stepdown $F(1,28) = .34$, $p>.05$), but a significant time effect for NRS ratings after adjustment for PRI (stepdown $F(1,28) = 6.60$, $p<.05$).

There were no other significant time effects, Time x Group interactions, or Time x Site interactions for any of the other dependent variables. Test statistic values were as follows:

1. RMDQ subset scores, after adjustment for pre-treatment scores, age, and log

Pain: Post-Treatment to Follow-up

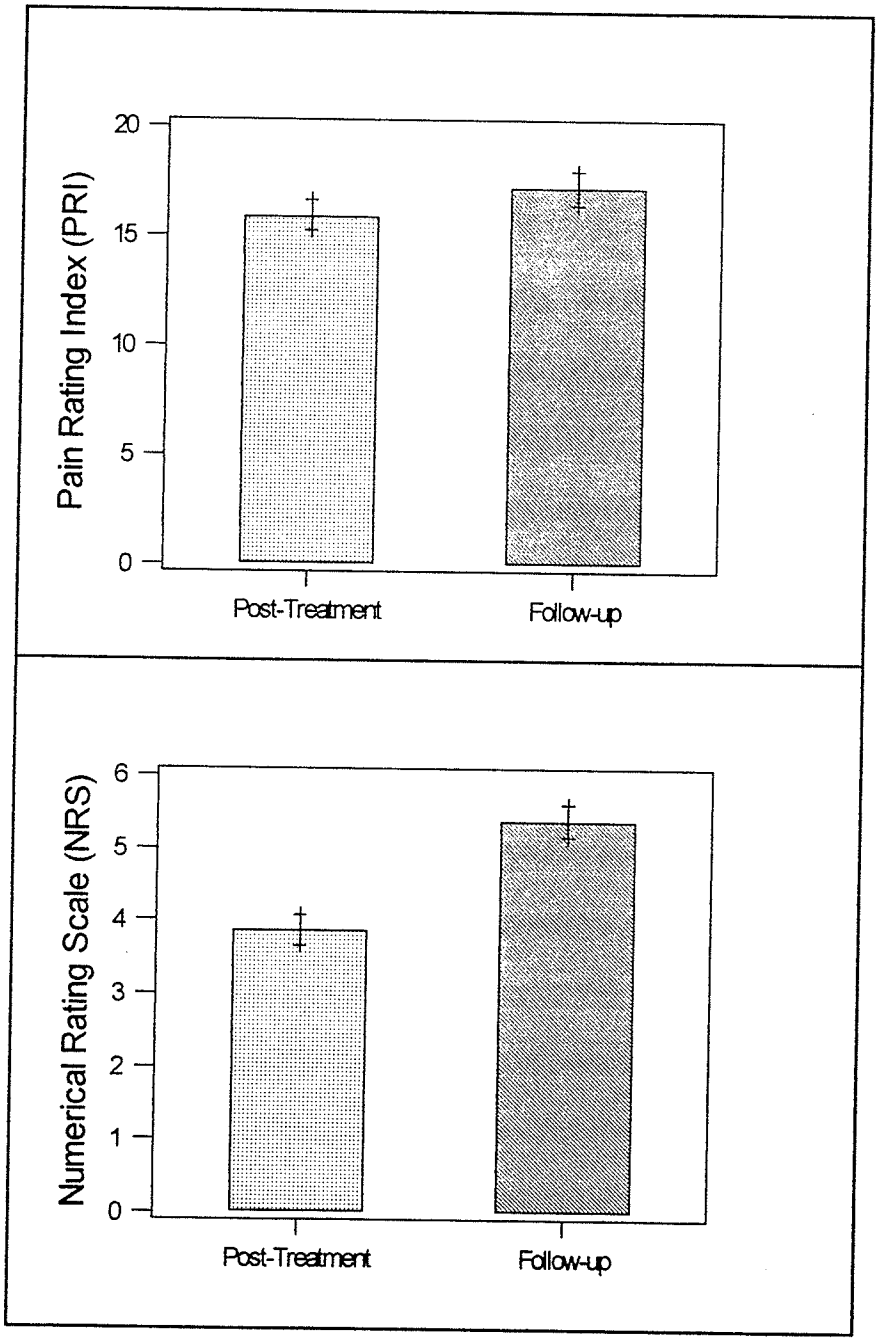

Figure 6. Adjusted means with 95% confidence intervals for pain self-ratings of all subjects at post-treatment and 4-month follow-up. Means are adjusted for pre-treatment scores for each measure. Significant main effect for time (Repeated measures MANCOVA, $p<.05$).

of pain duration, showed no significant effects for time ($F(1,26) = 1.54$, $p>.05$), Time x Group interaction ($F(1,26) = .11$, $p>.05$), or Time x Site interaction ($F(1,26) = 1.33$, $p>.05$).

2. GDS scores, after adjustment for pre-treatment scores, showed no significant effects for time ($F(1,29) = .06$, $p>.05$), Time x Group interaction ($F(1,29) = .40$, $p>.05$), or Time x Site interaction ($F(1,29) = 1.20$, $p>.05$).

3. Inverse CPRF ratings, after adjustment for pre-treatment ratings and age, showed no significant effects for time ($F(1,30) = 2.12$, $p>.05$), Time x Group interaction ($F(1,30) = .11$, $p>.05$), or Time x Site interaction ($F(1,30) = 3.35$, $p>.05$).

4. Physician medication ratings, after adjustment for pre-treatment ratings, sex, and number of pain locations, showed no significant effects for time ($F(1,25) = .14$, $p>.05$), Time x Group interaction ($F(1,25) = .00$, $p>.05$), or Time x Site interaction ($F(1,25) = .92$, $p>.05$).

Clinical Significance

In the absence of appropriate normative data for evaluating changes in outcome measures from a chronic pain treatment program, an important consideration is the percentage of treated patients who achieve clinically significant changes (Subramanian, 1994). This information is often more meaningful for clinicians than group averages for dependent variables (Blanchard & Schwarz, 1988).

At post-treatment, 80% of the cognitive-behavioral (CB) subjects improved on the pain rating index (PRI) from the SF-MPQ, 10% remained the same, and 10% worsened. The average change in PRI scores was a 34% decrease for CB subjects. For the attention/support (AS) group, 30% improved and 70% worsened, with an

average *increase* of 26% in PRI scores. For the subjects remaining at follow-up, 86% of the CB subjects who had improved at post-treatment maintained these improvements (i.e., continued to show improvement from pre-treatment), whereas only 33% of the AS subjects who had improved maintained their gains. The pattern was very similar for the numerical rating scale (NRS) and present pain intensity (PPI) from the SF-MPQ. One hundred percent of the CB subjects had improved on these measures at post-treatment, and 75 to 88% maintained these improvements at follow-up. For the AS group, 30% (PPI) and 60% (NRS) showed improvement at post-treatment, with 0% and 60%, respectively, maintaining these gains at follow-up. These data indicate a pattern of clinically significant improvement in pain ratings for the CB subjects, in contrast to worsening of pain ratings for the majority of AS subjects.

For pain-related disability, 70% of CB subjects showed improvement in pain disability scores from the RMDQ at post-treatment, 10% remained the same, and 20% worsened. The average change in disability scores was a 28% decrease for CB subjects. For the AS group, 50% improved, 30% remained the same, and 20% worsened, with an average change of 10% decrease. For the subjects remaining at follow-up, 80% of the CB subjects who had improved at post-treatment continued to show improvement at follow-up, and 100% of the AS subjects maintained their improvements. These data indicate a pattern of clinically significant improvement in pain-related disability scores for the CB subjects, notably greater than the frequency and magnitude of improvement for AS subjects.

Changes in depression scores were quite similar across the two groups. Forty percent of subjects in both groups showed improvement at post-treatment, 10% remained the same, and 50% worsened. The magnitude of change was low in both

groups, averaging a 6% increase in depression scores for CB subjects, and 1% increase for AS subjects. At follow-up, 100% of the remaining CB subjects who had improved at post-treatment maintained these gains, and 33% of the remaining AS subjects maintained their improvement. Thus, neither of the treatment groups provided clinically significant improvement in depression, with half of the participants worsening over the course of treatment.

On caregiver pain behavior ratings, 46% of the CB subjects showed improvement at post-treatment, 9% remained the same, and 46% worsened. The proportion of AS subjects who showed improvement was 50%, with 20% showing no change, and 30% showing worsened ratings. Average percentage changes in caregiver pain ratings could not be calculated because of the large number of subjects with zero ratings at pre-treatment. However, the majority of changes were very small in magnitude. At follow-up, 75% of the remaining CB subjects who had improved at post-treatment maintained this improvement, whereas 80% of the AS subjects maintained their improvement. It appears that both treatments produced changes in caregiver pain behavior ratings in approximately half of the participants, but the low overall pre-treatment scores minimized the clinical significance of these changes.

Physician ratings of pain medication use were generally not improved by the treatments. At post-treatment, 55% of CB subjects and 60% of AS subjects had no change in physician medication ratings. The proportions of subjects with improved ratings was 9% for the CB treatment and 20% for the AS treatment, and the proportions with worsened ratings were 36% and 20% respectively. The average change in medication ratings was a 5% increase (i.e., poorer rating) for CB subjects, and no change for AS subjects. None of the remaining subjects at follow-up who had

showed improvement at post-treatment maintained this improvement. Overall, clinical significance of changes in pain medication ratings was minimal due to the fact that the majority of ratings were not affected by the treatments.

Participant Feedback Questionnaire

Quantitative data. Table 6 shows the modal and mean helpfulness ratings at post-treatment and follow-up for the two treatment groups (n = 19). At post-treatment, the CB group had higher modal ratings for 4 of the 7 dimensions, including "learning about pain in general", "understanding your own pain", "helping you to cope with your pain", and "helping you to feel better in general", and higher mean ratings on 6 of the 7 dimensions. A 2 x 2 (Group x Site) MANOVA with the seven helpfulness ratings as dependent variables revealed a significant group effect ($F(7,7) = 3.99$, $p<.05$), confirming that the CB treatment program was rated as more helpful for pain management than the AS program. There were no significant effects for site or the group by site interaction.

For the 15 subjects who completed the feedback questionnaire at follow-up, these differences in helpfulness ratings were not maintained. There was no pattern of differences in modal helpfulness ratings between the two treatment groups. The AS participants gave higher mean ratings on 5 of the 7 dimensions, but the ratings had higher variability than at post-treatment. A 2 x 2 (Group x Site) MANOVA with the seven helpfulness ratings as dependent variables revealed no significant group effect ($F(7,5) = 2.27$, $p>.05$). There were also no significant differences for site or the group by site interaction.

Regarding the length of the treatment program, the majority of participants in

Table 6

Helpfulness Ratings from Participant Feedback Questionnaire by Treatment Group

Item	Group	Post-treatment		Follow-up	
		Mode	*M* (*SD*)	Mode	*M* (*SD*)
Learning about pain in general	CB	3	2.3 (1.1)	1,2	1.5 (.9)
	AS	0,1	1.2 (1.2)	3	1.9 (1.3)
Understanding your own pain	CB	2	1.6 (1.0)	1	1.3 (1.0)
	AS	1	1.2 (1.1)	0	1.4 (1.4)
Reducing the amount of pain you experience	CB	0	1.1 (1.1)	0	.8 (.9)
	AS	0	.6 (.7)	0	1.0 (1.4)
Helping you to cope with your pain	CB	3	1.8 (1.2)	0,2	1.0 (.9)
	AS	2	1.7 (1.1)	0,2,3	1.6 (1.3)
Reducing the amount that pain interferes with your daily activities	CB	0	1.0 (1.1)	0	.6 (1.1)
	AS	1	1.3 (1.1)	0	.7 (1.1)
Reducing your need for pain medications	CB	0	.9 (1.1)	0	.6 (1.2)
	AS	0	0 (0)	0	.6 (1.1)
Helping you to feel better in general	CB	2,3	2.1 (1.0)	2	1.8 (.9)
	AS	0,3	1.4 (1.5)	1	1.5 (1.1)

Note. Helpfulness ratings: 0 = not helpful, 1 = a little helpful, 2 = moderately helpful, 3 = very helpful.

both treatment groups recommended no change from the 10 weekly sessions. Some of the participants of both groups (30% CB, 13% AS) recommended extending the program. Most recommended adding a few extra sessions, while one suggested having sessions twice per week for the 10-week period. None of the participants recommended having fewer sessions. There was no significant difference between groups in these recommendations ($\chi^2(1) = .79$, $p>.05$). The vast majority of participants in each treatment group (90% CB, 80% AS) also stated that they would recommend the program to a friend, with no significant difference between groups ($\chi^2(2) = 3.1$, $p>.05$).

Qualitative data. Review of qualitative data provided by subjects in both treatment groups revealed that there was considerable variability in how the programs were perceived and how they influenced individual pain coping styles. For the question "What parts of the program did you find to be most helpful or useful?", responses by CB group participants ranged from specific components of the program (e.g., "I liked that section about the brain and how the pain travels in your body [gate control model]", "The assignments were good", "imagery", "The part in the last sessions when we talked with Irma [role playing]"), to more general aspects of the treatment process (e.g., "Try different things ... you've got to try different things to find out", "Finding out how other people cope with their pain and sharing my ideas with them", "Learning what others were doing takes you away from your own problems", "It made me think of ways for dealing with my pain other than prayers and pain killers"), to non-specifics (e.g., "All of the sessions were good ... nothing in particular"). All but two of the CB participants were able to identify at least one helpful aspect of the program, and most identified several.

In the AS group, all but one participant identified helpful aspects of the program. However, responses almost exclusively reflected the social and supportive aspects of the group process: "Those other ladies, I hardly knew them before", "enjoyed the leaders", "You asking questions about how we feel ... it made me feel better", "Talking to people, helping them out and they help me", "Being able to sit and listen to the other people, and just trying to figure them out". Only one AS participant specifically mentioned the topic of pain: "Our discussing illnesses and pain ... helps to understand each other better".

For the question "What parts of the program did you find to be least helpful or useful?", a substantial number of participants in both groups did not provide any response (4 CB, 5 AS). However, others identified specific concerns or limitations. In the CB group, responses ranged from non-specifics (e.g., "Altogether I was quite pleased", "not sure"), to elements of the treatment program (e.g., "The gate control model ... it didn't make sense", "Make the information part shorter, or maybe get people involved more quickly"), to aspects of personal style (e.g., "people complaining ... about anything", "I didn't like one chap who kept interrupting", "the time of day"), to concerns about not enough depth or follow-through (i.e., "You never did get right down to the facts ... you'd only go so far then stop"), to the subject matter itself (i.e., "People talking about their pain"). In the AS group, several participants expressed frustration at the low level of structure and lack of clear focus for the program: "I don't think a lot was accomplished", and "Needs an agenda in the worst way ... like a ship without a rudder". Other responses from AS participants varied from non-specifics (e.g., "I think I enjoyed everything", "I don't really know"), to a desire for greater feedback (i.e., "People should be told how they're coming along ... otherwise they'll feel that they're

wasting their time"), to the official subject matter (i.e., "talking about pain ... it's monotonous").

Responses to the question "What information or skills from the program, if any, do you think that you will use for coping with pain?" varied considerably between treatment groups. Only one CB participant did not identify any aspects of the program, and most participants named several. Their responses included the following specific components of the treatment program: gate-control model for conceptualizing pain (1 participant), relaxation/breathing exercises (4), and imagery/ distraction/ mental activities (5). One CB participant said that she had already been doing all of the things taught in the group and would continue to do so ("I've already been doing these things"), and another stated that she would use all of the information and skills ("I will try all of those exercises. I'll remember them and try them."). Finally, one CB participant noted that he had learned something else that would help him cope with his pain: "I can listen to other people and realize they are worse than I am ... I feel sorry for these people."

For the same question, all but one of the AS participants said there were no skills or information from the program that they would use for coping with pain. One participant stated "I don't think so ... but hearing about how the other ladies deal with their pain was helpful." Thus, responses to this question clearly distinguished the participants of the two treatment groups.

For the question "What other changes do you recommend for the pain management program?", many respondents in both groups said "nothing" or reiterated previously stated ideas or suggestions. However, several other distinct themes emerged in the responses. Three participants of the CB program suggested having

more members in the group, with a recommended size of 10 to 12 individuals (e.g., "More people in the group ... I thought that from the beginning."). Two CB members recommended increasing the focus on individual differences as opposed to commonalities among people: "I think if you could stress more on the individual ... what *they* think, not what others think ... what helps him may not help me," and "Maybe concentrate on each person for a longer period of time ... maybe one person each session for 10 to 15 minutes ... someone who has a lot of pain." Other suggestions from CB participants were "It would be better to have more sessions and less homework ... homework is okay but sometimes you can't do it because your pain is too bad," and "Get right into it ... skip some of the details at the beginning and get right into people's experiences ... don't dilly-dally around."

Several themes also emerged in the suggestions of the AS group in response to this question. As with the CB group, two AS participants stated that having more group members would enhance the program (e.g., "It would have been nice to have more participants in the group"). However, one AS participant said "I liked the group size ... not too big ... easier to understand what was being said." In contrast to the CB participants, three AS participants expressed that having more focus on pain and pain coping skills would be helpful: "Not that useful for dealing with pain ... maybe something different," "Discuss pain further ... not enough of a focus on pain," and "The material was too shallow and unstructured." Finally, one AS participant offered the following suggestion: "The main thing is to keep the patients anxious that something is going to come out of it ... some patients come here and think they're going to get miracles out of it."

At the 4-month follow-up assessment the remaining participants were asked,

"What information or skills from the program, if any, have you been using to help you cope with your pain?", and "In general, what do you do to cope with your pain now?". The responses from participants of the CB treatment program tended to blend together for the two questions, suggesting that many of the participants no longer distinguished between anything they had learned or gained from the program and their pre-existing pain coping strategies. Several of the CB participants referred to skills taught during the treatment program, such as relaxation/breathing exercises (3 participants), and distraction/imagery techniques (2). Most of the other responses suggested more individualized and "tried and true" coping strategies, such as "I rub my leg," "I go outside where it's cold ... the best medicine is the cold," "Well I always did exercise a bit before the program and I still do the same ... I try to keep my anger away," "talk myself out of it," "sweat it out ... think of other things", "listen to music", and "take pills". One CB participant stated that his involvement in the program "makes me realize that others are worse than me," and another said it caused him to "concentrate on pain when I didn't want to." Two CB participants said there was nothing from the program that they had been using to help cope with their pain.

The majority of responses from AS group participants at follow-up suggested either that there was nothing from the program that they were using for pain coping, or that they believed the program was helpful but could not specify why. For example, one AS participant stated "I really don't think it did anything for me about pain ... it really didn't change anything," while another said he had "learned something ... but I don't know what." Specific benefits reported by AS participants were the following: "It helped in giving me confidence to ask for Tylenol," and "It gives you perspective about other people's pain." Numerous current pain coping strategies, distinct from the

treatment program, were reported by AS participants. They included "just bear the pain," "try to forget about it," "take Tylenol", and doing various activities (i.e., distraction). Several AS participants reported that they felt helpless in trying to manage their pain, or that their efforts at coping were futile: "Really nothing ... if it's there it hurts just the same no matter what," "I don't do a thing ... sometimes I'd like more," and "Nothing seems to help ... before I would exercise [but I no longer can]."

DISCUSSION

This study has demonstrated through a controlled experimental evaluation that cognitive-behavioral pain management training is effective for reducing pain and pain-related disability in elderly nursing home residents with chronic pain. The improvements produced by the cognitive-behavioral training are clinically significant in terms of both frequency and magnitude. Additionally, this form of training resulted in lower reported pain and pain-related disability than less structured, supportive group therapy, although the two programs were perceived by participants as equally credible both before and after treatment. This finding is noteworthy because it indicates that the benefits obtained from cognitive-behavioral therapy for elderly individuals in this type of setting are not simply non-specific outcomes of increased attention and support. Rather, it suggests that the substantial proportion of institutionalized elderly with minimal cognitive impairment can be taught to employ cognitive and behavioral strategies that are known to be helpful for younger chronic pain patients (e.g., Turner & Romano, 1984, 1990) and elderly patients living in the community (e.g., Keefe et al., 1990; Puder, 1988). The data demonstrate that the benefits of the cognitive-behavioral training over supportive therapy are maintained for a period of at least four months, despite overall increases in reported pain. The results also indicate that these elderly individuals find the cognitive-behavioral training to be more helpful than the supportive therapy for helping them to learn about and understand pain, cope with their own pain, and feel better in general.

The results of this study both uphold and extend the existing literature on psychologically-based interventions for pain management. The literature has suggested that cognitive-behavioral pain therapies are generally most effective for

improving self-ratings of pain, and less consistently effective for improving other relevant dimensions such as physical activity, medication use, and psychological disability (Turner & Chapman, 1982a; Turner & Romano, 1984, 1990). This study found improvement in self-ratings of pain and pain-related disability from the cognitive-behavioral treatment, but no measured improvement in depression, medication use, or caregiver pain behavior ratings. Turner and Romano's (1984) hypothesis that cognitive-behavioral therapies may promote maintenance of treatment gains by giving patients a wider range of skills for dealing with stress and pain than other types of interventions was supported by the results.

Other studies of cognitive-behavioral pain interventions with the elderly have found significant improvement in psychological disability (e.g., Fry & Wong, 1991; Keefe et al., 1990a; Kerns et al., 1986), although there is variation in how this dimension is operationally defined (e.g., anxiety, depression). The lack of improvement in depression in this study may be attributable to two potentially related issues:

1. There was no significant relationship between pain and depression among participants of this study. At least one previous study (i.e., Ferrell et al., 1990) has failed to find a significant relationship between these variables among elderly nursing home residents.

2. Although many of the subjects in this study were mildly depressed as assessed by a standardized geriatric depression measure, it is arguable that some of this measured depression reflects realistic or expected appraisals by these individuals. For example, as a result of environmental constraints, health problems, and other factors, many elderly nursing home residents have to drop many of their interests and

activities, suffer some decline in memory, become restless, and are not particularly hopeful about the future. These types of "depression indicators" are not likely to be significantly influenced by pain management training, supportive therapy, or most other interventions. Although some of the participants who endorsed a variety of these indicator items also described dysphoric mood and other depressive symptomatology such as fatigue, poor appetite and anhedonia, others did not present as clinically depressed. In one of the few validation studies of the Geriatric Depression Scale (GDS) with elderly nursing home residents, Lesher (1986) concurred with the view that the GDS may be sensitive to feelings of low life satisfaction, demoralization, or reactions to normative life events in addition to clinically significant depression, and therefore lead to overdiagnosis of depression. Weiss, Nagel and Aronson (1986) noted that, although more responsive than other depression screening instruments, the GDS addresses less than half of the items that have been determined by research to be characteristic of depression in the elderly.

A related issue is raised by the difference in mean pre-treatment depression scores between the two treatment groups: The question of cutoff scores for clinical depression with the GDS. To date, there have been only two studies that have examined the psychometric properties of the GDS with nursing home populations (Lesher, 1986; Parmelee et al., 1989). Although these studies have demonstrated adequate to good internal consistency, reliability, and validity for the GDS with nursing home residents, they have also indicated that the use of cutoff scores for clinical depression can be problematic, especially for minor/mild depression. False negative rates as high as 36%, and false positive rates as high as 26% were reported for this population. Authors of both studies noted that these findings argue strongly against

diagnostic classifications based solely on GDS scores. Parmelee et al. comment that the GDS cutoff score of 11 (for minor depression) is "rather arbitrary and underresearched" (p. 337). Thus, although the subjects in the attention/support treatment group in this study were slightly more depressed than those in the cognitive-behavioral group, the difference was not statistically significant and has minimal clinical relevance. This conclusion is supported by the lack of significant relationships between depression scores and other dependent variables (i.e., pain, pain disability, caregiver pain behavior ratings, and physician medication ratings) or between depression scores and measures of treatment evaluation/compliance (i.e., attendance at treatment sessions, treatment credibility ratings).

It is clear, however, that several participants of this study were mildly to moderately depressed during the time of their participation. These observations were conveyed to treatment staff, and in one case a change in medication dosage was made. Although there was no significant overall treatment effect on depression for the pain programs, participation appeared to have a positive effect on mood state and depressive symptomatology for several of the participants. Additionally, one-third of all participants were taking antidepressant medication at pre-treatment, dropping to 29% at post-treatment, and 24% at follow-up. This would appear to reflect appropriate medical/psychiatric management given a previously reported prevalence rate for diagnosed minor to major depression among nursing home residents of 38% (Parmelee et al., 1991). It is important to recognize that all but one of these individuals were taking tricyclic or heterocyclic antidepressants, which are commonly used in the treatment of chronic pain. This may have had some masking effect on the relationship between depression and pain. Several studies have found significant

relationships between pain and depression in elderly nursing home residents (Cohen-Mansfield & Marx, 1993; Parmelee et al., 1991), consistent with findings from other chronic pain populations.

The lack of significant change in pain medication use (per physician concern ratings) is consistent with other studies of cognitive-behavioral pain treatments with elderly patients (e.g., Keefe et al., 1990a). This finding was not surprising given that high standards of medical treatment and monitoring were maintained in the nursing homes where this study's participants lived. The medication ratings revealed *very* few instances where physicians with specialty training in pain management were more than "slightly concerned" regarding a pain medication combination being taken by one of the participants, despite the elevated risk of side effects from pain medications in the elderly (Sturgis, Dolce & Dickerson, 1987). The low overall levels of concern introduced a floor effect for limiting measurable treatment gains in pain medication use, and produced highly skewed distributions for the medication variables that were not improved through transformation. Because the physicians caring for these residents were aware that they were participating in a pain management program (though blind to treatment conditions), it is conceivable that they had increased sensitivity to the medical management of these patients. However, observations and impressions suggested that all of the residents of these nursing homes received that same high level of care. In general, the pain medications being provided to these elderly nursing home residents were appropriate and had minimal associated risks, so that there was little motivation for altering them.

Only a few other investigations of cognitive-behavioral pain management training in the elderly have examined its impact on pain behavior, with inconsistent results

(Bradley et al., 1987; Keefe et al., 1990a, 1990b). These studies, however, employed a different approach to assessing pain behaviors (i.e., structured observation in a controlled environment). The poor sensitivity of the measure for caregiver pain behavior ratings in this study limits the conclusions that can be drawn regarding its results. The relatively lower caregiver ratings at post-treatment for the participants who received only supportive therapy may be an artifact of poor psychometric properties. Alternatively, it can be interpreted as resulting from participants in the cognitive-behavioral treatment being more focused on their pain, and thus discussing it more in the presence of caregivers. Caregiver ratings appeared to be predominantly influenced by whether a resident had any "complaints of pain" during a particular shift. This interpretation is supported by the absence of any group differences at follow-up, when the focus on pain for the cognitive-behavioral participants would likely have decreased. Although there are some data to support the usefulness of the observer-rated indicators of pain used in this study (Mohide et al., 1983), the results suggest that in at least some nursing home settings these indicators do not reliably reflect the residents' self-reported pain. They also call into question the ability of nursing staff to judge pain levels in residents, with reasonable accuracy. This issue has important implications for the care of elderly nursing home residents with pain, and should be addressed through further research. In addition, continued evaluation and refinement of the Caregiver Pain Rating Form is needed.

Has this study been successful at addressing and improving upon the common research design weaknesses noted in the earlier review of the literature? The answer is yes, although not without some of its own limitations:

1. The problem of lack of standardized treatments within and across studies was

addressed by employing a clearly defined cognitive-behavioral treatment program that has been widely used in previous research and demonstrated to be effective (Turk et al., 1983). Additionally, the related problem of lack of adequate description of treatment protocol has been addressed through a detailed treatment manual (see Appendix M). Regular, minor modifications to the treatment protocol were required because of the needs and capabilities of the participants, as is the case when any structured treatment program is applied clinically. However, this is a reality of effective psychotherapy and not a problem that needs to be corrected.

2. The commonly overlooked issue of confirmation of adherence to treatment protocols and interpretation of treatments was addressed through procedures for assessing treatment integrity and credibility. Homework compliance by participants was only moderate, and future research needs to address means of improving this, through modifying the types of assignments and providing regular encouragement and assistance from therapists or other caregivers.

3. The issue of adequate and realistic control conditions was addressed by attempting to control for the potential confounding factors deemed most relevant in the nursing home setting (i.e., attention and support). The findings of this study would have been further strengthened if a waiting-list control condition was also employed, however difficulties in obtaining adequate numbers of participants prevented this.

4. Problems with inadequate assessments and questionable psychometric properties of instruments were addressed, although hampered by the limited availability of psychometrically sound instruments for this population. The modified version of the Roland and Morris Disability Questionnaire (Deyo, 1986; Roland & Morris, 1983) was found to be highly correlated with the full version, suggesting good validity and

reliability. Further evaluation with samples of nursing home residents is needed. The Caregiver Pain Rating Form developed for this study and the physician ratings of concern over medication use (McCauley & Frank, 1983) are potentially useful and efficient research and clinical tools. However, the previously discussed problems with sensitivity and reliability need to be addressed through additional research. Additionally, a question of sensitivity and specificity with the present subject population was raised for the Geriatric Depression Scale (Brink et al., 1982; Yesavage et al., 1983). A strength of the assessment procedure in this study was the use of multiple evaluations for self-ratings of pain and caregiver ratings of pain behavior within each assessment period.

5. The problem of lack of follow-up evaluations was addressed in this study by a follow-up assessment 4 months post-treatment. Although longer follow-up periods provide a better indication of long-term maintenance of treatment gains, the limited number of subjects and high attrition rate for this population were restricting factors. The results of this study were consistent with some prior research involving elderly pain patients (e.g., Keefe et al., 1990b), showing continued benefit from cognitive-behavioral treatment despite overall deterioration in at least some aspects of pain and disability. However, other research has suggested poor long-term maintenance (i.e., 1 year or longer) of treatment gains for elderly patients (Calfas et al., 1992; Subramanian, 1994). Thus, future research in the nursing home setting with larger sample sizes should evaluate long-term follow-up results, possibly incorporating periodic "booster" sessions for participants.

Another issue that deserves attention in interpreting the results of this study is the relationship between site of residence, gender, and veteran status. The two

nursing home sites from which participants of this study were drawn have very different resident populations, a fact that adds to the strength of the overall treatment effects that were obtained. The descriptive data in Table 3 shows that the subjects at site A were all female, while the subjects at site B were predominantly male. In addition, the vast majority of subjects at site B (90 %) were military veterans, while none of the subjects at site A was known to fall into this category. Therefore, the significant main effects by site for pain ratings at post-treatment and follow-up, and depression at post-treatment must be interpreted cautiously. Subjects at site B (i.e., male veterans) reported less pain at post-treatment and follow-up than subjects at site A (i.e., female non-veterans). This difference may be due to factors specific to the nursing homes, gender, veteran status, or some combination of these variables. The same can be said for the finding that subjects at site B had lower depression scores at post-treatment than subjects at site A. These differences were not investigated further because there were no interactions of site with treatment group for these or any other of the dependent variables. No existing studies of the effect of gender or veteran status on outcome in cognitive-behavioral pain therapy were identified. However, this type of pain management has been consistently demonstrated as effective across gender, and at least one study has demonstrated its effectiveness with a veteran population (Applebaum et al., 1988).

The findings of this study are particularly noteworthy given the heterogeneity and small size of the sample of participating nursing home residents. As an exploratory investigation, this study has fulfilled its purpose by demonstrating the effectiveness of cognitive-behavioral pain management for elderly nursing home residents across variability in age, gender, type of nursing home, duration of residence, medical

diagnoses, health status, location and duration of pain, other pain treatments, and prior coping styles. None of these variables was controlled for in the statistical analyses of pain ratings, and only variability in age and duration of pain was removed from the statistical comparisons for pain-related disability. Important questions to be addressed in subsequent research are whether this type of pain management training is differentially effective for more homogenous subgroups of this population, and what modifications to the training would enhance its effectiveness with particular subgroups. For example, would individuals with osteoarthritic pain benefit more or less than those with neuropathic pain, and what components of the training are most effective for each? Returning to the earlier stated question prompted by review of the literature on psychological interventions for chronic pain: What specific interventions are effective for which pain problems with which patient populations?

The importance of looking beyond the averaged group differences is strongly reinforced by the clinical observations of the therapists in this study. Consequential individual differences were evident in the participants' interest in and commitment to the pain management program, their capacity for sustained attention, their willingness and ability to practise and integrate new skills through homework assignments, and various personality dimensions such as locus of control and general coping style. Matching of pain management interventions with elderly individuals' coping styles has been demonstrated to enhance treatment gains and satisfaction (Fry & Wong, 1991). For example, one 83 year-old osteoarthritic female participant in the cognitive-behavioral program was described by her therapist:

> Mrs. M. seems to have participated fully and actively in the program, and to have benefitted from it. She was an active participant in all sessions and completed

> all homework assignments eagerly ... She stated during the program that sometimes the skills from the sessions help with coping and other times nothing seems to help (especially when pain is very bad) ... Said she tries all of the skills presented and finds the gate control model conceptualization very helpful.

In contrast, an 82 year-old female with a degenerative nerve disorder who participated in the same program was described as follows:

> Mrs. B.'s general attitude is that there is nothing she can do about her discomfort and pain because doctors don't fully understand her condition. She has established several coping strategies that she finds helpful ... She said that she found the program interesting and feels she learned some things ... but said her general coping strategies haven't changed from before the program.

Several conclusions can be drawn from these observations:

1. The ideal pain management training program for elderly nursing home residents is not a rigidly defined program, but rather an individualized program that is formed by selecting educational, skills training, and supportive components from an available pool, based on assessment of each resident's motivations, capabilities, personality, and coping style. For example, beliefs about pain and pain management can serve as barriers to effective management in the elderly if not adequately assessed and addressed (Hofland, 1992). This type of flexibility might even permit the adaptation of cognitive-behavioral pain management training to cognitively impaired residents (Davis, Schneider, Dvali, & McCully, 1993; Parmelee et al., 1993).

2. A group therapy format provides clear benefits for some elderly nursing home residents, while for others individual treatment is preferable. The group format

provides the opportunity for enhanced social support, validation of problems and challenges, sharing of coping strategies, and formation of alliances that can continue beyond the completion of the training program. Individual treatment enhances flexibility in training, both in terms of treatment components and the time devoted to each, and is better suited for individuals who have difficulty maintaining a regular schedule due to health problems, frequent unscheduled visitors, or inadequate support from caregivers. Pacing of treatment is an especially important consideration when working with elderly pain patients (Widner & Zeichner, 1993). The determination of treatment format should be based on the individual's stated preferences, assessment of the various factors noted above, and consideration of therapist resources (i.e., time).

3. As with pain patients of all ages and in all settings, elderly nursing home residents can benefit in many different ways from cognitive-behavioral pain management training. Some residents gain a great deal from learning more about pain perception and the factors that influence it. Others benefit primarily from specific coping skills, such as relaxation, distraction or imagery techniques. Still others are influenced much more by the process of the training than its content. They may enhance their sense of control over their pain, increase their confidence in existing coping strategies through validation, be able to cope better with their pain knowing that there are others "worse off than me", or simply feel better because of positive social support. As has been previously reported (Cook & Thomas, 1994), elderly individuals with chronic pain often have developed personally effective coping strategies. The cognitive-behavioral "stress inoculation" approach (e.g., Meichenbaum & Jaremko, 1982; Turk et al., 1983) focuses on helping these individuals to enhance and supplement these skills based on personal needs and coping styles.

Although commonly available pain management modalities (i.e., medications, massage, physical activity/physiotherapy) can be effective for elderly nursing home residents, research suggests that pain continues to be a significant problem for many of these individuals. This problem is the result of failure to detect the pain problems, underavailability and/or underutilization of treatments, and the fact that existing treatments are not adequate for many residents. This study has demonstrated that cognitive-behavioral pain management training can help these individuals to reduce their pain and associated disability. An important, and often unique, element of the cognitive-behavioral approach is the sense of personal control over pain and disability that it encourages and facilitates. This allows an individual to develop personal strategies for coping with pain when other external resources are not immediately available. It also aids in preventing the feelings of helplessness and victimization that often accompany and exacerbate chronic pain. Recent research suggests that biased information processing may play an important role in the development and/or maintenance of chronic pain (Edwards & Pearce, 1994), and that changes in cognitions are potentially more important than changes in behavior for improvement in multidisciplinary pain treatment (Jensen, Turner & Romano, 1994).

Although cognitive-behavioral pain management training is not currently readily available in most nursing homes due to lack of qualified individuals to administer it, existing staff can be trained to fill this void. Although a considerable investment of time for organizing and delivering this type of pain program is required, the efficiency of the cognitive-behavioral treatment is quite favorable when contrasted with the costs and problems associated with medical consultation, long-term medication use, and high demands on caregivers.

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RESEARCH PROPOSAL

TITLE: Evaluation of a Cognitive-Behavioral Pain Management Program for Elderly Nursing Home Residents

INVESTIGATORS: Andrew J. Cook, M.A., C.Psych. Candidate
Doctoral Candidate in Clinical Psychology

Michael Thomas, Ph.D., C.Psych.
Research Supervisor

INSTITUTION: University of Manitoba

PURPOSE:

The purpose of this study is to evaluate the effectiveness of a cognitive-behavioral pain management program for elderly nursing home residents.

BACKGROUND INFORMATION:

Shifting world demographics have led to increased interest in health concerns of the elderly. The subject of pain in the elderly is being explored through a growing body of research. Psychological treatments for pain management have been demonstrated to be effective with middle-aged chronic pain patients, and more recently with elderly pain sufferers. However, the effectiveness of these pain management strategies for elderly nursing home residents has not been determined. In fact, the experience of pain among these elderly individuals has received very little attention in the research literature. Studies that have been done have suggested that pain is a major problem among the elderly in long-term care.

RESEARCH DESIGN:

The study will be a group comparison design, with pre- and post-treatment assessment, and additional follow-up assessment 8 weeks after the end of treatment. The groups will include the cognitive-behavioral treatment group, and two control groups: attention-only and waiting-list.

METHODS:

Residents identified as potential participants will be screened based on chart reviews and a brief interview to assess cognitive functioning. Those who meet the inclusion requirements will undergo a more thorough assessment interview, including assessment of pain, physical and psychosocial disability,

depression, and medication use. Each resident's physician will be asked to sign a consent form indicating that there are no medical reasons for exclusion from the study. Forty-five participants will be sought, to be randomly assigned to one of the three experimental conditions.

The cognitive-behavioral treatment will be administered in group format (2 groups of 7 or 8 residents). The groups will meet for weekly sessions of approximately 90 minutes for a 10-week period. The treatment components will include education regarding pain and pain perception, and training in relaxation, imagery, and cognitive strategies. Participants will be asked to complete "homework assignments" between sessions, such as keeping a pain diary and practising relaxation skills.

The attention-only condition will also be administered in group format, with 90 minute weekly sessions for a 10-week period. The treatment will consist of unstructured supportive group therapy, with discussion by group members of coping strategies for their pain.

The waiting-list subjects will receive no treatment during the regular study period, but will be offered treatment (cognitive-behavioral) at the conclusion of the study.

Throughout the assessment and treatment periods, the nurses caring for the participants will be asked to complete a brief weekly behavior checklist.

All subjects will be re-assessed for pain, physical and psychosocial disability, depression, and medication use at the end of the treatments, and at the 8-week follow-up. At the follow-up assessment, participants will be asked for feedback regarding the treatment, to determine what aspects they found helpful and to solicit suggestions for improvement of subsequent programs.

RESULTS:

The effectiveness of the cognitive-behavioral treatment will be evaluated in terms of self-reports of pain, caregiver reports, physical and psychosocial disability, depression, and medication use. Data analyses will include statistical analysis of results, as well as qualitative evaluation of the clinical significance of treatment gains.

Andrew J. Cook, M.A.
Principal Investigator

Michael R. Thomas, Ph.D.
Supervisor

PAIN PROGRAM REFERRAL FORM

Eligibility criteria:

1. **Age 60 or older** (ages 55-59 will be considered if the other criteria are met).
2. **English speaking** (can communicate verbally in English)
3. **Experiencing persistent or chronic pain** of any type for a minimum of 3 months (e.g., arthritis, headache, previous fractures/injuries, angina, etc.)
4. **Cognitive functioning intact or mild impairment** (Generally oriented to time and place, able to follow instructions)

If you are unsure about a particular resident's eligibility on any of these criteria, please include their name and I will decide if they are a likely to benefit from the program.

Name	Room #	Age	Type of Pain	MMSE score if avail.

Short Portable Mental Status Questionnaire (SPMSQ)
E. Pfeiffer, M.D.

Resident's Name: _____ Date: _____

Sex: M / F Race: White / Black / Other

Years of education: _____ grade school / high school / beyond h.s.

INSTRUCTIONS: Ask questions 1-10 in this list and record all answers. Ask question 4A only if patient does not have a telephone. Record total number of errors based on ten questions.

+	-	
_____	_____	1. What is the date today? _____ Day Month Year
_____	_____	2. What day of the week is it? _____
_____	_____	3. What is the name of this place? _____
_____	_____	4. What is your telephone number? _____ (OR, if no telephone) 4A. What is your room number? _____
_____	_____	5. How old are you? _____
_____	_____	6. When were you born? _____ Day Month Year
_____	_____	7. Who is the Prime Minister of Canada now? _____ _____
_____	_____	8. Who was the Prime Minister just before him/her? _____ _____
_____	_____	9. What was your mother's maiden name? _____
_____	_____	10. Subtract 3 from 20 and keep subtracting 3 from each new number, all the way down.
	_____	Total number of errors
	_____	Corrections: -1 grade school education only +1 education beyond high school
	_____	Corrected total 0-2 INT 3-4 MILD 5-7 MOD 8-10 SEV

Participant Consent Form

I, _____, have been informed of the general goals of the pain management program that is being provided at Tache Nursing Centre by Mr. Andrew Cook. I understand that the services of this program will be provided by Mr. Cook, who is a doctoral student at the University of Manitoba, under the supervision of Dr. Michael Thomas.

My participation in this program will involve:

1. Several individual interview sessions, at different times, where information will be gathered about my health and related issues,
2. Attending a series of 10 weekly sessions with a small group of residents of Tache Nursing Centre.

I agree to do my best to attend all of the sessions of this program.

Mr. Cook has my permission to use information about me that is obtained during this program. This information may be used for scientific presentations and reports. I understand that neither my name nor any identifying information will be included in any presentations or reports.

_____ _____

Participant's signature Date

_____

Witness

DEPARTMENT OF PSYCHOLOGY
UNIVERSITY OF MANITOBA

February 1994

Dear Dr. :

I am conducting a research project at Deer Lodge Centre to evaluate a cognitive-behavioral pain management program for residents with persistent pain.

For residents who are participating in the program, I am asking that their physicians indicate the absence of any medical contraindications to their participation by signing a permission form for each resident. This input is requested solely as a safeguard, as medical/physical requirements for the program will be minimal. The only activity that some of the participants will experience that has some physical involvement is the relaxation training, which incorporates some tensing of selected muscle groups.

Would you please read and sign, as appropriate, the attached permission form(s) for the participating resident(s) who are under your care at Deer Lodge Centre.

I have attached a copy of a brief summary of the research project for your information. If you have any questions about this please contact me through the University at 474-9222, or Ms. Margot Christie (Associate Director of Care) at Deer Lodge Centre.

Thank you for your assistance.

Sincerely,

Andrew J. Cook, M.A., C.Psych. Candidate

Enc.

Physician Permission Form

I am aware that my patient _____

is participating in a cognitive-behavioral pain management program being conducted at Deer Lodge Centre by Andrew J. Cook, M.A., C.Psych. Candidate under the supervision of Michael R. Thomas, Ph.D., C.Psych..

To the best of my knowledge there is no medical reason that would prevent the above-named resident of Deer Lodge Centre from participating in this program.

Name of Physician _____

Signature _____

Date _____

PAIN ASSESSMENT QUESTIONNAIRE

Date: _____ Referral by: _____

BACKGROUND INFORMATION FROM MEDICAL CHART

Resident's Name: _____ Sex: M / F

Birthdate: _____ Age: _____

Nationality: _____

Room number: _____

Date admitted to TNC: _____

Diagnosed medical conditions: Date diagnosed

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____

Current physician: _____

Current prescribed medications:

	Medication	For	Dosage	Frequency	Date started
1.					
2.					
3.					
4.					
5.					
6.					
7.					

If pain medication(s) is/are prn, frequency past week:

1. _____ _____
2. _____ _____
3. _____ _____

Currently attending physiotherapy? Y / N

If Yes, frequency of sessions _____

Name of physiotherapist _____

Other pain treatments noted on chart? (e.g., TENS, hot/cold packs)

_____

_____

Other chart information re resident's pain (e.g., changes in frequency, severity, pain behaviors, etc.)

_____
_____
_____
_____
_____
_____
_____

PAIN HISTORY (from resident)

How long have you had the pain you are currently experiencing? _____
(specify years, months etc.)

Did this pain begin: gradually ____ or suddenly ____ ?

Is your pain associated with any chronic health condition(s) (specify)

_____
_____

How did the pain first begin? accident at work ___ following surgery ___
accident at home ___ pain just began ___
following illness __ other ___

details: _____

Do you recall any changes in your life during the year before this pain began? (e.g., moving, death or loss of family member/friend, retirement)

_____
_____

Is your pain the same now as it was when it began? Y / N
If No, how is it different? _____

What professionals have you consulted regarding your pain? (e.g., G.P., medical specialists, acupuncturist, physiotherapist, pain clinic, psychiatrist/psychologist)

_____
_____
_____

What current medications are you taking for your pain (incl. non-prescription)?

	Medication	Dosage	Frequency	Amount & durn. Relief
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

Are you currently receiving any other treatments for your pain?

_____

_____

_____

Do you have any other symptoms that occur WITH your pain? Y / N
(specify) _____

_____

Have you had any length of time, since the pain began, when you have been pain-free? Y / N If Yes, when? _____
why? _____

Have doctors ever suggested that your pain is imaginary? Y / N
Have others ever suggested this? Y / N specify: _____

Have any members of your family had problems with pain? Y / N
(Describe) _____

TIME PATTERN DURING THE DAY

Do you have pain immediately on waking? Y / N
If No, when does it usually begin? _____

Does the pain change during the day? Y / N
If Yes, when is it worse _____
when is it better _____

How many hours of the day are you in pain? _____
How many hours of the day are you pain-free? _____

Short-Form McGill Pain Questionnaire

PATIENT'S NAME:_____ DATE:_____

The words that I am going to read to you now can be used to describe pain. Please tell me if each word describes YOUR pain, and how severe that aspect of your pain is: None (0), Mild(1), Moderate(2), or Severe(3).

	NONE	MILD	MODERATE	SEVERE
THROBBING	0	1	2	3
SHOOTING	0	1	2	3
STABBING	0	1	2	3
SHARP	0	1	2	3
CRAMPING	0	1	2	3
GNAWING	0	1	2	3
HOT-BURNING	0	1	2	3
ACHING	0	1	2	3
HEAVY	0	1	2	3
TENDER	0	1	2	3
SPLITTING	0	1	2	3
TIRING-EXHAUSTING	0	1	2	3
SICKENING	0	1	2	3
FEARFUL	0	1	2	3
PUNISHING-CRUEL	0	1	2	3

If a zero means "no pain" and a ten means "pain as bad as it could be," on a scale of 0 to 10, what is your level of pain now?

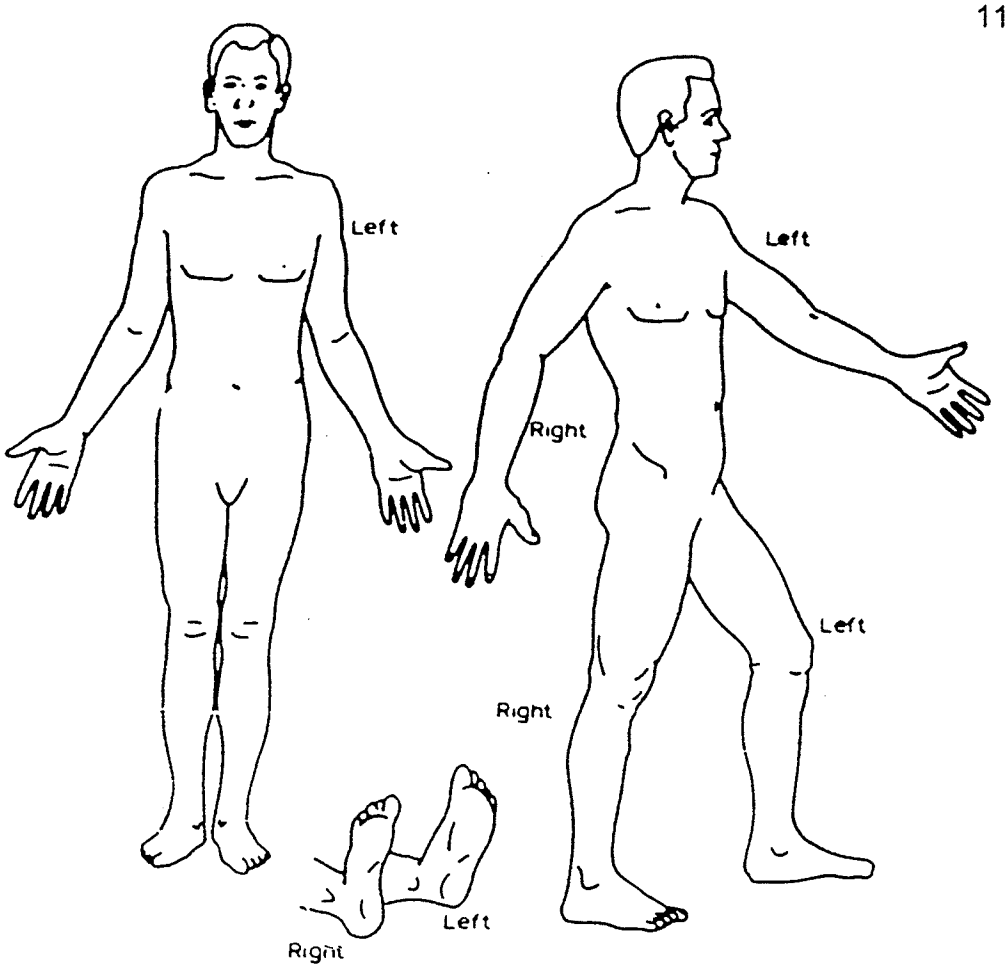
0 1 2 3 4 5 6 7 8 9 10

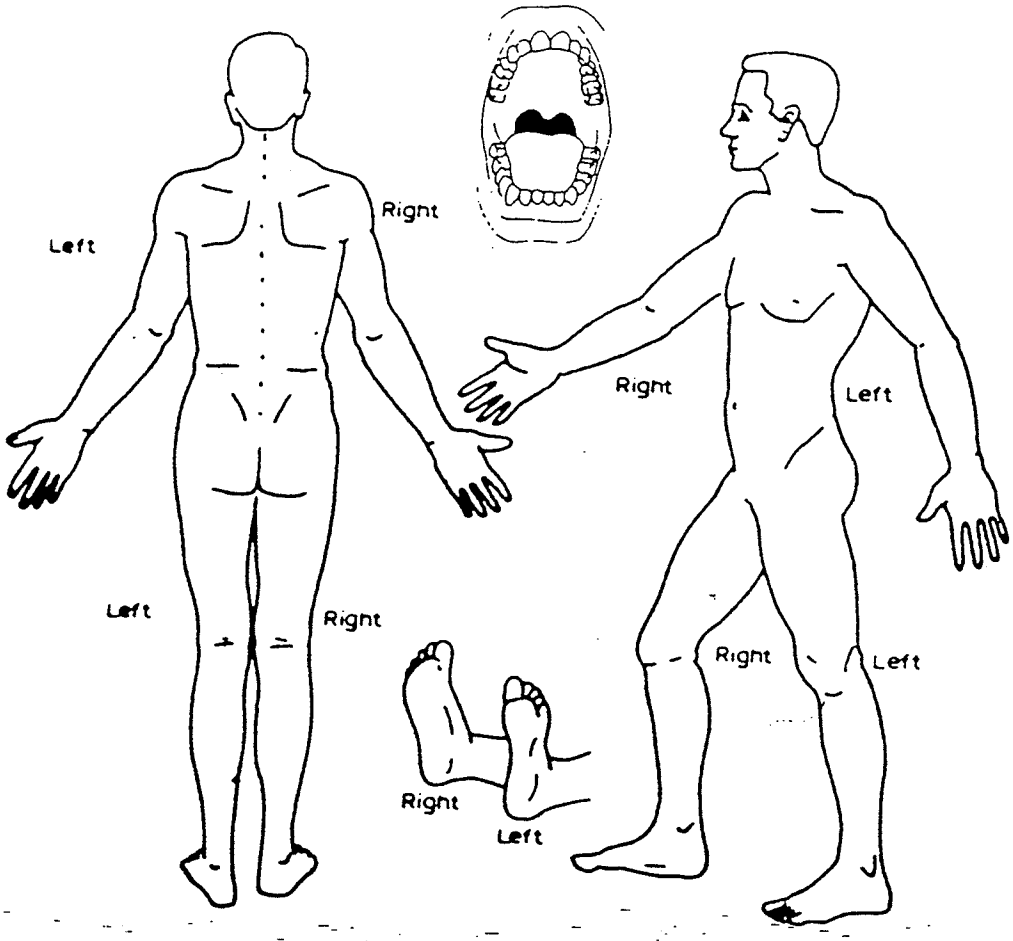
The following words describe pain of increasing intensity:

NO PAIN	_____	0
MILD	_____	1
DISCOMFORTING	_____	2
DISTRESSING	_____	3
HORRIBLE	_____	4
EXCRUCIATING	_____	5

Which word best describes your pain right now?

a) Using the body figures shown below, please mark in *with a pencil* the areas where you feel the pain.





INTERVIEWER NOTES:

Cooperative: _____

Quality of rapport: _____

Ability to understand questions: _____

Pain behavior during interview: _____

_____

_____

General mood: _____

Other impressions:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Roland and Morris Disability Questionnaire

Instructions:

When you are in pain, you may find it difficult to do some of the things you normally do.

These are some sentences that people have used to describe themselves when they have pain. When you hear them, you may find that some stand out because they describe you TODAY.

As you listen to the items, think of yourself today.
When you hear a sentence that describes you today, say "YES".
If the sentence does not describe you, then say "NO" and we will go on to the next one. Remember, only say "YES" to a sentence if you are sure that it describes you today.

1.	I stay in my room most of the time because of my pain.	Y / N
2.	I change position frequently to try to reduce my pain.	Y / N
3.	I walk more slowly than usual because of my pain.	Y / N / NA
4.	Because of my pain, I am not doing any of the jobs that I usually do around my room.	Y / N
5.	Because of my pain, I use the handrail to move around.	Y / N / NA
6.	Because of my pain, I lie down to rest more often.	Y / N
7.	Because of my pain, I have to hold on to something to get out of a chair.	Y / N / NA
8.	Because of my pain, I try to get other people to do things for me.	Y / N
9.	I get dressed more slowly than usual because of my pain.	Y / N
10.	I only stand up for short periods of time because of my pain.	Y / N / NA
11.	Because of my pain, I try not to bend or kneel down.	Y / N / NA
12.	I find it difficult to get out of a chair because of my pain.	Y / N / NA
13.	I am in pain almost all the time.	Y / N
14.	I find it difficult to turn over in bed because of my pain.	Y / N
15.	My appetite is not very good because of my pain.	Y / N
16.	I have trouble putting on my socks (or stockings) because of my pain.	Y / N / NA
17.	I only walk or travel short distances because of my pain.	Y / N
18.	I sleep less well because of my pain.	Y / N
19.	Because of my pain, I get dressed with help from someone else.	Y / N / NA
20.	I sit or lie down most of the day because of my pain.	Y / N
21.	I avoid chores around my room because of my pain.	Y / N
22.	Because of my pain, I am more irritable and bad tempered with people than usual.	Y / N
23.	Because of my pain, I move around more slowly than usual.	Y / N
24.	I stay in bed most of the time because of my pain.	Y / N

Geriatric Depression Scale
Brink, Yesavage et al.

PLEASE ANSWER YES OR NO TO THE FOLLOWING QUESTIONS:

1. Are you basically satisfied with your life?.....Y / N*
2. Have you dropped many of your activities and interests? .....Y / N
3. Do you feel that your life is empty?.....Y / N
4. Do you often get bored?.....Y / N
5. Are you hopeful about the future?.....Y / N*

6. Are you bothered by thoughts you can't get out of your head? Y / N
7. Are you in good spirits most of the time?.....Y / N*
8. Are you afraid that something bad is going to happen to you? Y / N
9. Do you feel happy most of the time?.....Y / N*
10. Do you often feel helpless?.....Y / N

11. Do you often get restless and fidgety?.....Y / N
12. Do you prefer to stay at home, rather than going out and doing new things?.....Y / N
13. Do you frequently worry about the future?.....Y / N
14. Do you feel you have more problems with memory than most?....Y / N
15. Do you think it is wonderful to be alive now?.....Y / N*

16. Do you often feel downhearted and blue?.....Y / N
17. Do you feel pretty worthless the way you are now?.....Y / N
18. Do you worry a lot about the past?.....Y / N
19. Do you find life very exciting?.....Y / N*
20. Is it hard for you to get started on new projects?.....Y / N

21. Do you feel full of energy?.....Y / N*
22. Do you feel that your situation is hopeless?.....Y / N
23. Do you think that most people are better off than you are?...Y / N
24. Do you frequently get upset over little things?.....Y / N
25. Do you frequently feel like crying?.....Y / N

26. Do you have trouble concentrating?.....Y / N
27. Do you enjoy getting up in the morning?.....Y / N*
28. Do you prefer to avoid social gatherings?.....Y / N
29. Is it easy for you to make decisions?.....Y / N*
30. Is your mind as clear as it used to be?.....Y / N*

* reverse scored

Caregiver Pain Rating Form (CPRF)

Resident's Name: _____

Room Number: _____

Date: _____ Shift: _____

Completed by: _____

INSTRUCTIONS: PLEASE PLACE A CHECK MARK BESIDE THE BEHAVIORS AND/OR SYMPTOMS THIS RESIDENT HAS SHOWN DURING THE PAST SHIFT.

____ Request by the resident for analgesic medication

____ Crying

____ Withdrawal of the resident to touch or examination

____ Without questioning, the resident stated that he/she was in pain and described the pain

____ Changes in color of an area which the resident identifies as painful

____ Moaning

____ Facial pallor

____ Swelling of an area which the resident identifies as painful

____ Excessive perspiration

____ Changes in facial expression

____ Changes in vital signs

____ Irritability

____ Changes in posture

Please comment on this resident's apparent pain during this shift, and what he/she has done to cope with it:

_____

_____

_____

_____

_____

Appendix J

Caregiver Pain Rating Form

Resident's Name: _____ Room No. _____

Date: _____ Shift: _____

Completed by: _____

INSTRUCTIONS: PLEASE PLACE A CHECK MARK BESIDE THE BEHAVIORS AND/OR SYMPTOMS THIS RESIDENT HAS SHOWN DURING THE PAST SHIFT.

____ Request by the resident for analgesic medication

____ Crying

____ Withdrawal of the resident to touch or examination

____ Without questioning, the resident stated that he/she was in pain and described the pain

____ Changes in color of an area which the resident identifies as painful

____ Moaning

____ Facial pallor

____ Swelling of an area which the resident identifies as painful

____ Excessive perspiration

____ Changes in facial expression

____ Changes in vital signs

____ Irritability

____ Changes in posture

Please comment on this resident's apparent pain during this shift, and what he/she has done to cope with it:

_____

_____

_____

_____

On a scale of 0 to 10, please rate his/her apparent level of pain this shift:

0 1 2 3 4 5 6 7 8 9 10

No Pain ..... Pain as bad as it could be

PAIN MEDICATION RATINGS

INSTRUCTIONS:

Each of the accompanying cards contains information on the combination of medications and dosages that were being taken at a particular point in time by an elderly (age 60 and over) nursing home resident for pain management.

Please separate these cards (i.e., medication combinations) into six groupings based on how much you would be concerned about abuse potential, possible side effects, over-medication, or other relevant issues:

0 = No pain medication taken

1 = Not at all concerned

2 = Slightly concerned

3 = Concerned

4 = Quite concerned

5 = Very concerned

Please mark your classification (0 - 5) for each medication combination on the corresponding card.

Thank you for your time and assistance.

Pain Medication Rating Card

Rater No. ____ Code No. 123 _____

Medication Combination:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Classification (circle choice):

0 = No pain medication taken
1 = Not at all concerned
2 = Slightly concerned
3 = Concerned
4 = Quite concerned
5 = Very concerned

Pain Medication Rating Card

Rater No. ____ Code No. _____

Medication Combination:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Classification (circle choice):

0 = No pain medication taken
1 = Not at all concerned
2 = Slightly concerned
3 = Concerned
4 = Quite concerned
5 = Very concerned

Participant Feedback Questionnaire

Name: _____ Date: _____

THE FOLLOWING QUESTIONS ARE TO HELP US OBTAIN YOUR FEEDBACK ON THE PAIN MANAGEMENT PROGRAM THAT YOU PARTICIPATED IN. PLEASE BE HONEST WITH YOUR RESPONSES AS THIS WILL HELP US TO IMPROVE THE PROGRAM FOR FUTURE PARTICIPANTS.

Has this program been helpful to you in the following areas, and if so, was it a little helpful, moderately helpful, or very helpful? (0=Not helpful, 1=A little helpful, 2=Moderately helpful, 3=Very helpful)

0 1 2 3 (1) Learning about pain in general

0 1 2 3 (2) Understanding your own pain

0 1 2 3 (3) Reducing the amount of pain you experience

0 1 2 3 (4) Helping you to cope with your pain

0 1 2 3 (5) Reducing the amount that your pain interferes with your daily activities

0 1 2 3 (6) Reducing your need for pain medications

0 1 2 3 (7) Helping you to feel better in general

What parts of the program did you find to be most helpful or useful?

_____

_____

_____

_____

_____

_____

_____

_____

_____

What parts of the program did you find to be least helpful or useful?

What information or skills from the program, if any, do you think that you will use for coping with your pain?

Would you have preferred to have fewer or more weekly sessions in the program (ie, rather than 10)? Fewer / More / No change

(Comments)

What (other) changes do you recommend for the pain management program?

Would you recommend this pain management program to a friend? Y / N

(explain) _____

_____

_____

_____

_____

_____

_____

_____

Thank you very much for participating in the program. I hope that it has been helpful to you in some way.

Participant Feedback Questionnaire

Name: _____ Date: _____

THE FOLLOWING QUESTIONS ARE TO HELP US OBTAIN YOUR FEEDBACK ON THE PAIN MANAGEMENT PROGRAM THAT YOU PARTICIPATED IN SEVERAL MONTHS AGO. PLEASE BE HONEST WITH YOUR RESPONSES AS THIS WILL HELP US TO IMPROVE THE PROGRAM FOR FUTURE PARTICIPANTS.

Has the pain management program been helpful to you in the following areas, and if so, was it a little helpful, moderately helpful, or very helpful?
(0=Not helpful, 1=A little helpful, 2=Moderately helpful, 3=Very helpful)

0 1 2 3 (1) Learning about pain in general

0 1 2 3 (2) Understanding your own pain

0 1 2 3 (3) Reducing the amount of pain you experience

0 1 2 3 (4) Helping you to cope with your pain

0 1 2 3 (5) Reducing the amount that your pain interferes with your daily activities

0 1 2 3 (6) Reducing your need for pain medications

0 1 2 3 (7) Helping you to feel better in general

What information or skills from the program, if any, have you been using to help you cope with your pain?

_____

_____

_____

_____

_____

_____

_____

_____

In general, what do you do to cope with your pain now?

Thank you very much for participating in the program. I hope that it has been helpful to you in some way.

Cognitive-Behavioral Treatment Schedule
(Content Adapted from Turk et al., 1983)

Note: The scripts included in this outline are not intended to be read verbatim. They are intended, rather, as guides to the information that will be presented in the group sessions. The structure of the sessions will involve a minimum of didactic lecturing, with the emphasis on discussion and evaluation of information and techniques presented.

WEEK 1

FLIPCHART: A. OUTLINE FOR SESSION

1. Introduction and welcoming of participants. Each group member is asked to briefly introduce themself to the other members (e.g., name and activity they enjoy).

2. Overview of purpose and approach of program.

The purpose of this program is to help all of you learn ways to improve your ability to cope with your pain, and to reduce its negative impact on your life. I'm sure that all of you have seen several doctors and possibly other health professionals regarding your pain. So you probably have some ideas about what to expect from this treatment program. At the same time, you may be wondering whether we will be doing anything different here, perhaps hoping that finally something could be done to help. Well, we will have to find out what we can do to help each of you, but I know that we will be doing things differently than you are used to.

In this program I won't be doing things to you or giving you things to change your pain. What I will be doing is helping you to use the resources YOU have to affect your pain. Now, you may think that you have tried everything that you can to help yourself. And I know that you indeed want to reduce your pain and do what you can for yourself. What we are going to look for is resources that you may not be aware of and ways of using your abilities in different manners. We can offer some help for most people, but that help is only useful when you use your own efforts to put it to use. I will want you to participate in everything, from learning more about your problem to trying new ways of doing something about it.

After we spend some time at understanding your pain problems better, I will be helping each of you to set some goals for yourself in terms of changes you would like to bring about. It will be up to you to decide what types of changes are most important and achievable for you.

3. Overview of program outline, including skills that will be taught, procedures that will be used, and participants' responsibilities. Participants will be prepared for possible non-successes and/or setbacks by being told:

There are a number of approaches that have been shown to be successful for coping with pain problems. A variety of these approaches will be taught to you during our weekly sessions. For each one of you, we may have to try out several before we find the ones that are best suited for YOU. If any of the methods you learn are not particularly helpful for you, this will provide us with valuable information about which methods are most likely to succeed for you.

It is also important for you to realize that improving your ability to manage and cope with your pain takes time. Just learning a new method or technique is not enough; you have to practise these methods and make them part of your everyday life. If you do use these methods on a regular basis, then improvements in your ability to manage your pain WILL occur.

All of us tend to have doubts about whether a particular treatment will work for us, or whether we can ever change. It is good to anticipate these doubts, so that when they occur you can recognize them as a normal part of treatment progress. Then you don't have to take them too seriously.

4. Image-based reconstruction of pain. This experience will be introduced as follows:

Now, what I am going to ask you to do is a bit different. You have all answered a number of questions for me about your pain. In order for us to understand more fully the nature of your pain, I am going to ask you to sit back in your chairs and become as relaxed as possible and to consider one of the times when your pain was most intense, when you felt most overwhelmed by your pain.

Let's see if we can more fully appreciate what is happening on such occasions. Just sit back now, close your eyes, and think about one such specific occasion. Do you have one in mind? Okay. Now replay the entire incident in your mind's eye; sort of run a movie of the entire incident through your head, not just when the pain is most intense, but back in time before the pain reached that intense point, when you first noticed the sensations. Play the scene right through to the end.

I would like you to think about any feelings, thoughts, or images you may have had before, during, or after the pain incident, even any passing thoughts and feelings, no matter how insignificant you think they may have been. Our goal is to come to understand the nature of your pain. Is it clear what I am asking you to do?

After the group members have been given several minutes for this experience, a volunteer will be sought to go through the experience once again aloud while the other members consider whether they have similar thoughts and feelings. Following this exercise, there will be a discussion of how the thoughts and feelings might have impacted the pain experiences. Participants will be asked to think about other

situations in which they have had similar thoughts and feelings, and situations when different thoughts and feelings have accompanied their pain.

5. Education re myths about pain. Each of the myths listed below will be introduced and discussed in the group (from Malec, Glasgow, Ely, & King, 1977).

There are various false ideas or myths about pain that people often have. I am not sure if you believe these, but they are worth our going over and considering where they fit and do not fit with your own notions. (See explanations in Turk et al., pp. 249-250).

1. Pain always means that you are hurt and need to rest and take care of yourself until you get better. FALSE.

2. If physicians can't cure your pain or find out exactly what is causing it, then your pain must be in your imagination. FALSE.

3. Someday, someone, somewhere will find a cure that will quickly make your pain go away once and for all. TRUE???

4. If you can make your pain less by psychological self-control, then the pain was "all in your head" to begin with. FALSE.

5. I've had pain so long and suffered so much that I'm beyond help. I've tried everything and nothing works. I've tried "tricks" like the ones you will describe and they didn't work. I must be hopeless. FALSE.

If you think of trying to convey to someone the sensations that you felt during some particular painful experience that you have had, you will realize that pain is a very individual experience. It can be next to impossible to explain EXACTLY how you felt - something like trying to describe the color "green" to a man who has been blind from birth. One of the most common things for a person experiencing pain to say is "You don't know how painful it is. I just can't tell you how much it hurts." Not only is it hard to say how MUCH it hurts, it is practically impossible to describe exactly HOW it hurts. We have words such as "burning", "pricking", "searing", "tearing" that attempt to define the sensations of pain, but sometimes they don't seem adequate. Although some of the outward signs of pain may be visible, pain is a private, individual experience.

And because it is so private, so individual, no two people undergo exactly the same feelings of pain from the same source. Many things besides the INTENSITY OF THE STIMULATION contribute to the experience of pain. On two different occasions, you may experience quite different "pain" from exactly the same external stimulation.

Think of someone receiving a minor wound to his face during an active game, such as football or hockey. He would probably not even notice the cut and would go on playing, feeling little, if any,

pain. However, if he had received exactly the same degree of injury while working around the home, or shaving, or engaging in some such activity, he would probably notice the cut immediately, take steps to stop the bleeding , and find it uncomfortably painful. (It is only AFTER the football or hockey game that they player is likely to find that the wound causes some discomfort). Or, consider cutting your finger on the edge of a newspaper that you are reading. During some active game, you probably would not notice much pain from a minor cut like this.

Still another example: In several tribes, women in labor apparently experience no pain. They simply stop their work to have the baby and return to work immediately afterwards. In North America the average hospital stay after birth is from 5 to 7 days. But in these primitive cultures, the husband stays in bed with "labor pains" while his wife is having the baby. Perhaps these men are not really experiencing the pain of labor. They say that they are! In any case, the women are not experiencing the intense, debilitating pain that is usual in our culture. Obviously, pain is influenced by many things.

Participants will be asked to examine past pain experiences in terms of the relationship between physical injury and pain. The various factors that influenced these pain experiences will be considered, including feelings, mood, beliefs, and focus of attention.

6. Treatment credibility rating form. The participants will be assisted in completing the pre-treatment version of this form.

7. Review and homework assignment. The information discussed in the session will be reviewed, and participants will be given another opportunity to ask any questions. As a homework assignment, the participants will be asked to keep a simple pain diary:

Since each person is different, and since it is important for both you and me to understand your pain in as much detail as possible, I would like you to keep a simple diary of your pain. Have you ever kept a diary before? . . . Well, the diary I am going to ask you to keep is very simple. It does not take much time. Other patients like yourself have indicated that the diary information proved quite revealing and helpful. Let me explain what is involved. (Diary forms are distributed.)

To help us learn more about the nature of your pain, it is important that you keep some records. This diary is designed to provide information about periods when your pain is most severe, periods when your pain is least severe, and the use and effectiveness of your pain medication. This information will help us develop the most effective treatment for your pain.

1. On the sheets provided, note the time, the place, and who is present when your pain rises to its HIGHEST LEVEL (the highest level of pain you normally experience).
2. I would like you to describe briefly what you think might have

led to the increase in pain (e.g., physical activity, a change in the weather, an argument). You should also try to note any thoughts or feelings you had that were related to the pain at that time (e.g., "Here it goes again", "I can't take it", "I feel so helpless", or "Nobody understands").

3. Next, I would like you to note what you tried to do to relieve the pain (e.g., took some pain killers, asked someone to massage the painful area, had a hot bath).
4. Then I would like you to note how effective your efforts to relieve the pain actually were. Rate how much you think your action helped, using the scale that is provided (0=did not help at all, 1=helped a little, 2=helped a lot, 3=eliminated the pain completely).
5. Finally, I would like you to provide similar information about times when your pain is LEAST SEVERE: when this was, where you were, what you were doing, who was with you, and anything else you can recall about the situation.

If you aren't able to write this information on the forms yourself, or have trouble reading the form, you can either ask someone to assist you (e.g., your nurse or a family member), or you can keep track of as much of the information as you can in your head. It usually is most helpful if the information is written down, because it is difficult to remember different situations clearly after several days. However, if this is not possible we will make the best of the information that you can remember.

A collaborative approach to the homework assignment will be sought as follows:

So what you have agreed to try this week is to keep a diary of your pain experiences. Do you have any questions about this activity? . . . Do you think this is something useful to work on? . . . Can you foresee some of the possible problems you could have in doing this?

This assignment will serve as a test of the participants' abilities to carry out self-directed activities outside of the group sessions. The types and complexities of future homework assignments will be guided by the results of this initial assignment. The literature does not provide any guidance in this area, as there are no reports of this type of treatment program being applied in a nursing home setting.

8. Therapist checklist.

PAIN DIARY

NAME: _____ DATE: _____

==========

SEVERE PAIN

1. Time when pain was most severe: _____

2. Where were you? _____

3. What were you doing? _____

4. Who was with you? _____

5. What were you feeling and thinking just prior to, and during the severe pain?

_____

_____

6. What did you try to do to reduce the pain? _____

_____

7. How effective was this? (Circle the best answer)

0 = It did not help at all

1 = It helped a little

2 = It helped a lot

3 = It stopped the pain completely

8. Any other comments about this pain? _____

_____

==========

LOWEST-LEVEL PAIN

1. Time when pain was lowest for the day: _____

2. Where were you? _____

3. What were you doing? _____

4. Who was with you? _____

5. Any other comments about this pain? _____

_____

WEEK 2

FLIPCHART: Page 1. OUTLINE FOR SESSION
2. GATE-CONTROL MODEL - Body diagram illustrating pain pathway
3. FACTORS THAT OPEN THE GATE
4. FACTORS THAT CLOSE THE GATE

1. Review of information covered in Week 1 and homework assignment. Participant checklist re homework (Round).

2. Reconceptualization of pain using the gate-control model. The goal of the reconceptualization phase is to provide the participants with a pain conceptualization that will facilitate therapy and make its rationale understandable. A simplified version of Melzack & Wall's (1965, 1970) gate-control theory will be presented as a conceptual model of pain (adapted from Karol, Doerfler, Parker, & Armentrout, 1981):

> I am going to present to you a simple theory for understanding pain and the factors that affect it. Pain can begin with bodily damage or injury, or with disease. A pain message from the site of injury is sent through a mechanism that works like a "gate to the brain". the brain then interprets this message. This gate can be partially or fully opened, or closed, which determines the amount of pain. There are many factors that can influence how much the "pain gate" is open. These factors generally fall into three categories: physical factors, emotional factors, and mental factors.

The gate-control model will be presented visually on a flip-chart to assist the participants in understanding and adopting this conceptualization. The following list of pain-influencing factors will be discussed, with specific personal examples being sought from group members:

FACTORS THAT OPEN THE GATE (flipchart):

1. Physical factors
   a. Extent of the injury
   b. Readiness of the nervous system to send pain signals to the brain
   c. Inappropriate activity level

2. Emotional stress
   a. Depression
   b. Anxiety
   c. Worry
   d. Tension
   e. Anger

3. Mental factors
   a. Focusing attention on the pain
   b. Boredom due to minimal involvement in life activities
   c. Nonadaptive attitudes

FACTORS THAT CLOSE THE GATE:

1. Physical factors
   a. Medication
   b. Counterstimulation (heat, massage, transcutaneous neural stimulation (TENS), acupuncture)
   c. Appropriate activity level

2. Relative emotional stability
   a. Relaxation
   b. Positive emotions (e.g., happiness, optimism)
   c. Rest

3. Mental factors
   a. Life involvement and increased interest in life activities
   b. Concentration on other things (distraction)
   c. Adaptive attitudes

Participants will be asked to discuss examples of pain situations (possibly from their pain diaries), examining how factors in each of these categories affected their pain experience. The reconceptualization will be facilitated by the therapist, through comments such as:

> As I listen to you describe your situation, it seems as if there are two main aspects to your pain experience. The first is the sensory input, and the second, your reactions to these sensations, especially the way in which you focus your attention. By the sensory input I am referring to the actual intensity of the stimulation, the physical symptoms that you experience.
>
> In addition to the actual physical sensations, another aspect of the pain you experience seems to be the reactions you have when you notice these sensations. The kinds of thoughts, images, and feelings you have also help to determine the pain experience, as well as the reactions of others.

In this discussion, the distinction between acute and chronic pain will be emphasized:

> Whereas several types of activities or treatments may be helpful with acute or short-term, intense pain (such as medication or decreased activity), these same interventions may have the opposite effect in the case of chronic pain such as that which you are experiencing. For example, inactivity may worsen chronic pain.

As part of the reconceptualization, the participants will be encouraged to think of their pain in terms of several distinct phases, rather than a single, continuous problem. For example, the times when pain severity is low can be contrasted with the times when it is intense. Periods of increasing intensity can be viewed as times when the individual can prepare him or herself for the more intense pain.

3. Individual goal setting. At this point, group participants will be assisted in formulating individual behavioral goals for the pain management program. It will be emphasized that these goals are individually tailored, and will not be the same for all group members. Questions that will be used to facilitate the generation of goals are:

    1. How would your life be different if your pain could be relieved?

    2. What would you be doing if your pain was decreased or removed, that you are not doing now?

    Goal formulation will be based on the premise that all goals must be measurable. Examples of goals include reduction of medication, less time lying down, specific tasks to accomplish, recreational activities and exercise, and improvement in social relationships. Each participant will use the following goal specification form. A round will be done to generate at least one goal for each participant. (adapted from Turner, 1979):

PAIN TREATMENT GOALS

Behavior	Current status	Moderate improvement	Most improvement possible for me
Examples:			
a. Sitting in chair	Can sit 20 minutes at a time	Able to sit 45 minutes at a time	Able to sit 2 hours at a time
b. Participation in recreational activities at TNC	Participate in activity (e.g., bingo, movies) every 2 weeks	Participate in activity once a week	Participate in activity 3 times per week
1.			
2.			
3.			
4.			
5.			

4. Review of session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be: (a) to continue the pain diary, depending on the success of this assignment in week 1, (b) to think about and develop additional goals for treatment, and (c) to take one pain experience during the week and describe what factors influenced your "pain gate" at that time.

5. Therapist checklist.

WEEK 3

FLIPCHART: Page 1. OUTLINE FOR SESSION
2-4. GATE CONTROL DIAGRAM AND FACTORS (FROM LAST SESSION)
5. DISCUSSION QUESTIONS (OPTIONAL)

1. Review of information covered in Weeks 1 and 2, and homework assignment from last session (Round and checklist).

2. Introduce skills acquisition phase of treatment. The participants' awareness of potential coping skills and their attitudes and expectancies about specific procedures will be solicited by introducing the following questions for discussion in the group (flipchart):

    1. What suggestions do you have about ways to reduce and avoid pain?

    2. Have you had any experiences where you have coped with pain other than the pain that is bothering you now (e.g., pain in a dentist's office, childbirth pain, injuries)?

    3. Since you are all in some ways "experts" on pain, what advice, if any, would you give to someone else with similar pain in order to reduce, avoid, or get through the worst moments?

    4. What kinds of things (e.g., thoughts, feelings) might get in the way of this other person effectively using your suggestions to reduce pain?

3. Relaxation training. The cue-controlled relaxation and controlled breathing approach of Turk et al. (1983) will be employed. The first step in introducing a treatment technique is to provide a rationale for its use. The relationships between tension, attention focusing, and pain will be discussed. The discussion of relaxation will include the following issues:

    a. Relaxation includes both mental and physical components. (Provide examples).

    b. How relaxation can be explained within the Gate-control model of pain (flipchart). Pain is affected negatively (gate opened) by tension, anxiety, worry, and inappropriate activity levels. Pain is affected positively (gate closed) by emotional stability, relaxation, appropriate activity levels etc.

    c. Different strategies/activities help different people to relax. Participants are asked when and how they have experienced relaxation. This discussion will be summarized by informing participants that although we all probably know some ways of relaxing, we can usually learn to relax better (deeper, easier, in more situations, etc.). Relaxation is a LEARNED SKILL.

    d. The example of relaxation being commonly taught for childbirth will be introduced for discussion. Childbirth is commonly affected by a circular pattern of Pain >> Tension >> Anxiety >> Pain. The

same is true for most types of chronic pain.

e. Why Relaxation helps to decrease pain:
   i. Muscle tension increases pain sensations
   ii. Concentrating on relaxation takes attention away from pain
   iii. Relaxation reduces the likelihood of feeling anxious or depressed - emotions that increase pain
   iv. It helps you become more aware of tension in different parts of your body
   v. It can help you to sleep better. Feeling tired tends to increase pain.

f. There are many types of relaxation procedures. We will be discussing 3 of them and you will have the opportunity to try them to see which ones help each of you to relax the best:
   i. Tensing and then relaxing various muscle groups,
   ii. Controlled breathing,
   iii. Using certain relaxing words and images.

The tension/release relaxation protocol will be presented. Prior to beginning the training, participants will told not to tense muscles in parts of their bodies where pain is frequently experienced (e.g., in the lower back for chronic back pain patients).

After the relaxation procedure, a slow deep-breathing exercise will be carried out. This controlled breathing will be taught as a cue for relaxation. It will be emphasized that the participants can learn to control their level of physical and mental tension by using the controlled breathing as a means of initiating relaxation whenever they desire. A summary sheet of relaxation procedures will be given to all participants (see next page)

4. Discussion of practising relaxation skills and incorporating into daily life. The rationale for relaxation procedures will be reviewed, and the practical aspects of daily practice (i.e., how, when, and where) will be discussed. Potential problems and doubts will be discussed from a problem-solving framework.

5. Review of session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be daily practice of relaxation skills as discussed.

6. Therapist checklist.

RELAXATION INFORMATION

The point of the relaxation exercise is to help yourself control your pain.

The three things to concentrate on in relaxing are:

1. Tensing and relaxing various muscles.
2. Slow, deep breathing.
3. Thinking about pleasant thoughts or images.

Practising once a day, for 10 or 15 minutes, is best. Practice in a quiet, comfortable place. As you get better at relaxing, you can try relaxing in more difficult situations.

Remember that RELAXATION:

1. Reduces pain caused by muscle tension.
2. Reduces pain by filling your attention.
3. Reduces pain that is influenced by anxiety.
4. Gives you something to do before, during, and after you experience pain.

PROCEDURE:

1. Sit or lie comfortably and take a relaxing position.

2. Make a tight fist with your right hand. Hold it. Then gradually let your hand relax.

3. Notice the clear difference between muscle tension and relaxation. Relax the muscles as much as you can and enjoy the feelings you have been able to create.

4. Repeat this tension-relaxation exercise with the other muscles of your body:
   a. hands
   b. arms
   c. shoulders
   d. legs
   e. other muscles that feel tense.

5. Take a slow, deep breath and hold it. Then gently and slowly exhale. Feel yourself becoming more and more relaxed.

6. Repeat the deep breathing several times while thinking about a pleasant thought or image, such as a place where you are very relaxed and happy.

Try to relax whenever you feel any tension in your body by using the deep breathing procedure.

WEEK 4

FLIPCHART: Page 1. OUTLINE FOR SESSION
2-4. GATE-CONTROL MODEL DIAGRAM AND FACTORS (FROM WK 2)

1. Review of information from last session and homework assignment. Group members' experiences with relaxation practice will be discussed, including any problems, difficulties, or concerns (Round). Homework checklists for participants.

2. Relaxation practice. The relaxation and deep breathing procedure will be rehearsed again during this session, with opportunity for discussion and problem-solving.

3. Introduction of attention controlling techniques. The importance of attention focus to the experience of pain will be reviewed based on discussions in previous sessions (i.e., gate-control model - flipchart).
Further rationale, examples, and experiential exercises will be presented, as suggested by Turk et al. (pp. 283-). Participants will be queried about any previous use of attention control strategies, and their experiences with them. Training in specific techniques will be introduced as follows:

> Although you may do some things to divert you attention already, it will probably be helpful to outline and practice several sorts of such activities. Then you will be able to pick and choose from a wider assortment and to change from one to another when you find it necessary.

4. Imagery strategies. The use of imagery strategies for pain control will be discussed within the conceptual model of pain that has been presented (gate-control model: flipchart). Further rationale for their use will be presented, along with examples. Several guided imagery experiences will be used to demonstrate, as outlined by Turk et al. (pp. 285-289; summary guidelines pp. 290-291). Participants will be encouraged to tailor these imagery techniques based on their experiences and preferences. Discussion of how these strategies can be used for daily pain control will follow.

5. Review of the session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be (a) continued daily practice of relaxation skills, and (b) practice of imagery strategies for pain control.

6. Therapist checklist.

WEEK 5

FLIPCHART: Page 1. OUTLINE FOR SESSION
2. OTHER ATTENTION-CONTROL STRATEGIES
3. SUMMARY OF ATTENTION-CONTROL STRATEGIES 1. Review of information from last session and homework assignment. Group members' experiences with relaxation and imagery practice will be discussed, including any problems, difficulties, or concerns (Round). Homework checklists.

2. Relaxation practice (Controlled breathing with participants instructed to use relaxing words/images. Muscle tension/release optional).

3. Other attention-control strategies: Mental activities that do not involve a mental picture or image. Additional attention-control strategies will be presented: (a) focusing attention outside of yourself, (b) focusing on a train of thoughts, (c) focusing on sensations in your body. Discussion will include rationales, examples, and experiential exercises.

4. Summary of attention-control strategies. The attention-control strategies that have been presented will be reviewed, and a summary sheet will be provided as a reminder and guide for homework. (See "Summing up", Turk et al. (1983), p. 292). A round can be done to begin filling in personal strategies for each participant on the summary sheets.

5. Review of the session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be (a) continued daily practice of relaxation skills, and (b) practice of attention-control strategies, and rating of their effectiveness.

6. Therapist checklist.

ATTENTION-CONTROL TECHNIQUES

Attention-control techniques help you to direct and occupy your awareness with things other than painful sensations.

The following list will be used to record your own examples that you can use for pain control:

I. IMAGERY - Involving all your senses in an imagined scene

1. A pleasant image (such as a beach scene) _____

_____

_____

2. A change of situation (such as being in a shopping mall) _____

_____

_____

II. MENTAL STRATEGIES

1. Focusing on your surroundings (such as counting ceiling tiles) ____

_____

_____

2. Focusing on your thoughts (such as doing math calculations in your head) _____

_____

_____

3. Focusing on bodily sensations (such as thinking about sensations in your hand or foot) _____

_____

_____

WEEKS 6 and 7

FLIPCHART: Page 1. OUTLINE FOR SESSION
2. 4 STAGES OF PAINFUL EVENTS
3. THOUGHTS/SELF-TALK FOR STAGE 1
4. " " " " " 2
5. " " " " " 3
6. " " " " " 4

1. Review of information from last session and homework assignment. Group members' experiences with relaxation and imagery practice will be discussed, including any problems, difficulties, or concerns. Homework checklists. Review and complete summary sheet for attention-control strategies (Round).

2. Cognitive restructuring. This phase of the training will focus on how the participants can influence their pain experiences by altering their interpretations of the sensations. The role of interpretation will be illustrated through several examples. The process of voluntary control of appraisal will then be introduced as follows:

> We have already discussed that what a person thinks about a situation and the things he or she says about what is anticipated are important. We have found that when a painful episode is divided into components or stages, people are better able to keep each part of the situation manageable and are less overwhelmed by it. Breaking the painful experience into elements and keeping it manageable can assist you in employing the various coping strategies that you have available.
>
> One way of breaking any painful event or episode into parts is to think of it in terms of four stages:
>
> 1. Preparing for the onset of pain,
> 2. Confronting and handling the sensations,
> 3. Coping with your feelings and sensations at critical moments,
> 4. Thinking about how you handled the situation and praising yourself for your efforts.

Discussion of this material will be encouraged through several queries, and the names of the stages modified as necessary to suit the participants:

> Do these four stages make sense to you? Can you think of any other ways in which the situation might be broken down? Can you imagine breaking down one of your painful situations in this way?

Several examples, both of pain and non-pain situations will be used to illustrated this conceptualization (see Turk et al., p. 297).

The four phases of a painful episode will then be examined in terms of the types of thoughts that may typically arise, and incompatible thoughts that can be used to reinterpret the pain sensations. For example, for Phase 1 - Preparation:

The first stage in a stressful or pain situation is the time before any unpleasant sensations occur, and also the time before the stress becomes very severe. This preparation stage gives you the opportunity to prepare yourself for the intense pain before it becomes too strong.

The purpose of this phase is to remind yourself that you have a problem to solve, a situation that you have to deal with. The idea is that you reject a helpless attitude and instead become determined to work at coping, to develop a plan. You may need to remind yourself of this if you find yourself feeling helpless and hopeless. Moreover, this phase is designed to make you aware of the beginning signs of the onset of your pain, so that you can begin to do something about it. It is easier to do something early than when the pain becomes very intense.

Examples of the preparation phase will then be sought from the participants' own experiences. Cognitive strategies for this phase will then be introduced (see Turk et al., p. 302 for examples):

What sorts of statements to yourself could be used to reduce your pain, could act as reminders to cope more effectively? . . . Let's consider some self-talk that you can use. We can alter the wording and add to the list so that they fit each of your individual needs. Let's consider some things you might tell yourself when you expect to feel pain.

This discussion will continue with examples of maladaptive self-statements, and alternative adaptive, coping self-statements.

The same process of examination will then be used to develop cognitive strategies for pain control at each of the other 3 phases:

Phase 2 - Confrontation (Turk et al., pp. 302-304)
Phase 3 - Critical moments (pp. 304-306), and
Phase 4 - Reflections on how one did in coping (pp. 306-308).

3. Review of the session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be (a) continued daily practice of relaxation skills and attention-control strategies, and (b) recording thoughts and feelings that precede, accompany, and follow painful episodes (THOUGHT/FEELING DIARY FORM handed out to participants for this assignment).

4. Therapist checklist.

Interpreting Pain Sensations

Instructions:

Use this form to help you think about the things you think or say to yourself when you have pain, and how you feel at these times. You can write them down or have someone help you write them if you want. An example is provided to show you how you can do this.

Pain Situation	Your Thoughts	Your Feelings
Example: I had a lot of pain in my legs when I was lying in bed at around 8 p.m.	"Here it goes again" "I'll never get to sleep" "I can't do anything about it"	A lot of pain (7-10) Angry, frustrated, helpless, scared

WEEKS 8 and 9

FLIPCHART: Page 1. OUTLINE FOR SESSION
(Pages from other sessions available for review as needed).

1. Review of information from last session and homework assignment (Round).
For the thought and feelings diary, there will be a discussion of alternative thoughts that could improve pain coping in the recorded situations. Sample situations provided by group members will be analyzed in depth to isolate the four phases of the pain experience, the thoughts and feelings that accompanied each, and possible self-statements that could be used to enhance coping. Enough time will be provided for discussion of the cognitive restructuring skills to ensure that participants understand and can carry out the process of modifying their interpretations of pain situations.
Homework checklists.

2. Review of pain coping strategies. The pain coping strategies that have been presented will be reviewed. Discussion will focus on how the various strategies can be used together to enhance coping in daily life.

3. Role playing. Role playing and behavioral rehearsal will be used to consolidate and reinforce pain coping skills. Two types of role playing will be used:

   1. Having one or more group members role play the therapist, with the therapist acting as a novice patient who has not yet begun the training. The encourages the group members to draw upon the various knowledge and skills they have learned in an integrative manner. It also provides an opportunity for the therapist to observe what aspects of the training have been most convincing and useful for the participants.

   2. Having one or more group members describe situations involving another person that contribute to or exacerbate their pain. The situations can then be role played with the therapist acting as the group member, and the group member playing the role of the "adversary". The therapist models desirable coping behaviors in the encounter, as well as adaptive coping strategies for interpreting the situation and dealing with thoughts and feelings.

4. Imagery rehearsal. Opportunity for rehearsing coping skills will also be provided through imaginal rehearsals. Participants will be asked, while relaxed, to imagine themselves in various situations where pain is experienced. Using a systematic desensitization approach, participants will be asked to create mini-hierarchies of several painful situations with increasing intensity. The graded imaginal rehearsal will then involve both mastery images and coping images. Mastery images involve patients viewing themselves successfully handling situations, without experiencing stress or pain. Coping imagery, in contrast, involves patients imagining themselves becoming anxious, beginning to experience pain, or having maladaptive thoughts,

and then coping with these difficulties, using the skills they have developed. As an example of a coping image, the therapist might say:

> See yourself coping with this stress by use of the procedures that we have practised. For example, see yourself taking a slow, deep breath, slowly filling your chest cavity. Good. Now slowly exhale. As you exhale, note the feeling of relaxation and control settling in. Good. Now stop the image and just relax.

or,

> See yourself coping with your pain. Relax. Good. Now hear yourself saying "What is the problem? What is it I have to do? Just use my plan: imagery, relaxation, and mental activity".

5. Review of the session and homework assignment. There will be a short review of the session and additional opportunity for group members to ask any questions. The homework assignment will be to practice all of the pain coping skills in vivo. Subjects will be encouraged to tackle less intense pain situations initially with their combined skills, to enhance the probability of successful coping so that the behaviors are reinforced.

6. Therapist checklist.

WEEK 10

FLIPCHART: Page 1. OUTLINE FOR SESSION.
(Pages from other sessions available for review as needed).

1. Review of homework assignment from last session (Round). A problem-solving approach will be used to analyze difficulties encountered by participants in daily pain situations. Group members will be encouraged to share ideas and recommendations with each other, to enhance their social support and reinforce their knowledge and skills base.
Homework checklist.

2. Discussion of lifestyle issues. Group members will be encouraged to discuss lifestyle issues that may facilitate or hamper efforts to change pain behaviors. The role that pain has played in their lives will be explored, and the changes that will accompany reductions in pain and associated behaviors. For example, the social attention that pain complaints can create (sympathy from others) is likely to be reduced. However, alternative sources of social attention can become available with increased mobility and activity.

3. General review and discussion. Part of this session will be allocated for discussing issues of concern to the participants. This may include review of select material from previous sessions, problem-solving of difficult situations, rehearsal of coping skills, or other issues.

4. Preparing for post-treatment. Issues relating to maintenance of knowledge and skills will be discussed. The importance of regular rehearsal of skills will be emphasized. Participants will be encouraged to think about the most difficult situations that they are likely to encounter, and how they will deal with them. They will be informed of resources within the nursing centre (e.g., behavior therapist, physiotherapists, social workers, nurses) that they can access for assistance with difficulties that arise, to obtain additional educational materials or information, or to pose questions regarding pain coping. They will also be encouraged to use each other as resources and sources of social support. The possibility of the group continuing to meet as a support group (without the therapist) may be explored.

5. Termination of group. Participants will be informed of individual sessions that will take place for assessment (post-treatment and follow-up).

6. Therapist checklist.

NAME: _____

DATE: _____

INSTRUCTIONS: BASED ON THE INFORMATION THAT HAS BEEN PROVIDED TO YOU REGARDING THE PAIN MANAGEMENT PROGRAM, PLEASE PROVIDE YOUR IMPRESSIONS IN THE FOLLOWING AREAS:

1. How logical does this type of program seem to you?

1	2	3	4	5	6	7	8	9	10
Not at all logical									Very logical

2. How confident are you that this program will be successful in helping you to cope with your pain?

1	2	3	4	5	6	7	8	9	10
Not at all confident									Very confident

3. How confident would you be in recommending this program to a friend who was experiencing chronic pain?

1	2	3	4	5	6	7	8	9	10
Not at all confident									Very confident

4. How interested are you in continuing with this program?

1	2	3	4	5	6	7	8	9	10
Not at all interested									Very interested

5. Do you think that this type of program would be successful for helping people with other types of health problems?

1	2	3	4	5	6	7	8	9	10
Not at all successful									Very successful

TOT _____

MN _____

Participant Rating Form for Pain Program

INSTRUCTIONS: BASED ON YOUR EXPERIENCE WITH THIS PAIN MANAGEMENT PROGRAM, PLEASE TELL US YOUR IMPRESSIONS IN THE FOLLOWING AREAS:

1. How logical did this type of program seem to you?

1	2	3	4	5	6	7	8	9	10
Not at all logical									Very logical

2. How confident are you that this program has been successful in helping you to cope with your pain?

1	2	3	4	5	6	7	8	9	10
Not at all confident									Very confident

3. How confident would you be in recommending this program to a friend who was experiencing chronic pain?

1	2	3	4	5	6	7	8	9	10
Not at all confident									Very confident

4. How satisfied are you that you took part in the program?

1	2	3	4	5	6	7	8	9	10
Not at all satisfied									Very satisfied

5. Do you think that this type of program would be successful for helping people with other types of health problems?

1	2	3	4	5	6	7	8	9	10
Not at all successful									Very successful

TOT _____

MN _____

Treatment Integrity Ratings

The accompanying audiocassette contains a series of randomly selected 5-minute segments from group therapy sessions. These sessions were part of a pain management program for elderly nursing home residents.

The pain program consisted of two treatment conditions:

1. **Cognitive-behavioral group therapy.** This treatment was based on a standard cognitive-behavioral pain management program from the literature (Turk, Meichenbaum & Genest, 1983). Components of the treatment included (a) education and reconceptualization of pain, (b) training in behavioral and cognitive coping skills, including progressive relaxation, imagery, and attention-control, and (c) consolidation of skills and follow-through using planning, practice, and role-playing. Participants were asked to complete weekly homework assignments to enhance development of pain coping skills. The general format of each session was (a) review of previously discussed material and homework assignments, (b) presentation and practice of new information and skills, (c) discussion of the application of new skills using a problem-solving framework, and (d) review of the session and assignments for home practice.

2. **Attention/support group therapy.** This treatment involved group therapy with minimal structure. Participants were encouraged to discuss pain experiences, coping, and any other topics of interest. Standard group exercises for the elderly (Corey & Corey, 1987) and questions on a variety of topics were introduced as a basis for discussion when needed. Examples of group exercises are sentence completion (e.g., "One thing about me that people would be surprised to know is ..."), and having participants bring favorite photographs or objects to share with the group. Topics for discussion questions included reminiscence (e.g., "What accomplishment from your life are you most proud of?"), pain and illness (e.g., "What is the worst pain you can remember experiencing?"), and current events (e.g.,"What do you think of the changes taking place in the health care system today?"). The therapist's role in this treatment was to provide empathy and support, and to encourage and moderate group discussion.

Both treatment conditions consisted of 10 weekly 1-hour sessions, and both were administered in each of two nursing home settings. The treatments were administered by two therapists. Each therapist administered both treatment conditions.

Instructions:

For each 5-minute segment, please listen to the therapist's statements and indicate below which treatment (Cognitive-behavioral or Attention/support) was being carried out. Each segment on the audiocassette is preceded by a "segment number" which corresponds to the numbers below.

Segment Number		Treatment Condition (circle one)	
SIDE A:	1	Cognitive-behavioral	Attention/ support
	2	Cognitive-behavioral	Attention/ support
	3	Cognitive-behavioral	Attention/ support
	4	Cognitive-behavioral	Attention/ support
	5	Cognitive-behavioral	Attention/ support
	6	Cognitive-behavioral	Attention/ support
	7	Cognitive-behavioral	Attention/ support
	8	Cognitive-behavioral	Attention/ support
SIDE B:	9	Cognitive-behavioral	Attention/ support
	10	Cognitive-behavioral	Attention/ support
	11	Cognitive-behavioral	Attention/ support
	12	Cognitive-behavioral	Attention/ support

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #1:

Therapist: _____

Date: _____

____ Welcomed participants and completed introductions (round)

____ Overviewed the purpose of the program and the general approach

____ Discussed therapists' expectations

____ Discussed participants' expectations

____ Briefly outlined program (plan for coming weeks)

____ Discussed possibility of setbacks/struggles and prepared participants by normalizing these experiences

____ Completed image-based pain reconstruction exercise: examined thoughts, feelings, mood, focus of attention

____ Discussed common pain myths

____ Participants completed Treatment Credibility Form

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

Notes: _____

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #2:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: topics discussed, main points

____ Reviewed homework assignment: Round (Completed homework checklist for all participants)

____ Introduced gate-control model as simple theory for understanding pain (flipchart diagram)

____ Discussed factors that open and close the "gate" (flipchart)

____ Sought personal examples from participants for each of the factors

____ Examined participants' pain experiences (from diary) in terms of how factors in each category affected these experiences

____ Emphasized distinction between acute and chronic pain in terms of how treatments/activities affect

____ Goal setting for all participants with "Pain Treatment Goals" forms

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

Notes:

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #3:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous sessions: Factors influencing pain, common misconceptions, Gate-control model of pain (flipchart), individual pain goals

____ Reviewed homework assignment: Pain diaries, additional pain goals. Did round (Completed homework checklist for all participants)

____ Introduced skills acquisition phase of treatment.

____ Discussed questions re pain coping experiences and suggestions (flipchart)

____ Discussed relaxation training: rationale and why it works

____ Introduced 3 approaches to relaxation training: tension/release, controlled breathing, imagery/suggestions

____ Discussed each relaxation approach and trained participants in how to do them (i.e., went through relaxation procedure using each of 3 strategies)

____ Cautioned participants re not tensing muscles in painful/injured areas of body

____ Provided summary sheet of relaxation procedures

____ Discussed practising relaxations skills and incorporating into daily life. Explored potential problems/hesitations

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #4:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: Began skills training phase of program, Relaxation training (rationale, 3 skills, how to incorporate into daily life)

____ Reviewed homework assignment: Daily relaxation practice. Did round (Completed homework checklist for all participants)

____ Relaxation practice (controlled breathing with relaxation suggestions). Followed by discussion and problem-solving.

____ Introduction of attention controlling techniques: rationale (gate-control model, personal experience), examples, experiential exercises.

____ Discussion of attention controlling techniques.

____ Introduction to imagery strategies: rationale (diverting attention, relaxation, gate-control model), examples, guided imagery exercises.

____ Discussion of imagery strategies.

____ Encouraged participants to develop personal images and techniques based on personal experiences and preferences.

____ Discussed practising attention-controlling and imagery skills and incorporating into daily life. Explored potential problems/hesitations.

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #5:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 2nd session of skills training phase of program. Practised relaxation. Attention-control techniques: introduction, imagery techniques.

____ Reviewed homework assignment: Daily relaxation practice and practice of imagery strategies for pain control. Did round (Completed homework checklist for all participants)

____ Relaxation practice (controlled breathing with relaxation suggestions). Followed by discussion and problem-solving.

____ Introduction to other attention-control strategies: (a) focusing attention outside of yourself, (b) focusing on a train of thoughts, and (c) focusing on sensations in your body. Rationale and examples provided.

____ Group discussion of attention-control strategies, including potential problems/hesitations.

____ Reviewed attention-control strategies and provided personal summary sheets for participants.

____ Assisted participants in starting to complete personal summary sheets.

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #6:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 3rd session of skills training phase of program. Practised relaxation. Attention-control techniques: strategies that do not involve imagery.

____ Reviewed homework assignment: Daily relaxation practice and practice of imagery strategies for pain control (summary sheets). Did round (Completed homework checklist for all participants)

____ Introduction to "Interpreting Sensations"/Cognitive strategies. Rationale and examples provided.

____ Four-stage model of painful events presented (flipchart).

____ Group discussion of 4-stage model.

____ Phase 1 (Preparing for the onset of pain): Discussed types of thoughts that typically arise and possible reinterpretations (alternate thoughts). Examples and discussion.

____ Phase 2 (Confronting and handling the sensations): Discussed types of thoughts that typically arise and possible reinterpretations (alternate thoughts). Examples and discussion.

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #7:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 4th session of skills training phase of program - Interpreting Pain Sensations. Relationship between thoughts and feelings. Four-stage model of painful events (flipchart). Negative and alternative thoughts for Phase 1 (flipchart).

____ Reviewed homework assignment: Continued relaxation practice and use of imagery strategies for pain control, and self-monitoring of thoughts accompanying painful episodes. Did round (Completed homework checklist for all participants)

____ Group discussion of thoughts/feelings relationship and 4-stage model of painful events.

____ Phase 2 (Confronting and handling the sensations): Discussed types of thoughts that typically arise and possible reinterpretations (alternate thoughts). Examples and discussion.

____ Phase 3 (Coping with feelings and sensations at critical moments): Discussed types of thoughts that typically arise and possible reinterpretations (alternate thoughts). Examples and discussion.

____ Phase 4 (Reflection/Evaluation of coping): Discussed types of thoughts that typically arise and possible reinterpretations (alternate thoughts). Examples and discussion.

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #8:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 5th session of skills training phase of program - Interpreting Pain Sensations. Relationship between thoughts and feelings. Four-stage model of painful events (flipchart). Negative and alternative thoughts for Stages 2-4 (flipchart).

____ Reviewed homework assignment: Examining thoughts & feelings associated with painful episodes, using thoughts/feelings diary form as a guide. Did round (Completed homework checklist for all participants)

____ Group discussion of alternative thoughts that could be used to enhance coping in situations from homework assignment.

____ Reviewed pain coping strategies that have been presented since beginning of the program: 1. Using your knowledge about pain, 2. Relaxation, 3. Attention-controlling techniques, 4. Interpreting pain sensations (Flipchart).

____ Introduced the application and follow-through phase of treatment: highlighting application of coping skills in patients' natural environments and the difficulties/challenges that interfere.

____ Discussed importance of issues such as communication, interpersonal conflict, stress, depression, exercise, and daily activities/routines.

____ Discussed medication issues, including med schedules, varieties of medications and relationship to pain, and the similarities/differences of natural endorphins to pain analgesics.

____ Discussed importance and sources of social support.

____ Time permitting: Role play(s) with group member acting as therapist and therapist acting as a novice patient with chronic pain.

____ Discussed formation of mini-hierarchies of pain situations (increasing intensity/discomfort) for imagery rehearsal and in vivo practice (provided example).

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

Notes: _____

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #9:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 1st session of application and follow-through phase of program. Applying coping skills in daily life, difficulties/challenges, importance of issues such as communication, conflict, stress, depression, exercise and daily activities.

____ Reviewed homework assignment: Practising pain coping skills in vivo, beginning with situations of mild pain and increasing to more severe. Did round (Completed homework checklist for all participants)

____ Group discussion of issues that affected coping in recent situations where they experienced pain (e.g., stress, depression, confidence, activity levels, conflict)

____ Role play(s) with group member acting as therapist and therapist acting as a novice patient with chronic pain.

____ Role play(s) with therapist acting as group member and group member acting as another person in a situation that tends to exacerbate their pain.

____ Imaginal rehearsals of pain coping using mini-hierarchies of pain situations. Restated distinction between coping and mastery, and importance in imagery.

____ Session (information/discussions) reviewed

____ Homework assignment presented and discussed

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Therapist Checklist

SESSION #10:

Therapist: _____

Date: _____

____ Presented outline of session (on flipchart)

____ Reviewed previous session: 2nd session of application and follow-through phase of program. Applying coping skills in daily life, difficulties/challenges, and other important issues.

____ Reviewed homework assignment: Practising pain coping skills in vivo. Did round (Completed homework checklist for all participants)

____ Discussion of lifestyle issues, including changes that can accompany improved pain coping and reduced pain behaviors.

____ General review and discussion. Participants encouraged to raise questions, concerns, and/or ideas.

____ Emphasized importance of regular rehearsal of skills.

____ Participants asked to discuss difficult pain situations they could anticipate, and group problem-solving approach applied.

____ Discussion of resources within the nursing centre to assist with pain coping and/or difficulties that arise.

____ Participants encouraged to use each other as resources and sources of social support.

____ Session (information/discussions) reviewed

____ Participants informed of individual sessions for assessment (post-treatment and follow-up). Sessions scheduled.

____ General feedback sought from participants

COGNITIVE-BEHAVIORAL PAIN MANAGEMENT PROGRAM
Homework Checklist

SESSION #7:

Therapist: _____

Date: _____

Assignment: _____

	Present?	Attempted? (self-report)	Freq. estimate	Assistance?	Helpful?
1. A.B.	___	_____	_____	_____	_____
2. L.G.	___	_____	_____	_____	_____
3. E.M.	___	_____	_____	_____	_____
4. G.S.	___	_____	_____	_____	_____
5. E.V.	___	_____	_____	_____	_____
6. V.M.	___	_____	_____	_____	_____

NOTES: _____