

**IN SEARCH OF RELIEF: SELF CARE STRATEGIES FOR CLIENTS WITH
CHRONIC PAIN**

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I dedicate this work to my husband, David, and my family, whose support has made my ongoing study possible.

Abstract

Chronic pain differs from acute pain in origin and manifestations and is often accompanied by depression and anxiety. There are considerable challenges for both the client and counsellor/psychotherapist in dealing with the issues raised by the experience of the client with chronic pain. This final project examines theories of chronic pain, describes current research into the use of cognitive behavioural therapy for clients with chronic pain, and highlights the current research into the use of mindfulness-based and acceptance-based cognitive behavioural therapies for chronic pain by means of a comprehensive literature review. This project also involves producing psycho-educational material in the form of a proposed manual for clients detailing strategies that can be implemented while waiting for a group therapy program. Evidence suggests a wide applicability of “third wave” psychotherapies such as dialectical behaviour therapy, and mindfulness- and acceptance-based therapies for clients with chronic pain. Applicable strategies include breathing, mindfulness and meditation techniques, sleep hygiene and nutritional guidance, suggestions for exercise, emotion regulation techniques, and assertive communication. The intent of this project is to examine current psychotherapeutic approaches to pain relief and to distil the results of research into a future manual of proven strategies for clients to be used prior to, or concurrently with, formal therapy. Implementation of these preliminary strategies will raise awareness, facilitate skill development and enhance self-management in order to minimize the impact of pain on the client’s life and family, improve the therapeutic experience, and to alleviate the burden on society and the health care system.

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Chapter 1: Introduction

Chronic pain is often one of the most formidable enemies for the individual seeking counselling in the field of health psychology. The continual nature of the pain, the resultant fatigue, and physical disability combine to produce anger, frustration, and depression in the client (Eccleston, 2001; Morley, 2008). It can be a similarly frustrating experience for the counsellor as the search for relief becomes a preoccupation for the client, such that all areas of life are touched by the experience of pain. The client's search for pain relief has been compared to the quest for the Holy Grail – in medieval legend this was the plate used by Jesus at the Last Supper and the object of many searches. As such, it has come to symbolize persistent and often fruitless quests (Maes & Boersma, 2004; Oxford, 1989). Relief from pain is always just beyond reach, and each failure to find relief damages the patient psychologically and emotionally (depression and anxiety) and encourages the development of inappropriate behaviours such as disordered eating and substance abuse (McCracken, 2006). As a result of increased use of narcotic pain relievers, the situation in Ontario has been described as a public health crisis in which Ontarians are amongst the highest users in the world of prescription medications containing narcotics. The number of prescriptions for oxycodone drugs in this province rose 900 per cent between 1991 and 2001 resulting in specific provincial guidelines regulating the prescription and use of these medications (Gardner, 2010). These facts make the provision of alternative and complementary treatment for the clients with chronic pain especially relevant in the southern Ontario context.

Growing in tandem with the increased use of opioid (narcotic) pain medication has been the realization that these medications often do not provide continued relief. Side

effects and withdrawal effects can be dramatic and unpleasant. Ballantyne and Mao (2003) listed the side effects of opioid analgesics as including: acid reflux, constipation, insomnia, sleep apnea, reduced effectiveness of the immune system, changes in hormone balance, fluid retention in limbs, constant sleepiness without being able to sleep, and lack of energy. These side effects might outweigh the benefits of temporary relief from pain.

Many pain clinics in Ontario offer cognitive behavioural therapies (CBT) as an adjunct to medical treatment for chronic pain. These programs are over-subscribed and the waiting list is often over a year (Vernon & Brathwaite, 2009). In addition, the use of psychotherapy in the treatment of chronic pain is often relegated to the end of treatment by medication or surgery. As a result, the client feels as if this is the “wastebasket” into which they are thrown as a last resort when every other avenue has been exhausted. Long waiting periods for psychotherapy compound this problem and the client eventually enters therapy in a discouraged, and possibly despondent state (McCracken, 2006). It is evident that assistance is required for those who are awaiting psychotherapy, hence the need has arisen to outline strategies for clients with chronic pain to use while awaiting formal programs of intervention.

This comprehensive literature review will examine definitions of chronic pain, theories of chronic pain, the relevant literature on current approaches for dealing with pain, the current research into the use of cognitive behavioural therapy for clients with chronic pain, and the future direction of research. The comprehensive literature review will also highlight the current research into the use of mindfulness-based and acceptance-based cognitive behavioural therapies for clients with chronic pain. The central aim of this final project is to assist clients dealing with chronic pain to understand the

psychotherapeutic principles and implement self care strategies into their daily regimen while waiting for inclusion in a structured psychotherapy program. Possible interventions with clients in chronic pain will be discussed as well as strategies to incorporate into counselling settings. These interventions will be summarized in a projected manual offering self care strategies for the client with chronic pain to implement while waiting for psychotherapy. These strategies include breathing, mindfulness and meditation techniques, sleep and nutritional guidance, suggestions for exercise, emotion regulation techniques and assertive communication.

The intention of the provision of a preliminary manual to this client population is to familiarize the client with the therapeutic principles underlying cognitive behavioural interventions and to give each client practice in the specific techniques of cognitive therapies prior to inclusion in a formal therapeutic situation. Along with the growth of a knowledge base and first-hand practice with technique, the proposed manual is intended to motivate the client to practice better self care and to develop autonomy and take ownership of their personal situation vis-à-vis their chronic pain. In addition, it is intended to offer the client hope, which has been shown to be an intrinsic factor in psychological and physiological recovery.

My personal interest in the issues of chronic pain and improved self care for those clients with chronic pain began when my oldest son was diagnosed with syringomyelia in 2005. Syringomyelia is a progressively disabling condition in which pockets filled with cerebrospinal fluid (syrinxes) form within the spinal cord. These pockets increase pressure within the spinal cord itself and result in neuropathic and muscle pain from the nerves radiating into the surrounding muscle tissue. The condition also results in

disturbances in sensation in the limbs and extremities. My son's condition was difficult to diagnose for several years until finally an MRI was done outside Ontario. After visiting practitioners from different disciplines (a neurosurgeon, a neurologist, two different pain clinics, an osteopath, a chiropractor, and a massage therapist), the condition was treated initially with opioid pain medication. This route of medical treatment had the side effects of an addiction to opioids and hyperalgesia (increasing pain due to the formation of more pain receptors in response to medication use).

In 2000, I had joined a network of professional and lay people to assist members of the small religious group to which I belong with practical living issues. I was asked to join the steering committee and to take over the day-to-day operation of a crisis support line and to assist in training call-takers. This also prompted my interest in chronic pain issues as I was confronted with these more frequently on the crisis line and needed an expanded skill set. In 2010, I was able to present a symposium on chronic pain to the call-takers using the services of several individuals with chronic pain who agreed to relate their own personal experiences and search for relief. As a result, this workshop has expanded to a wider audience in 2011-2012. In addition, my practicum experience at the Centre for Addictions and Mental Health reinforced my belief that the issues of chronic pain have wide ramifications throughout an individual's life and relationships, as I encountered many clients for whom chronic pain was a longstanding issue and one which had driven them to seek relief through substance use. Through peer review discussion and team conferences this perspective was reinforced, and the issue of resources available for these clients became a vital one in our day-to-day work experience.

My own personal perspective in psychotherapy is primarily an existential one in which the counsellor, according with van Deurzen (2002), is:

scrupulously responding to the client from a position of acting as a catalyst for transformation and clarification. The process is one of reminding the client how to conduct her own investigation into her mode of living, thus bringing her back to herself and her own conscience. (p.96)

I bring a biopsychosocial perspective to the issues of chronic pain (McGonigal, 2009). I see the individual as suffering from mortality, frailty and illness as part of human nature as well as being influenced adversely by biological, psychological and social factors. These adverse influences are similarly manifest in physiological, mental, emotional, and societal ways. An existential perspective, in my opinion, helps the client to experience increased satisfaction with life in order to improve physiological and psychological function. For myself, and for the client dealing with issues of chronic pain, the words of existential therapist Clemmon E. Vontress resonate: “When you confront the painful realities of life, you can transcend them and find greater happiness than when you deny them” (Epp, 1998, p.3).

My practicum experience at the Centre for Addictions and Mental Health also exposed me to the use of cognitive behavioural therapy and dialectical behaviour therapy in both a group and individual setting. Along with the demonstration by my co-leaders of cognitive and dialectical behaviour therapy skills in a group setting, I was able to avail myself of the research base at the Centre for Addictions and Mental Health, which detailed the rationale for using these therapies with this particular population of individuals with concurrent eating disorders and substance use issues. In addition, I was

exposed to motivational interviewing techniques which can help a client move between stages of change (Miller & Rollnick, 2002; Prochaska & DiClemente, 1992).

In the pursuit of further knowledge about the role of psychotherapy in the treatment of chronic pain, I have taken three workshops, two based on Compassion Focused Therapy (CFT) for victims of severe trauma, led by Drs. Paul Gilbert and Deborah Lee, and one on Self Regulation Therapy (SRT) led by Drs. Zettl and Josephs. Both workshops added to my knowledge of the sympathetic, parasympathetic and autonomic nervous systems and gave me tools to use in working with a client who has concurrent issues of past trauma and ongoing chronic pain.

Of necessity, the perspective of this final project is that of a western worldview in Canada. The author resides in southern Ontario, in an economically depressed rural area where issues of substance use are endemic. My husband operates a large rural dental practice and frequently encounters clients with substance use issues. Although the research accessed was of an international nature, it is limited primarily to European and North American journals. My experience at the Centre for Addictions and Mental Health enabled me to see a wide cross-section of metropolitan society represented in the clinic, but I recognize that these services are inaccessible for many individuals. Rural areas throughout Canada are traditionally limited by inaccessibility and funding (Barbapoulos, 2003) as my own experience has borne out. However, I believe that although my perspective is necessarily limited by location, research and experience, that the applicability of the approach might be rather more widespread than initially suspected. Chronic pain knows no bounds of ethnicity, geographic or cultural region, and the

material presented, though perhaps needing slight adjustments for particular geographic areas or ethnic groups, will have some aspects that are helpful to all.

The proposed client manual that is described in chapter 5 of this final project is intended for the use of clients and therapists prior to the implementation of formal therapy in either an individual or group setting and in tandem with treatment at a pain clinic. As stated previously, the aim of the client manual is to raise the client's level of awareness and knowledge regarding chronic pain issues, to facilitate skill development and enhance self-management in order to minimize the impact of pain on the everyday life of the client and the client's family and friends. This process in turn will improve the therapeutic experience for the client, and, by the use of a multidisciplinary approach, alleviate the burden on society and the health care system.

The chapters within this project follow a progression from this introductory chapter. Chapter 2: Project Development will detail the methods followed in this project and literature review and the limitations of research. Chapter 3: Literature Review will include the literature review comprising an overview of chronic pain with definitions and a brief history of the theories of pain perception. The effects of chronic pain will be discussed and current approaches for dealing with chronic pain outlined. The emphasis in the literature review will be on the use of cognitive behavioural interventions for clients with chronic pain. This approach has been widely documented to be beneficial and the evidence is reviewed from several meta-analyses of randomized controlled trials of cognitive behavioural interventions for clients with chronic pain and from evidence with specific populations. Additionally, future directions based on the research presented will be briefly summarized.

Chapter 4: Possible Interventions and Strategies for Use with Clients with Chronic Pain will detail possible interventions and strategies for the therapist to use with clients with chronic pain. Several “third-wave” cognitive behavioural interventions will be examined which include, acceptance and commitment therapy, self-regulation therapy, and mindfulness based chronic pain management. Advances in neuroscience, such as the concept of neuroplasticity and its relevance for the client with chronic pain, will be briefly referred to. Finally, the rationale for a client manual specifically for clients with chronic pain will be set out.

Chapter 5: The Client Manual will comprise a description of the future client manual itself. This outline of the client manual is completely contained within chapter 5 of this final project and will eventually be expanded and used individually as a separate manual. In other words, it is a self-contained section of the project that can be removed for use on its own. The proposed client manual will set out a rationale for self care, and outline various self care techniques that the client can implement at home and on their own. These self care techniques include breathing techniques, mindfulness and meditation techniques, sleep hygiene suggestions, nutritional guidance, exercise recommendations and suggestions for emotion regulation and assertive communication techniques. A list of references pertinent to the client manual will follow the self care techniques. The proposed manual is intended to be used by therapists and clients prior to beginning a formal psychotherapeutic intervention by means of a structured program. Separate publication of the manual will allow its distribution to therapists and pain clinics throughout southern Ontario. I intend to expand this material with motivational interviewing techniques and then to publish this manual myself and to print and distribute

it as required. It is hoped that the first manual might be followed by a more extensive review of possible strategies for dealing with the thoughts and emotions associated with the experience of chronic pain.

Chapter 6: Conclusion will offer a conclusion to the project and summarize the results of the literature search and the relevance of these findings for the provision of the proposed client manual. A detailed reference list pertinent to all of the previous chapters will be provided at the end of the project.

Chapter Summary

This introductory chapter has outlined the pervasive nature of chronic pain, and raised concerns about the increasing use of opioid analgesics in Ontario and their deleterious side effects. The provision of cognitive behavioural psychotherapy by pain clinics in Ontario was discussed and some of the disadvantages of waiting for psychotherapy explained. The nature and purpose of the comprehensive literature review was detailed and the central aim of this project – to provide self care strategies for clients with chronic pain while waiting for psychotherapy – was outlined.

My personal stake because of my son's diagnosis in the investigation of self care strategies for the client with chronic pain and my background in crisis counselling and concurrent disorders was elucidated in this introductory chapter. As well, I have given some background on my personal perspective in psychotherapy and the biopsychosocial vantage point from which I come to discuss the issues facing the client with chronic pain. My experience at the Centre for Addictions and Mental Health along with several continuing education workshops was added. In addition, I have described the necessary

limitation of my perspective to that of a western worldview because of my location and the availability of research.

This chapter also described the intention and potential benefits of the proposed client manual, the description of which is contained in chapter 5. The subsequent chapters in the project were outlined and a brief description of the contents of each chapter was given. The concluding chapter, reference lists and appendix were also outlined.

The next chapter, Project Development, provides details of the methods used, sources, limitations and constraints of this final project. The main research question and other areas of discussion will also be presented.

Chapter 2: Project Development

This chapter on Project Development provides details on the methods, including literature sources, limitations and constraints of the research and the researcher. The main research question will also be presented and the areas to be discussed in relation to the main research question will be outlined.

Methods

This project was conducted on the basis of critical review and integration of literature from a wide range of sources. These sources include research journals, articles, authoritative books grounded in research findings and books written by individuals with related life experience. Most of the literature was selected based on its date of publication, although some articles were added for the sake of historical context (the development of theories of pain). Some literature was included because it added a wider perspective to the application of psychological theory (the application of cognitive behavioural therapy interventions to elderly clients facing issues of chronic pain). A systematic search strategy was used to search electronic databases through the University of Lethbridge library system for relevant sources.

Research Databases

Much of the literature for this project is from peer-reviewed journals in the fields of alternative medicine, medicine, psychiatry, and psychology that were found in academic on-line databases. These databases mainly consisted of: PsycInfo, Psychology and Behavioural Sciences Collection, MedLine and Google Scholar, although a general search of all databases was conducted at one point. Search terms used included *pain management, chronic pain, CBT and chronic pain, research on use of CBT, mindfulness-*

based chronic pain management (MBCPM), meditation, yoga, and compassion-focused therapy (CFT), and acceptance and commitment therapy (ACT) for pain. This preliminary search was followed by a search for specific peer reviewed sources based on the references in the articles retrieved through the electronic searches. This literature was later located through an electronic search and either saved electronically or in print. When selecting the peer review sources there was specific emphasis on the implementation of psychotherapeutic principles and techniques for the client with chronic pain.

Research Limitations and Constraints

As in all research endeavours, this project has inherent limitations and constraints (Leedy & Ormrod, 2005). One such limitation is the restriction of available literature to a particular field, for example, much of the literature on the psychology of pain is available in a medical journal rather than a journal of psychology. Another limitation is the availability of the results of randomized controlled trials (considered the gold standard of psychological enquiry) compared to the availability of longitudinal studies from practice. In general, it is assumed that the knowledge derived from a randomized controlled trial will be borne out empirically in professional practice.

Researcher Declaration

Each researcher brings their personal attitude, biases, beliefs, values, privilege, ethnicity and heritage to bear upon the project in hand. In this regard, I have a vested interest in finding appropriate self care strategies for clients dealing with chronic pain as this issue impacts my family particularly. In addition, I have a professional interest in this field as I have encountered many clients struggling with these issues. In my opinion, my

subjectivity as a researcher is not handicapped by these interests, rather it has served to fuel my desire to find which strategies might be the most beneficial to clients and has helped me to advocate for client inclusion in therapeutic programmes.

The initial draft of this proposed client manual has been submitted for review to psychotherapists, a social worker, nurse, chiropractor, dentist, exercise therapist and massage therapist. The selection of this group of reviewers was based on professional expertise, the applicability of material to their practice, proximity (and therefore ease of providing the manuscript for review and incorporating feedback), and availability. Consent was obtained in all cases prior to providing the reviewers with the manuscript. Feedback was requested within a two week time frame to enable suggestions to be incorporated. Their revisions and suggestions have been incorporated into the manual. In addition, four clients from the Wasser Pain Clinic and the Centre for Pain Management were recruited to read the manual for readability and user-friendly language.

Language, Terms, and Abbreviations

Throughout this project, the term *client* has been used instead of the term *patient* to avoid the medicalisation of a chronic pain condition that is being addressed from a psychological perspective (Lyons & Chamberlain, 2008). This is the case even when citing medical journals that refer to individuals as *patients*. In addition, the individual is referred to as a *person or client with chronic pain* rather than as *the chronic pain person* or *chronic pain client*. The reasoning behind this is taken from Lyons and Chamberlain's emphasis on separating the individual from their diagnosis, and not identifying the person by their diagnosis.

The use of abbreviations within this project has followed the standard practice of the 6th edition of the Publication Manual of the American Psychological Association (APA, 5th ed. 2010). The abbreviation is provided in parentheses after the first use of the term.

Main Research Question, Guiding Topics, and Questions

Guiding this project on *In Search of Relief: Self care Strategies for Clients with Chronic Pain* is the main research question: “What self care strategies are best suited for clients with chronic pain to prepare them for later psychological intervention, give them a measure of control over their life, and relieve the continual discomfort to which they are subjected?” To address this question, each subsequent chapter focuses on different aspects of interventions for a client with chronic pain. The third chapter will give an overview of chronic pain, define the terms and set out theories of pain as well as detail the effects of chronic pain. The literature on current approaches for dealing with chronic pain will be explored and research into the efficacy of cognitive behavioural approaches will be reviewed. Future directions for research from the literature review will be summarized in this chapter. The fourth chapter will suggest some possible interventions and strategies for use with clients with chronic pain based on the research evaluated in chapter three, namely, “third wave” offshoots of cognitive behavioural approaches (Hayes, 2004) such as acceptance and mindfulness based interventions as well as neurobiological approaches such as self regulation therapy (Zettl & Josephs, 2008). Advances in neuroscience are briefly mentioned and the rationale for a client manual developed along with specific research evidence for the applicability of various self care strategies. The description of the future client manual in chapter 5 then sets out the

various self care strategies in user-friendly language for the client to implement on a day-to-day basis.

Chapter Summary

This chapter on Project Development focused on describing the research methods used with details about the selection of literature, research limitations and selection of terms for minimizing negative connotations (*client vs. patient* and *client with chronic pain vs. chronic pain client*). Included in this chapter was an outline of the review process undertaken by this researcher and the selection process that was employed to find reviewers.

This chapter concluded by introducing the main research question: “What self care strategies are best suited for clients with chronic pain to prepare them for later psychological intervention, give them a measure of control over their life, and relieve the continual discomfort to which they are subjected?” Also presented were the main topics and guiding questions for the remaining chapters.

The next chapter, Literature Review, begins with a guiding question for exploring the theories of chronic pain and increasing understanding of the effects of chronic pain as well as reviewing current approaches to the treatment of chronic pain and the research evidence for the use of cognitive behavioural approaches to dealing with chronic pain.

Chapter 3: Literature Review on Treatment of Chronic Pain

As with each subsequent chapter, this one on Literature Review on Treatment of Chronic Pain begins with a guiding question for exploring a topic relevant to the main research question: “What self care strategies are best suited for clients with chronic pain to prepare them for later psychological intervention, give them a measure of control over their life, and relieve the continual discomfort to which they are subjected?” In this chapter, the definitions of chronic pain are presented along with a description of the effects of chronic pain with the following question: “What are the current treatments available for chronic pain?”

For counsellors seeking to increase their understanding of chronic pain, this chapter presents research on the use and efficacy of cognitive behavioural interventions for chronic pain. Also included is a literature review of current treatments for chronic pain, the use of cognitive behavioural interventions with other population groups with chronic pain, and future directions from research. Finally, the use of homework assignments for clients with chronic pain is discussed as well as other challenges to delivery of programs.

Overview of Chronic Pain

Definition of chronic pain. Pain has been defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (IASP, 1994). Pain can be categorized as *acute* (short-lived and resolving itself over time) or *chronic*. Pain that continues for more than three months despite treatment and efforts at coping by the individual can be considered chronic (IASP, 1994). The experience of chronic pain has been described as a “learned overprotective mind-body response” (McGonigal, 2009, p.13). In other words, the body,

based on prior experience, is now working in conjunction with the mind in an effort to protect itself from the experience of further pain. The memory of previous pain experiences has produced sensitization of the brain and nervous system which results in exaggerated perception of threat. In addition, the brain becomes more adept through practice at detecting threat and producing a response (McGonigal). This pain is not, therefore, only associated with tissue damage. Chronic pain is a complex bio-psychosocial phenomenon in which the individual is faced with constant, often, unremitting, pain that will not go away (Thorn, 2004). Eccleston (2001) posited that for all clients in chronic pain, the psychosocial context is the largest influence in predicting the extent of pain-associated disability. In this respect, understanding the role of these psychological factors becomes essential when dealing with this type of client background. These factors are central to the experience of pain and the development of pain-related behaviours.

Theories of pain. Early theories of pain followed a mechanistic and behavioural model which did not allow for psychological or social factors (Lyons & Chamberlain, 2006). These theories suggested that a specific pain system existed which carried messages to the brain from pain receptors. Thus pain was a response to specific stimuli and reinforced the idea that the body operated as a machine. The influence of these early theories was identified by Eccleston (2001) and Johnson and Kazantzis (2004) as simplistic and deterministic. Melzack and Wall's (1965) Gate Control Theory was developed to account for the role of the mind and brain in pain perception and was the first theory to propose that pain could be influenced by psychological variables (Otis, 2007). This theory suggests that other stimuli can modify the nerve impulses to the brain

sent from sensory neurons by means of a gate mechanism located in the dorsal horn of the spinal cord (Otis). However, this theory still relied on a physiological base without integrating other factors such as cognitions, emotions and the specific client context in which they lived.

Fordyce et al. (1968) followed by Fordyce (1976) enunciated a behavioural perspective for understanding chronic pain (cited in Johnson & Kazantzis, 2004). Thus the early interventions for chronic pain were behavioural in nature following the behavioural emphasis on the role of the environment (Thorn, 2004). The client then became jointly responsible with the clinician for the management of pain. There was also a growing recognition in the 1970s that the extent of complaint and disability of many clients could not be explained by physical damage or disease. Pain in itself, according to Eccleston (2001), is not a reliable indicator of the extent of tissue damage, and conversely, tissue damage is not a reliable indicator of the extent of pain. This has resulted in the present description of pain by health psychologists as *biopsychosocial* in nature (Lyons & Chamberlain, 2006).

Effects of chronic pain. Morley (2008) described the psychological aspects of pain, especially chronic pain, as interrupting activity and arresting behaviour. Morley stated that pain is usually a reliable sign of damage and of the extent of damage, but that this is not the case with chronic pain. He also noted that chronic pain is associated with high levels of emotional distress, particularly depression and anxiety. Depression is brought about by the reaction to chronic pain rather than the pain itself. This author described the impact of chronic pain as the repeated interference with essential life tasks that prevents goal accomplishment and impacts the sense of self and future (Morley).

Surgical and pharmacological interventions that control pain intensity often do not mitigate the capacity of pain for interference on activity and identity (Morley, 2008). Morley further described pain as a threat to identity in which the natural processes of the lifespan are disrupted and a sense of loss prevails. He described this experience as dislocation, disruption and decline, and a sense of alienation from the body. Entrapment of the self, emotional distress, and greater potential for depression were demonstrated as the magnitude of the discrepancy between the actual-self and the ideal-self widened. Clients who pursued pain relief were often faced with failure, which increased the feelings of frustration and distress (Morley).

Fear of pain can result in an avoidance of any activity which might induce pain. The fear avoidance model (Eccleston, 2001) shows that the relationship between the experience of pain and behavioural activity is mediated by the expectation of harm and anticipation of catastrophe. Fear as a primary component of pain also urges analgesic behaviour (Eccleston). Attention is focused on the source of pain and the potential for escape and/or pain relief. Where the threat of pain is constant, a vigilance pattern can develop so that patients who are attentive to pain also report higher pain intensity, increased use of health care and greater emotional distress. This pattern of vigilance can result in anxiety and poor concentration on the part of the client with chronic pain (Eccleston).

Unruh (1996) reviewed 105 epidemiological studies of common recurrent pains for women and men and an additional 13 population studies of menstrual pain. Unruh discussed the gender variations in prevalence of pain, severity, frequency, and duration. This author stated that in most studies women are more likely to experience a variety of

recurrent pains than men, and that they report more severe levels of pain, more frequent pain, and more long lasting pain than men. Unlike men, women have non-pathological pain from biological factors such as menstrual pain, pregnancy and childbirth. Women, on the other hand, are more likely to address pain aggressively by seeking health care and engaging in health-related behaviours, but, at the same time, are usually given less strong medication than men and less surgical interventions. However, women are also at greater risk of their pain being labelled as purely psychological (and therefore, unreal) by healthcare providers. Morley (2008) also noted the positive relationship between spouse solicitousness and increased pain. He commented that when concerned partners drew attention to the pain experienced by clients that this solicitousness seemed to be related to the client feeling increased levels of pain. Earlier research by Romano et al. (1995) used a direct observational study to confirm similar previous self-report evidence that solicitous spousal interactions can impact chronic pain.

Catastrophizing on the part of clients in chronic pain also results in more negative thoughts, more distress, and higher pain intensity (Eccleston, 2001). This author also cites chronic low affect, persistent feelings of frustration and anger, and negative or destructive self-appraisal as side-effects. Anger is also relatively common in clients with chronic pain and is associated with global frustration, hostility, feelings of aggression, and self-blame. This can be a means by which clients attempt to regain self-control or self-esteem. Eccleston also noted other side effects such as sleeplessness, fatigue, interpersonal isolation, and over-reliance on social and medical support. In addition, phobic responses are often present such as fear of social interaction, or leaving secure environments, fear of blood, illness, and death. Chronic pain also leaves its mark upon cognition with clients

complaining of poor concentration, memory, and increased failure to complete cognitive tasks (Eccleston; Apkarian et al., 2004).

Current Psychotherapeutic Approaches for Dealing with Chronic Pain

As previously discussed in the Introduction, the alarming rise in the use of opioid medication for pain relief in Ontario has been a cause for discussion at a provincial medical association level and across several disciplines (Gardner, 2010). The side effects and potential for withdrawal effects of opioid treatment were also discussed as well as the possibility of opioid induced hyperalgesia, the extreme sensitivity to painful stimuli caused when the body's pain threshold is lowered in response to the administration of opioid analgesic medication. Other approaches such as cognitive and behavioural psychotherapeutic techniques have therefore been suggested as alternative ways to treat chronic pain.

Cognitive Behavioural Approaches for Dealing with Chronic Pain

Johnson and Kazantzis (2004) noted that cognitive and behavioural techniques for the treatment of pain have been used for some 30 years. Cognitive behavioural therapy (CBT) is a generic term that includes a range of cognitive and behavioural techniques (Keefe, 1996). Eccleston (2001) defined CBT as “a compound term for the selected combination and integration of treatments aimed at reducing or extinguishing the influence of the factors that maintain patients' maladaptive behaviours, beliefs, and patterns of thought” (p.149). The use of CBT for pain management is based on a cognitive behavioural model of pain which defines pain as a complex experience influenced not only by the underlying pathophysiology, but also by the individual client's cognitions, affect, and behaviour (Keefe). The CBT perspective is predicated on the

following assumptions, (a) clients are active processors of information rather than passive reactors, (b) thoughts and beliefs can elicit and influence mood, affect physiological processes, have social consequences and serve as an impetus for behaviour (conversely, mood, physiology, environmental factors, and behaviour can influence the nature and content of thought processes), (c) behaviour is determined by both the individual and environmental factors, (d) clients can learn more adaptive ways of thinking, feeling, and behaving, and (e) clients are active, collaborative agents in changing their thoughts, feelings, behaviour and physiology (Sluka & Turk, 2009).

Eccleston (2001) identified seven key factors that should be addressed in the CBT program when dealing with effective pain management: direct reinforcement of pain behaviours; indirect reinforcement of pain behaviours; positive reinforcement of well behaviour; physical fitness and function; cognitive reframing; education and empowerment; and critical process factors. These factors are further elucidated by Eccleston as follows: (1) Direct positive reinforcement of pain behaviours – this process consists of identifying overt pain behaviours (tone, content of speech, gait, posture, facial expression, and use of medical aids). These behaviours communicate pain to others and often have a detrimental effect on the client. The CBT environment seeks to be sensitive to these factors and to minimize their effects on the client and on others. In contrast to direct pain behaviours, the CBT program aims to replace avoidance behaviour, which reinforces pain and disability with (2) indirect positive reinforcement of pain behaviours – this process consists of encouraging clients to behave time-contingently rather than symptom-contingently by planning for achievable goals rather than doing more when one feels good and less when one feels worse. There is often a lack of positive reinforcement

for healthy behaviours in treatment as medical personnel and family members respond to problems and need. Therefore, an essential component of CBT for chronic pain would be (3) positive reinforcement of well behaviour - well and healthy behaviours are reinforced rather than attending to problems and need. Clients struggling with chronic pain issues often become sedentary and lose normal sensations of physical stress and strain. In this situation, they will interpret symptoms related to physical disuse as painful and harming to their body. A further aim of CBT is, therefore, to (4) increase physical fitness and function. Increasing general physical fitness reduces fatigue and fatigue related somatic symptoms that can be thought to be pain-related. Setting and achieving personal fitness goals can be a first step in positive reinforcement and self-reinforcement. One of the underpinnings of CBT is (5) cognitive reframing. This consists of identifying, testing the reality and challenging self-defeating thoughts so that understanding develops of the effects of feelings upon thoughts and vice versa. This process gives the client a meta-perspective from which to analyse their thoughts and feelings. Proving a rationale for treatment to the client is necessary in (6) education and empowerment. The client needs education along with understanding the role of self-management. Knowledge can be provided about the causes and consequences of chronic pain, managing doctor-patient communications, anatomy and biomechanics, social interaction, and sleep hygiene. Finally, there are (7) critical process factors which need to be addressed such as clear direction for the delivery team, greater experience with, and specific training for CBT, regular supervision, and maintenance of consistency in the delivery of the program.

The CBT perspective would be in complete agreement with Kabat-Zinn's (1990) mindfulness-based approach which would also include the teaching and use of

communication skills, improved problem identification and problem solving, anger management, stress reduction, and the development of a self-relaxation response (Eccleston, 2001; Kabat-Zinn, 1990). Providing a credible rationale for treatment to the client is essential as is the direct, consistent training and supervision of the delivery team. Maintenance of change processes is vital to the success of this program. Typically this CBT intervention is carried out in small group sessions of 4-8 clients held weekly for 8-10 weeks (Thorn, 2004). In summary, the traditional cognitive behavioural approach consists first of recognizing pain sensations and related negative thoughts, and then trying to eliminate the thoughts through a selected combination of interventions such as identifying cognitive distortions and cognitive restructuring while emphasizing healthy behaviours (Eccleston).

Research on efficacy of CBT with chronic pain. In this section, the strengths and limitations of the research will be examined as well as an outline given of the methods utilized in the studies. Firstly, a meta-analysis (Morley, Eccleston, & Williams, 1999) was used for this project. This meta-analysis covered 25 randomized controlled trials of CBT use with chronic pain published in full in peer-reviewed journals from 1974 to 1996. This study gave a broad base to a review of the research that has been developed over the past thirty years.

Secondly, a research study on the clinical effectiveness of CBT provided practice-based evidence for the use of CBT (Morley, Williams & Hussein, 2008). Thirdly, in order to investigate the use of CBT with various populations, especially those populations that might be more difficult to treat such as the elderly, and HIV-positive individuals, several recent studies on the use of CBT and chronic pain were used. These comprise studies on

CBT and chronic pain in elderly persons (Beissner et al., 2009; Lunde et al., 2009); CBT for the treatment of fibromyalgia syndrome (Falcao et al., 2008); CBT with hypnosis for the treatment of fibromyalgia (Castel et al., 2009); and CBT for HIV-positive patients with chronic pain (Cucciare et al., 2009).

Meta-analysis of randomized controlled trials for CBT and chronic pain.

Morley et al. (1999) conducted a review and meta-analysis of 25 quantitative randomized controlled trials in which researchers compared the effectiveness of CBT with waiting list and alternative treatment control conditions. The overall aims of therapy were to reduce pain experience, improve coping, and reduce behavioural expressions of pain. Including all 25 trials, there were 1672 participants whose average age was $M=48.35$ and the mean chronicity of the samples was 12.27 years. The authors compiled a list of all outcome measures (221) and sought information about the reliability of each measure. Measures of test stability (test-retest) were used as the reliability estimate, and, if this was not available, measures of internal consistency (Cronbach's alpha), or inter-rater reliability (Kappa) were used. Variability was controlled by correcting for unreliability in the measures and grouping the measures into reliably defined domains. Using meta-analysis methods which were detailed in the study, the effect size and confidence level were established. Although each of the studies had multiple subjective measures (e.g. pain experience; mood/affect; cognitive-coping and appraisal; pain behaviour; social role performance; biological and physical fitness measures; use of health care services) and more than one treatment arm, it was possible to hypothesize that treatment outcomes would be differentially effective across different measurement domains, and to substantiate this by conducting separate analyses of several domains of measurement.

When compared with waiting list conditions, CBT was associated with significant effect sizes for all domains of measurement (median effect size across domains = 0.5). In comparison with alternative treatments, CBT produced significantly greater changes for the domains of pain experience, cognitive coping and appraisal (positive coping measures), and reduced behavioural expression of pain. These authors cited previous meta-analyses of CBT for chronic pain (with uncontrolled studies) that found the largest effect sizes for treatment in outcome measures of mood, behaviour and pain ratings, with smaller effect sizes for drug and healthcare use. Flor (cited in Morley et al., 1999) stated that:

overall the results of [his meta-analysis] provide support for the conclusion that multidisciplinary pain clinics are efficacious. Even at long-term follow up, patients who are treated in such a setting are functioning better than 75% of a sample that is either untreated or has been treated by conventional, unimodal treatment approaches. (p.2)

Morley et al. (1999) concluded that active psychological treatments based on CBT principles (including behaviour therapy and biofeedback) are effective relative to waiting list control conditions. The cognitive treatments were significantly superior to wait list controls on all domains except the expression of pain behaviour with a weighted grand mean effect size of 0.46. CBT showed significant effect on pain experience, mood/affect, cognitive coping and appraisal (reduction of negative coping and increase in positive coping), pain behaviour, activity level, and social role function. Although methodological issues were raised to be considered in future trials, and no data were reported for the long term effectiveness of treatment, published randomized controlled trials have contributed

valuable evidence for the effectiveness of using CBT for clients with chronic pain. Maintenance of gains has also been reported by Keefe (1996) to be up to 12 months following CBT therapy for chronic pain.

Research study on the clinical effectiveness of CBT in practice settings. Morley et al. (2008) provided empirical practice-based evidence for CBT programs for clients with chronic pain in routine clinical settings. Over a 10 year period, 1013 pain patients were accepted into a 4 week in-patient pain management program. Pre-treatment, one month post-treatment information was available for more than 800 clients, and pre-treatment and 9 months post-treatment data was available for 600 clients. Measures reported in the study were: pain experience and interference; psychological distress (depression and anxiety); self-efficacy; catastrophizing; and walking. The researchers suggested that while randomized controlled studies and meta-analysis had previously been used to establish the efficacy of psychological treatments, these studies did not necessarily establish effectiveness in terms of a measurable beneficial effect in other service contexts. Between 1989 and 1998, 2041 clients in total attended a 4 week in-patient CBT rehabilitation program. Of these, 1013 met the criteria for the study. Inclusion criteria were two of the following: widespread disruption in non-work or work activity; habitual over activity leading to increased pain; use of high levels of pain medication with little reported benefit; high affective distress score; unnecessary use of medical aids; and high levels of pain behaviour. The exclusion criteria were: inability to speak English; inability to climb stairs; current major psychiatric disorder, such as active psychosis, or severe depression with high risk of suicidal attempt; client suitable for further medical treatments following examination; pain duration of less than one year;

and current opioid misuse, either chronic illegal opioid misuse or in a methadone maintenance program. The program utilized the services of a consultant anaesthetist, two clinical psychologists, a physiotherapist, an occupational therapist, a senior nurse, and a secretary/administrator.

The program incorporated operant and cognitive behavioural principles in all aspects (Morley et al., 2008). Included in these criteria were the aim of drug reduction applied to all pain-related drugs which had not achieved analgesia or improved function, and the aim of abstinence from such drugs by time of discharge. Systematic searches of the literature were carried out in order to obtain estimates of reliability for the reliable change index (RCI) and clinically significant change (CSC). The RCI was computed using the standard deviation of the measure and an estimate of the reliability of the measure. Reliability data were obtained from published reports, and measures of internal consistency, such as Cronbach's alpha and the intraclass correlation coefficient, were employed.

For the measure of pain, where internal consistency assessments were not possible, reliability based on stability (test-retest) measures were used. The determination of clinically significant change was based on cut scores using the properties of normal distribution. The cut scores for each test were reported in the study. Average pain intensity, pain distress, and interference were reported on numerical rating scales (0-100) and the 0.69 estimate of reliability used. Criteria for determining clinically significant changes of pain intensity were based on previous studies and 30% change from the initial score was established as the value. A cut score of 19.68 on the Beck Depression Inventory (BDI) was established from previous similar research.

Other measures were employed including the Hospital Anxiety and Depression Scale (HADS), which showed good internal consistency; the Coping Skills Questionnaire catastrophizing sub-scale (CSQ-cat), which has good internal reliability as well as a high degree of stability over time; the Pain and Self-Efficacy Questionnaire (PSEQ), which has good test-retest reliability and internal consistency; and the 5-minute walk, behavioural outcome measure, which has excellent reliability as it is highly correlated ($r = 0.99$).

Attrition bias was checked by comparing the sub-sample at each stage with drop-out sub-samples on demographic characteristics and the measure in question. Information on ethnic origin and occupation was given in the study. The average age was 45.7 years. The majority of participants were receiving sickness or disability income (70.4%), this was the main source of income for 34.6%. Primary sites of pain were low back (62.7%), shoulder and upper limb (10.0%), lower limb (9.4%), neck (6.5%), abdomen (2.8%), head (3.0%), chest (2.2%) perineum, rectum, and genital area (2.6%), and pelvis (1.5%). The mean time since onset of pain was 113.2 months. Most of the subjects were taking medication (95.6%).

The results of this study showed that the majority of individuals as rated by the researchers showed no change on the three pain related measures (intensity, distress and interference), although a significant minority achieved a clinically significant change of more than 30% reduction in their scores from baseline. The response rate for achieving change was 1 in 8 for pain intensity and 1 in 4 for pain interference. On the Coping Skills Questionnaire Catastrophizing sub-scale (CSEQ-cat) and Pain Self Efficacy Questionnaire (PSEQ), relatively more subjects achieved a reliable change, 15% and 33%

respectively. Between one third and one fifth of subjects achieved clinically significant outcomes on measures of pain, emotional distress, and self-efficacy (Morley et al.). By dichotomizing the data into improved/unimproved it was possible to estimate that 4 subjects needed to be treated in order for 1 to improve.

Morley et al. recognized the limitations of their study in the range of measures used that were not equally spread across the domains of measurement. Only one measure of physical capacity was used and this probably cannot be generalized to other activities. The Coping Skills Questionnaire (CSQ) and Pain Self Efficacy Questionnaire (PSEQ) measures are more accurately described as process rather than outcome measures as these are cognitive variables relevant to the use of CBT. However, this change in the measures cannot be taken as evidence that CBT was the cause of change. Although the methodology provided advantages over conventional statistical inferences, there are problems with this methodology, viz., the estimates of reliability and sample variance can influence the results. Lower test-retest reliability reflects the change in pain levels over time. This means a smaller number of participants reflecting a reliable change in pain measures. In addition, availability of normative data and reference samples influences the proportions showing clinically significant change. This study emphasizes the need for constructing criteria on client-defined outcomes. Other issues are reflected in the fact that some subjects actually declined during treatment, an area which would bear more investigation. The researchers concluded that although the study answered questions regarding change, the question of causality remained unanswered. If the data generated in this study were compared against corresponding trials of CBT use for clients with chronic pain, the effectiveness of this CBT program could be more effectively evaluated.

These findings lead one to believe that while there is widespread evidence for the effectiveness of CBT for clients with chronic pain, there needs to be more information on the use of CBT with other populations facing the issues of chronic pain. Several studies of CBT use with the elderly, clients with fibromyalgia, clients with HIV, and CBT use with hypnosis as a relaxation technique will be detailed in the following section.

Studies on the use of CBT with elderly clients with chronic pain. Lunde et al. (2009) conducted a meta-analytic review of CBT interventions for chronic pain in elderly clients, focusing on treatment effectiveness. This review of 12 outcome studies between 1975 and 2008, some of which were from uncontrolled trials, indicated that CBT interventions were effective for self-reported pain. However, similar gains were not noted on other measures such as depression and level of physical activity. Lunde et al. suggested the use of acceptance and commitment therapy (ACT) with older adults with chronic pain as a preferred treatment because of problems associated with the use of several medications concurrently in this population; ACT can help older people accept age-related declines in health; ACT can assist older people to maintain physical activity and commitment to goals thus improving their quality of life.

Beissner et al. (2009) also studied the use of CBT methods by physical therapists when treating older clients with chronic pain. This study is relevant for the multidisciplinary use of CBT, in this case, with a medical model and physical therapy with older clients. This study is also of interest since CBT interventions for chronic pain are routinely delivered through recommendation from a multidisciplinary pain management clinic to which older adults are not usually referred. Beissner et al. used random sampling to obtain a target goal of 150 participants. Relevance to diagnosis and

population of interest (chronic pain and older adults respectively) were criteria in selection for sampling of therapists. A telephone survey instrument was developed by a team comprising a physical therapist, two physicians, and one health psychologist with expertise in pain management. The team had 40 years of collective experience in delivering non-pharmacological interventions for chronic pain in older adults. The survey was reviewed by two physical therapists outside the research team to ensure that the list was sufficiently inclusive, to check for clarity of language, identify potential barriers to implementation, and determine items to be excluded. The survey instrument used five CBT interventions as questions: relaxation, distraction, visualization and imagery, cognitive restructuring, activity pacing, and pleasurable activity scheduling. A list of potential barriers to CBT was generated by the team based on a literature review and outside therapists' input. Demographic details of the respondents were also included in the questionnaire.

Beissner et al. computed descriptive statistics including frequency for categorical data, mean and standard deviation for continuous data to address the primary aim of identifying the extent to which therapists used CBT interventions in their treatment of clients. The variable showed normal characteristics in a normal probability plot. Skewness was less than twice the standard error of skewness and kurtosis less than twice the standard error of kurtosis, so these areas were not problems at a conventional level of significance (Beissner et al.). Nine independent variables were included in the statistical models, these were all categorical and included as classification factors in the models. An examination of 2-way and 3-way interactions was carried out, focusing on the significant variables in a main effects model. The final model included the percentage of clients with

pain, degree, interaction between the two variables and the main effects for the other 7 variables. Statistical analysis was performed by general linear model methods.

In respect to the use of CBT, 81% of the respondents reported either frequently or always using activity pacing, and 39% used pleasurable activity. Cognitive restructuring was 77% rarely or never used, relaxation training 84% rarely or never used, and use of visual imagery or distraction 88% rarely or never used. The majority of therapists indicated interest in incorporating CBT techniques into their treatment modality. Barriers to incorporation and implementation of CBT techniques included insufficient knowledge (59%), problems with reimbursement (31%), inadequate time (27%), and reluctance of clients (21%). Notably, 21% mentioned no barriers to the incorporation of CBT techniques.

Using the composite interest variable as the outcome, therapists' mean interest in CBT techniques was 12.70 (SD = 3.40). Interest was highest for physical therapists with advanced degrees and practices with lower numbers of clients with pain. Interventions aimed at increasing physical mobility appeared to be favoured over more passive interventions aimed at decreasing pain levels. This survey did not consider therapists' rationale for the use of different techniques, the amount of time spent on each technique, or the emphasis in treatment. The survey did not identify the source of pain, it was focused rather on a general approach to dealing with chronic pain regardless of source or location (Beissner et al.).

Studies on the use of CBT and hypnosis with clients with fibromyalgia. Castel et al. (2009) investigated the use of CBT with hypnosis for clients suffering from fibromyalgia. These authors cited a meta-analytic review that showed that hypnosis

enhances the efficacy of CBT (Kirsch, Montgomery & Sapirsten, cited in Castel et al.). Castel et al. compared the efficacy of CBT alone, and CBT plus hypnosis between each other and to standard care (pharmacological interventions). Castel et al. studied 47 individuals between 18 and 60 years, with a minimum of 6 months of chronic pain and a diagnosis of fibromyalgia. Of the initial recruits, 83% completed the study. These authors noted that CBT has been empirically supported for individual and group use with clients with fibromyalgia as well as part of a multidisciplinary approach. Levels of pain, fatigue, mood and function have shown improvement with the use of CBT in this population (Castel et al.).

Prior to treatment, pre-treatment outcome measures were administered, then all participants were randomly assigned to three treatment conditions: standard care (medication management) control group; CBT alone; or CBT plus hypnosis. The outcome measures were all administered following treatment. Participants in the standard care group were given pharmacological treatments for chronic pain including analgesics, sedatives and myorelaxants. Participants in the CBT alone group were given the standard medication protocol as well as twelve 90 minute sessions of CBT. Participants in the CBT plus hypnosis group were given the standard medication as well as the same 12 session group CBT treatment. Instead of relaxation training, they were given twelve 20 minute sessions of self-hypnosis training. These participants were also given a CD to listen to at home in order to practise the techniques.

The variables examined were average pain intensity, impact of fibromyalgia, pain quality, and global hypnotisability. Pain intensity was rated on a 0-10 Numeric Pain Rating Scale over a week with three scores (average, least, and worst pain) combined into

composite measures of usual pain. Such scores have demonstrated high reliability and validity as indices of characteristic pain intensity. The impact of fibromyalgia was assessed using the Fibromyalgia Impact Questionnaire. This 10-item instrument is widely used with demonstrated validity and reliability. Pain quality was assessed using the McGill Pain Questionnaire (MPQ). This instrument assesses 20 domains of pain over three global domains: sensory, affective, and evaluative. The reliability and validity of this scale is widely supported according to Castel et al. (2009). This study used only the Pain Rating Index Sensory and Pain Rating Index Affective scales because of strong evidence supporting their psychometric properties. Hypnotisability was assessed using the Harvard Group scale of Hypnotic Susceptibility Form A. This scale reports internal consistency coefficients between 0.62 and 0.84, and high correlation with the Stanford Hypnotic Susceptibility Scale Form C.

The participants were compared on demographic and outcome variables using t-tests for continuous variables and chi-square analysis for continuous variables. The changes induced by each condition treatment were evaluated using paired t-tests. Between treatment comparisons were performed by univariate analyses. Significant change in pain intensity was evaluated and improvement cut-off of 30% was established as an indicator of clinically significant improvement. Pearson's correlations between hypnotisability and pre-post-treatment differences were evaluated.

There was little change in any outcome measure for the clients in the standard control group and no significant effects were observed. There was significant improvement in Fibromyalgia Impact Questionnaire (FIQ) Total Score for the CBT alone group [$t = .2.28, p < 0.05$]. In the CBT plus hypnosis group there was significant

improvement in Usual Pain Intensity [$t = 2.39$, $p < 0.05$], FIQ Total Score [$t = 3.84$, $p < 0.01$], and MPQ Affective Index [$t = 2.96$, $p < 0.01$]. While none of the subjects in the control group obtained a decrease in Usual Pain Intensity, 19% ($n = 3$) of the CBT group and 25% ($n = 4$) of the CBT plus hypnosis group reported post-treatment decreases in pain intensity. A high correlation was demonstrated between hypnotisability scores and improvement (Castel et al.).

Castel et al. concluded that the efficacy of CBT and CBT plus hypnosis for the treatment of fibromyalgia was demonstrated by this study, and that this was consistent with similar studies. This study was limited by small sample size, and a high dropout rate in the control condition. Treatment outcome expectancy was not evaluated in this study. Outcome expectancies might have influenced the results in CBT and CBT plus hypnosis groups. No long term follow up assessments were performed, so maintenance of gains could not be evaluated. Other research, however, has shown that treatment benefits can be maintained for as long as 12 months after treatment in subjects receiving hypnosis for pain management (Keefe, 1996; Castel et al.). Despite these limitations, however, the work of these authors lends support to the efficacy of CBT, and the additional effects of hypnosis for enhancing CBT treatment.

A similar study was conducted by Falca et al. (2008) to evaluate the effects of CBT for clients with fibromyalgia syndrome. This randomized controlled trial took place with sixty females aged 18 to 65 diagnosed with fibromyalgia. The authors concluded that treatment with CBT resulted in significantly less need for analgesic medication, significantly lower rates of depression and higher mental health scores.

Role of client characteristics in predicting response to CBT with HIV-positive clients with chronic pain. Cucciare et al. (2009) examined the role of client characteristics in predicting response to treatment with CBT therapy of HIV-positive clients with chronic pain. Although this study focused on the role of client characteristics, it is relevant to this topic in that HIV-positive clients with chronic pain did respond well to CBT therapy (Cucciare et al.). These authors utilized a pre/post test single group design and assessed pain-related functioning at baseline and 12 weeks (the end of therapy). Cucciare et al. used multivariate regression analysis to show that higher baseline levels of pain-related anxiety were related to greater improvement in pain-related functioning post-treatment. Cucciare et al. investigated two hypotheses: (1) Non-minority clients would demonstrate the greatest post-treatment improvements since the program was not adapted to cultural perspectives (2) Greater pre-treatment pain-related anxiety would be predictive in pain-related functioning at post-treatment. This study was based on the assumption that avoidance behaviours triggered by pain-related anxiety are central contributors to the maintenance of pain and pain-related disability, and therefore a key target for CBT.

Other results from meta-analyses on the use of CBT for chronic pain.

Eccleston's (2001) study detailed the evidence base for the use of CBT with chronic pain. He cited three meta-analyses and reviews of the effects of CBT in chronic pain. One meta-analysis included all non-medical trials and uncontrolled trials (Malone & Strube, 1988). The second meta-analysis addressed only psychological treatments, and also included uncontrolled trials (Flor et al., 1992). The third meta-analysis focused only on randomized controlled trials of psychological and educational treatments in a primary

care setting (Turner et al., 1996). Both the meta-analysis by Malone and Strube, and the meta-analysis by Flor et al., including uncontrolled trials, found that the largest treatment effect sizes were for changes in mood, behaviour, and pain, with smaller treatment effect sizes for use of health-care resources. Turner et al. reported similar findings except for the finding for mood. Eccleston (2001) concluded that there is no shortage of evidence for the effectiveness of CBT for chronic pain, stating that “published randomized controlled trials provide good evidence for the effectiveness of cognitive behaviour therapy and behaviour therapy for chronic pain in adults” (p.150).

In conclusion, Hoffman et al. (2007) in a meta-analysis of 205 effect sizes from 22 randomised controlled trials pooled in 34 analyses demonstrated the positive effects of psychological interventions on pain intensity, pain-related interference, and health-related quality of life with especial effectiveness noted for CBT and self regulation therapy (SRT) interventions on chronic pain.

Future directions from research. Because of this vast array of research indicating the effectiveness of CBT interventions for use with clients with chronic pain, there is clear direction for future investigations into specific aspects of pain relief using these modalities. Morley et al. (1999) noted that although there are many published open trials of treatment there are fewer using control groups in which clients are randomized to treatments. They also noted that multi-armed trials made it more difficult to compare single measures of interest and effect sizes. Morley et al. (1999) suggested possible future studies on the specific self-denigrating effects of pain and depression. Responses to pain can be passive or active. A passive response results in greater distress and disability on the part of the client. On the other hand, an active response gives the client a sense of

agency and control over the pain resulting in improved function and fitness. However, Eccleston (2001) stated that studies indicate that presenting self-management to a client with pain can mean posing a threat to their worthiness for treatment. It appears that the best fit with one's personality works optimally in this case. If intrinsic motivation appears to be present to make sense of pain then knowing the cause and meaning of the pain can help a client to cope and relieve worry and distress (Eccleston).

Eccleston (2001) also suggested a multifactorial experience and expression of pain, and that it would be of benefit to understand the effect of pain relief from placebos rather than analgesics. This author also offered helpful suggestions for the therapist regarding how to deal with vigilance to pain, avoidance, anger, client involvement, making sense of the pain, and consistency in treatment. Eccleston suggested that all of these factors in the experience of pain need to be understood and addressed. For example, vigilance to pain results in the client being easily distracted and reactive. The therapist should keep communication clear and brief and repeat key points often. For a client to make sense of their pain it is necessary to ascertain what the client knows about their pain (cause, meaning and course). The client's understanding will inform their behaviour and the therapist can add to their knowledge base or act as a coach in discovering new information. Attrition, relapse and lack of adherence to protocol (Morley et al., 1999) have all been identified as problems in the successful implementation of CBT for chronic pain.

Other authors (for example, Heapy et al., 2006) have suggested tailoring programs to specific needs. Heapy et al. tailored individual CBT components in a client case study, such as pain education, relaxation training, cognitive coping strategies, activity pacing,

managing pain flare-ups and stress, and reducing depression to the client's readiness to change, and level of motivation. Heapy et al. used motivational interviewing techniques to determine the client's readiness to change and the Pain Stages of Change Questionnaire (PSOCQ) to assess the client's readiness to engage in self-management. Although the results of this study showed no decrease in pain intensity in the case study presented, other domains were affected such as increased physical activity, better use of coping strategies, attainment of treatment-specific goals, satisfaction with treatment, and improvement in quality of life (Heapy et al.).

Use of CBT homework assignments for clients with chronic pain. Johnson and Kazantzis (2004) presented an overview of research findings and practical guidelines for the use of homework in psychosocial therapy of patients with chronic pain. These authors postulated that homework assignments in CBT for chronic pain were more effective than in-session treatment alone. The authors discussed obstacles to compliance as well as strategies to overcome these obstacles, and interventions to promote compliance. Johnson and Kazantzis stated that the use of education through CBT, and skill acquisition could lead to a generalization of skills and maintenance of improvement on the part of the client. These authors posited that the aim of education is to help the client understand the psychological contribution made by chronic pain and the degree of control which they are able to have over their pain. In this respect, changing a client's goals to "being more active" and "reducing medication" would be more productive than having a goal of eliminating pain (Johnson & Kazantzis, p.191). The use of CBT would therefore encourage adaptive cognitions, assist the client to manage the effects of chronic pain, and

facilitate reactivation and physical conditioning to counter disability (Johnson & Kazantzis).

Johnson and Kazantzis noted that the use of cognitive restructuring with relaxation training, imagery and distraction, exercise reactivation and goal setting was often initially successful for the client but that it was later followed by a relapse. Although there is empirical support for the homework component of CBT, clients have difficulty incorporating assignments into their daily schedule apart from the practice which takes place in the session. Johnson and Kazantzis suggested a systematic approach to homework with specific written instructions on how often, how long, and the location in which to practise along with a copy of the instructions to be kept by the practitioner. Upper and lower limits for homework activity should be set that are time-contingent rather than symptom-contingent (using time as a guide rather than the level of pain). Assignments should range from easy to difficult with a confidence rating for each task. A review of previous homework should take place at the next session and obstacles to completion should be discussed. In addition, they suggested that a self-contract be formalized in writing and signed by the client. The client should be encouraged to set goals in other areas of their life such as work, recreation and social activities to develop a level of self-efficacy in goal achievement (Johnson & Kazantzis).

Johnson and Kazantzis outlined several obstacles to implementation. The first of these obstacles was lower levels of educational achievement on the part of the client such that the client associates “homework” with poor academic performance and hence regards assignments negatively. They suggested reframing assignments as “home practice” or “self management exercises” (p.209). Secondly, clients might have unhelpful beliefs

about chronic pain, for example, that pain means tissue damage, thus limiting movement because of pain related fear and avoidance. Johnson and Kazantzis suggested measuring and addressing pain related anxiety in this situation. The third problem outlined by these authors was the prioritization of pain by the attentional system. The attention demands of pain distract the client and impair cognitive functioning. The potential solution to these problems could be a “collaborative reconceptualization” between the client and therapist as suggested by Turk and Meichenbaum (1994, cited in Johnson & Kazantzis, 2004) and making sure that information is attended to, understood and remembered. Other suggestions included explaining neuroplasticity to the client in terms of how the nervous system remembers and amplifies pain signals. Johnson and Kazantzis also suggested identifying stages of change (Prochaska & DiClemente, 1984) for the client and using the Pain Stages of Change Questionnaire (PSCQ, Kerns et al., 1997) to determine the client’s readiness to implement different strategies of self care. Turk (2003) suggested that not only does CBT provide for a better treatment outcome for the client with chronic pain, but that it is a complementary treatment along with other interventions, that can also help clients deal with residual pain.

Other challenges to delivery of CBT programs. Another challenge for the implementation of CBT is in delivery of effective programs. Waiting lists for CBT treatment recommended by various pain clinics vary from weeks to months and years (McCracken, 2006; Vernon & Brathwaite, 2009). Sluka and Turk (2009) noted the need for practitioners with appropriate training, expertise, and experience in the delivery of CBT. Even so, proposed programs are often limited by the availability of competent practitioners (N. Abel, personal communication, October 13, 2009; Sluka & Turk, 2009).

Beissner et al. (2009) also commented on the lack of mental health professionals, particularly in rural areas of the United States, a situation also prevalent in Canada (Barbapoulos, 2003). To remedy this situation, Beissner et al. (2009) suggested the use of a multidisciplinary approach in which physical therapists are trained in the delivery of CBT techniques for the management of chronic pain in older adults who do not have access to conventional modes of delivery such as pain clinics and psychotherapists.

In respect to competency, Eccleston (2001) stated that the use of CBT for chronic pain is “complex, lengthy, and highly variable” (p.150). He noted that the success of this intervention is contingent upon the quality and training of staff and the appropriate content of therapy. Eccleston recommended the implementation of national standards of treatment and continuing audit of available programs. Morley et al. (1999) also noted in their meta-analysis that the measurement of variables, expectations of change, adherence to treatment methods and therapist competence fell below professional best practice standards. Morley et al. commented that this treatment is designed for long term change, and requires attrition and relapse to be addressed, as well as adherence to treatment and use of evidence-supported protocols. Treatment also needed to be tailored to the specific needs of the client. Thorn et al. (2007) also critiqued reporting standards in the primary and secondary literature. They suggested that adherence to a standardized set of reporting standards, use of a standardized set of short and long-term variables, and documenting individual differences as goals for future research. These writers also noted the need for the provision of detailed, easily accessible descriptions of the treatment program or programs.

Chapter Summary

This chapter has provided the reader with an overview of research on chronic pain. The guiding question was presented: “What self care strategies are best suited for clients with chronic pain to prepare them for later psychological intervention, give them a measure of control over their life, and relieve the continual discomfort to which they are subjected?” Chronic pain was defined and the effects of chronic pain described. The use and efficacy of cognitive behavioural interventions for chronic pain was evaluated by means of a literature review, firstly of two meta-analyses of the use of CBT with clients with chronic pain. Then several smaller studies on different populations were reviewed to examine a wider applicability of these interventions. Other meta-analyses were reviewed which supported the previous conclusions. The general conclusion of all the studies reviewed was that there exists a sizeable body of research to support the use of CBT interventions for clients with chronic pain. Future directions from research on different aspects of the issues for clients with chronic pain were discussed as well as the use of homework assignments for clients with chronic pain and the obstacles to the implementation of CBT programs.

The next chapter, Possible Interventions and Strategies for Use with Clients with Chronic Pain, will investigate other potential interventions and strategies and will aim to answer the guiding question: “What other interventions and strategies might be of use for clients with chronic pain?” Offshoots of cognitive behavioural approaches such as acceptance-based therapy, self-regulation therapy and mindfulness-based chronic pain management will be examined along with supporting literature. Advances in

neuroscience will be briefly outlined in relation to the use of psycho-educational materials for the client.

Chapter 4: Possible Interventions and Strategies for Use with Clients with Chronic Pain

This chapter will examine the use of other possible interventions and strategies for clients with chronic pain. Further developments of cognitive behavioural approaches such as acceptance-based therapy and mindfulness-based chronic pain management will be described along with supporting literature for each approach. The use of self-regulation therapy will be briefly described along with advances in neuroscience.

Overall goals for working with a client with chronic pain include accepting the pain, implementing goals, becoming as healthy as possible, and obtaining social support (McCracken & Eccleston, 2005). Following Eccleston's (2001) suggestion that CBT delivered at an interdisciplinary pain management centre is the psychological treatment of choice by physicians and psychologists for the client in chronic pain, the following points are noted. Several key factors were identified in the program that could be implemented with clients: (a) direct and indirect positive reinforcement of pain behaviours, (b) positive reinforcement of well behaviour, (c) physical fitness and function, (d) cognitive reframing, (e) education and empowerment, and (f) critical process factors.

Direct positive reinforcement of pain behaviours consists of identifying overt pain behaviour (tone, content of speech, gait, posture, facial expression), and minimizing their effects. Indirect positive reinforcement of pain behaviours consists of encouraging clients to behave time-contingently rather than symptom-contingently by planning for achievable goals rather than doing more when one feels good and less when one feels worse. Healthy behaviour can be reinforced in CBT rather than attending to problems and need. For example, increasing general physical fitness reduces fatigue and fatigue-related somatic

symptoms that can be thought to be pain related. Setting and achieving personal fitness goals therefore, can be a first step in positive self-reinforcement. It would be helpful to use a personal self care assessment such as that compiled by Saakvitne and Pearlman (1996, see next chapter) to establish a baseline with the client and determine the areas of self care which need to be addressed.

Cognitive reframing consists of identifying and challenging self-defeating thoughts so that the client understands the effects of feelings upon thoughts and vice versa (Eccleston, 2001). Also included in this section of CBT would be communication skills, improved problem identification and problem solving, anger management, stress reduction, and the development of a self-relaxation response (Kabat-Zinn, 1990). Typically, CBT is carried out in small group sessions of 4-8 clients held weekly for 8-10 weeks. Comprehensive guides are available for the practitioner which describe the implementation of CBT in detail (for example, Thorn, 2004; Otis, 2007).

There are several other therapies that might prove useful for the client with chronic pain. Cioffi and Holloway (1993) researched the effect of pain suppression and discovered that avoiding pain through distraction and suppression actually prolonged pain by causing the suppressed thoughts to resurface. Somatic awareness or consistent self-monitoring of bodily sensations seemed to deliver the most relief from pain. This method also gives the individual more control over mental events, and focusing on specific concrete aspects of pain allows the subject to describe the experience of pain in affect-neutral terms. Concrete somatic focus allows one to notice ebbing of discomfort which cannot happen in distraction or suppression. (Cioffi & Holloway, 1993). In addition,

Petrie et al.(1998) discovered that thought suppression leads to an immunological response in the body as measured by a decrease in lymphocyte levels.

Hypnosis has been mentioned previously (p.40) as a method of relaxation in conjunction with CBT and which could enhance the process (Castel et al., 2009). Alternative therapies such as *tai chi* can enhance meditation and living in the present moment, both of which are helpful for this type of client (Alperson, 2010). Acceptance and commitment therapy (ACT, Hayes et al., 1999) uses psychological acceptance as “an active process of taking in an event or situation . . .[and] attempts to teach clients to feel emotions and bodily experiences more fully and without avoidance, and to notice fully the presence of thoughts without following, resisting, believing, or disbelieving them” (p. 34). The use of yoga and meditation could also be a useful adjunct to therapy for clients with chronic pain as the relaxation strategies will prove helpful in the management of pain (Sherman et al., 2005, McGonigal, 2009).

Acceptance and Commitment Therapy

Acceptance and commitment therapy (ACT) is a form of CBT that is based on bringing clients to a realization that they have continuing pain that will not go away, and then while accepting the pain, diverting their focus from pain relief to improved function. Rather than trying to control the pain, this therapy encourages the client to accept it and recognize the emotions and behaviours that are produced by the pain (Arehart-Treichel, 2005). The rationale for this process is that by accepting the pain, or a pain related thought, the distress can be mitigated and the client can experience a more fulfilling life (Pull, 2008).

McCracken et al. (2005) evaluated an acceptance-based approach using 108 subjects with severe, disabling, chronic pain lasting on average 11 years that had not been relieved by opioids, surgery, or antidepressants. McCracken postulated that the use of contextual cognitive behaviour therapy for clients with severe, disabling chronic pain would bring clients to an acceptance of the fact that they have continuing pain that will not go away. Attention could then be diverted to improved function. The aim of treatment was to provide clients with opportunities to increase their ability to accept pain, to recognize the emotions and behaviors that are produced by the pain, and to focus their efforts on improving functioning. Subjects were trained to accept pain and pain related thoughts along with using sensation-focusing exercises, relaxation exercises, awareness of health habits, and choice of direction for life. Significant improvements in emotional, social, and physical functioning were shown post-treatment, including 18 percent reduction in the pain composite score, a 41.2% reduction in the mean depression score and similar reductions in pain related anxiety, physical disability, psychosocial disability, and daytime rest. At three-month follow up, the pain score was 11 per cent less compared to pre-treatment. On the Chronic Pain Acceptance Questionnaire (CPAQ) scores, the pre-treatment average was 49 per cent, 64 per cent post-treatment and 61 per cent at the 3-month follow up. The CPAQ has demonstrated good internal consistency and strong relationships with criterion variables (Wicksell et al., 2009). Although McCracken's study followed consecutive referrals in a multidisciplinary pain facility rather than a randomized controlled trial, the use of relatively unselected clients under standard clinical circumstances provides a basis for the recommendation that ACT should be instituted

early in treatment so that clients can evaluate the usefulness of this tool for dealing with chronic pain.

ACT focuses on acceptance of thoughts and feelings that have been occasions for unhelpful responses in the past. Acceptance methods are combined with work on personal values, behavioural commitments, and traditional behaviour change strategies to help clients live a fuller life (McCracken et al., 2004 cited in Morley, p.28). Rather than ACT becoming a last resort when all other approaches have failed, McCracken (2005) has suggested that it should be instituted early enough in treatment for a client to ascertain whether this would be a useful tool for dealing with the pervasive problem of chronic pain. After reviewing recent findings on ACT from 2006 to 2008, Pull (2008) commented that better controlled studies need to be done, but that so far, the small body of outcome research looks promising. Hayes et al. (1999) concluded that the rationale behind individual client experiences plays a determining role in pain tolerance. This author noted that acceptance-based rationales have a significant positive impact on this process compared to control-based rationales.

McCracken and Eccleston (2005) cited seven cross-sectional studies of acceptance and functioning in clients with chronic pain (Evers et al., 2001; McCracken, 1998; McCracken & Eccleston, 2003; McCracken et al., 1999, 2004b, 2005a; Viane et al., 2003). The authors stated that these studies used three separate measures of acceptance in four different countries and that all studies consistently showed that greater acceptance was associated with better emotional, physical and social functioning, less use of health care services and medication, and better work status. Pull (2008) noted that both CBT and ACT focus on emotional regulation, but target different stages of the generative emotion

process. According to Pull, CBT focuses on adaptive antecedent-focused emotion-regulation strategies while ACT counteracts maladaptive response-focused emotion-regulation strategies, such as suppression. However, despite these philosophical differences, ACT and CBT techniques are fully compatible and may lead to further improvement.

Self Regulation Therapy

Zetl and Josephs (2008) argued that current treatments such as CBT do not address and correct the underlying issues present in chronic and persistent pain syndromes. In an attempt to address the limitations of CBT with chronic pain, they developed Self Regulation Therapy (SRT) (Zetl and Josephs, 2008). These researchers used neuroscientific research to formulate a theory for correcting dysregulation of the autonomic nervous system, a significant factor in perpetuating pain syndromes (Van der Kolk, 2006). Zetl and Josephs suggested that activation of the autonomic nervous system (ANS) results in an electrical charge being held in the amygdala. With the autonomic nervous system full, the individual subject is unable to experience emotions such as joy, in addition to the pain that is being felt. Engaging the frontal lobes (as in CBT) does not alleviate this situation of overloading the autonomic nervous system, as the frontal lobes do not deregulate pain, although they can temporarily contain it. Since the arousal is held in the brain stem and limbic system, cognitive interventions do not affect the nervous system (Zetl & Josephs, 2008).

These authors noted further that CBT does not work for children, as their frontal lobes are undeveloped. Zetl and Josephs (2008) postulated that if pain can move and change it could also go away. These authors suggested procedures for sensory

monitoring, to titrate activation of the ANS with grounding, and, by alternating stimulation and grounding techniques, to promote a discharge of energy. The aim is to engage the client in ways that connect with the ability to be grounded or centered and thus to regulate the ANS and increase neural pathways to contentment and joy. These interventions could also be used in conjunction with CBT and ACT.

Mindfulness Based Chronic Pain Management

Mindfulness has been defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment-by-moment” (Kabat-Zinn, 2009). Mindfulness is a deliberate focusing of attention on current experiences in the present moment, it involves a sustained, receptive attention to events and experiences on a moment by moment basis with an attitude of non-judgment and acceptance. Mindfulness involves giving close attention to stimulus inputs that enter awareness without engaging in discursive thought about them (Biegel et al., 2009). The use of mindfulness has been linked to: increased exposure, changes in cognition and behaviour, increases in self-regulation, relaxation, and acceptance (Beauchamp-Turner & Levinson, 1992; Kabat-Zinn et al., 1992).

Beauchamp-Turner and Levinson (1992) tested the effects of meditation on stress, health and affect. They studied 134 men and women from various occupational backgrounds to determine the relationship between meditation and health. Three measures were employed to assess stress, health and affect: “The Comprehensive Scale of Stress Assessment: Part 1, Global Assessment” (GSA; Sheridan, 1987); “The Comprehensive Scale of Stress Assessment Symptom Checklist” (SC; Sheridan, 1987); and “The Multiple Affect Adjective Checklist Revised – In General Form” (MAACL-R;

Zuckerman & Lubin, 1985). Meditation was rated on a Likert scale from “daily” to “never.” Data were analyzed via t-tests and Pearson product-moment correlation analyses performed on each measure. The researchers stated that frequent meditators reported significantly fewer illnesses and stressors along with lower levels of anxiety, depression, hostility, and dysphoria, and higher levels of positive affect and sensation-seeking. Beauchamp-Turner and Levinson commented on the habituation that occurred following meditation and suggested that inducing a state of relaxed, non-aroused physiological functioning might help to avoid the consequences of prolonged stress.

Kabat-Zinn et al. (1992) studied the effectiveness of a group stress reduction program based on mindfulness meditation for clients with anxiety disorders. The researchers screened 22 participants using a structured clinical interview to determine if they met the criteria for generalized anxiety disorder or panic disorder with or without agoraphobia. Weekly assessments were performed before and during the mindfulness based stress reduction (MBSR) program and monthly during the 3 month follow-up period. Kabat-Zinn et al. used repeated measures analyses of variance and reported significant reductions in anxiety and depression scores after treatment for 20 participants which reductions were maintained at follow-up. Panic symptoms were also substantially reduced. Kabat-Zinn et al. concluded that MBSR can effectively reduce the symptoms of anxiety and panic and can maintain this reduction in clients with generalized anxiety disorder, panic disorder, or panic disorder with agoraphobia.

Grossman et al. (2003) engaged in a meta-analysis of health benefits of mindfulness based stress reduction (MBSR) programs. These authors found 64 empirical studies of which 20 were selected that met the criteria of acceptable quality and relevance.

Grossman et al. concluded that MBSR was indicated as an intervention across a broad range of chronic disorders and problems. Davidson et al. (2003) performed a randomized, controlled study on the effects of mindfulness meditation on brain and immune system function. These researchers measured brain electrical activity in 25 subjects along with a wait-list control group of 16 subjects. At the end of the 8 week training program in mindfulness meditation both groups were vaccinated with the influenza vaccine. Davidson et al. reported significant increases in left-sided anterior activation (associated with positive affect) in the meditators as well as significant increases in antibodies to the influenza vaccine.

Biegel et al. (2009) assessed the effect of MBSR programs for adolescent psychiatric outpatients age 14 to 18 years in a randomized clinical trial. Biegel et al. reported reduced symptoms of anxiety, depression, and somatic distress, and increased self-esteem and sleep quality compared to a treatment-as-usual control group. The group receiving the MBSR intervention also showed a higher percentage of diagnostic improvement over the 5 month study period. These studies would indicate a wide applicability for MBSR programs that could assist in the management of chronic pain.

Advances in Neuroscience

Various neuroscientists such as Viamontes and Beitman (2009), Siegel (1999), and Badenoch (2008) have emphasized the need for a neurobiological base for psychotherapy. This knowledge can impart to the client the ability to be able to “see” the neural mechanisms by which change takes place and enable the therapist to visualize the neurobiological targets for behavioural change (Viamontes & Beitman). For example, the increased awareness brought about by the discovery of “mirror neurons” (the frontal and

parietal neurons in brains of primates that fire during execution of purposeful movements and observing other individuals performing similar actions) can provide a background for the client. This background can help the client with the “subjective experience of unbearable emotion” experience a “therapeutic transformation into the mirrored environment of the therapist calm” (Viamontes & Beitman). This in turn may develop a new set of neural circuitry in the client which will facilitate emotional tolerance and management. There are distinct advantages of explaining to the client the nature of the brain processes that lie behind behaviour problems that are the focus of psychotherapeutic intervention.

As an example of psychoeducation for clients experiencing depression, Goldapple et al. (2004) investigated the neurobiological effects of CBT on clients with depression versus those treated with paroxetine using positive emission tomography (PET) scans. The clients with depression + CBT showed increases in cingulate and hippocampal activity theoretically as a result of changes in cognitive patterns because of the CBT intervention. The frontal region showed decreased activation theoretically because the autonomic and emotional centres could fuel depression. Conversely, the clients using paroxetine showed decreased cingulated and hippocampal activity and increased activation in the frontal region lending support to the hypothesis that depression not treated with a cognitive behavioural intervention was fuelled by the autonomic and emotional centres of the brain and not mitigated by cognitive arousal (Goldapple et al., 2004).

Other authors, such as DeLeo and Yeziarski (2000) have reviewed the role of neuroinflammation and neuroimmune activation in persistent pain suggesting that there

could be a link between neurodegeneration and chronic pain. Although further elucidation of neuroscience is outside the scope of this project, it is worthwhile to note that Yalom (2002) stated:

Psychotherapy influences metabolism and blood flow to specific regions of the brain (as indicated by brain imaging studies) as well as serotonin uptake and thyroid hormone levels. Moreover, the number and types of synaptic connections – the connections between neurons – are vastly changed during successful learning, a process known as *learning-induced neuroplasticity*, and this also includes the learning that occurs during psychotherapy. (Appendix, p. 8)

Increasing knowledge of neurobiology has revealed that thoughts, feelings and behaviour exist before the will to do so becomes conscious. This has been demonstrated by EEG studies that show that there is coordinated firing of motor neurons *prior* to awareness of willing the hand to move (Yalom, 2002).

Other neuroscientists such as Siegel (cited in Wylie, 2004) described “the unbridled amygdala, the self-calming talents of the neo-cortex, the heroically integrative properties of the orbitofrontal cortex, the amazing system of mirror neurons that allows us to pick up and to feel the feelings and intentions of others” and Badenoch (2008a) described the new synaptic connections which emanate from the prefrontal cortex and calm the agitated amygdala. Surely this knowledge should be an integral part of the psychotherapist’s armamentarium in helping their clients understand the processes of the brain.

Rationale for Client Manual on Self Care Strategies

For all clients dealing with the problem of pain, their level of knowledge of the pain process plays an important part in their understanding of the problem and the

effectiveness of treatment (Eccleston, 2001). It would also be helpful to improve self care strategies for clients with chronic pain by providing information about their condition, outlining the stages of change and giving information about subjects such as mindfulness, sleep, exercise, nutrition, and emotional regulation. Some recent studies have demonstrated that acceptance of pain can lead to greater pain tolerance (Arehart-Treichel, 2009; McCracken, Vowles & Eccleston, 2005) so focusing on acceptance can be a positive addition. Specific psychological states that often accompany the experience of chronic pain are fear, catastrophizing, worry, anger, depression, avoidance, and self-denigration. These states are often accompanied by impaired cognitive functions such as poor concentration and memory (Eccleston, 2001). Studies with HIV patients with chronic pain have shown that first step treatments, such as relaxation training, are effective in improving pain management especially when accompanied by exercises for guided learning (Cucciare, Sorrell & Trafton, 2009). Detweiler and Whisman (1999) also identified the role of homework assignments as an important factor in cognitive therapy efficacy. Since adherence to treatment is often a problem, strategies for the successful use of homework assignments to combat obstacles in compliance have been previously outlined as suggested by Johnson and Kazantzis (2004, see p. 47 of this document). Providing clients with chronic pain with preliminary psychoeducational materials preparatory to formal therapy sessions can improve their knowledge of cognitive behavioural methods, facilitate change, and raise the client's level of self care combating depression and fatigue and offering hope.

Beissner et al. (2009) identified several barriers to the use of CBT interventions by physical therapists. These were lack of knowledge and skill in the techniques,

reimbursement concerns, and time constraints. Eccleston (2001) also stated that CBT is a complex and lengthy treatment that is largely dependent on the training of competent staff and suggested that the availability of adequately trained staff as well as financial constraints limits the provision of CBT services to clients. Since long-term change is being addressed with this intervention, methods of addressing relapse and attrition also need to be included. Many clients refuse CBT treatment and high rates of dropout and poor adherence to treatment have been reported (Heapy, Stroud, Higgins, & Sellinger, 2001). These authors suggest that clients may be sceptical about the efficacy of psychological treatment for what they perceive as a medical problem. The large number of skills taught in CBT is also potentially intimidating and readiness to change is another factor. Tailoring interventions to match a client's readiness to change has been demonstrated to be effective in psychotherapy (Prochaska & DiClemente, 1992). This finding would suggest that while using similar strategies for a client dealing with chronic pain that it would be helpful to take advantage of the client's readiness to engage in higher levels of self care. As succinctly stated by Yalom (2002), "self-confidence, a sense of mastery, a sense of being anchored in reality ultimately work in the service of good therapy" and work to the client's advantage in dealing with the problem of chronic pain.

A meta-analysis by Hoffman et al. (2007) has demonstrated that psychological interventions decrease the amount of pain. Client education prior to formal interventions can only further the interests of both the client and the therapist. Maes and Boersma (2004) have suggested that enhancing coping skills training by means of deep breathing and physical relaxation is an important moderator of chronic disease. In addition, these authors argue that other health professionals apart from psychologists can be empowered

to deliver these programs, thus making them more cost-effective and accessible. Self-help materials, such as the proposed client manual, and computer-based forms of communication can also be used as effective means of client communication (Maes & Boersma, 2004).

Breathing Techniques

Varvogli and Darviri (2011) described the act of using the breath as a means of relaxation, traditionally used by many yoga programs, but now also incorporated into relaxation. These authors defined diaphragmatic/deep breathing as marked by expansion of the abdomen rather than the chest. The depression of the diaphragm initiates a response which results in the release of oxytocin in the brain (Mack et al., 2007) and the activation of the parasympathetic nervous system (Martarelli et al., 2011). The physiologic response to this deepening of the breath includes decreased oxygen consumption, decreased heart rate and blood pressure, and increased theta wave amplitude in EEG recordings, increased parasympathetic activity along with increased alertness and invigoration (Jerath et al., 2006). Jerath et al. presented the hypothesis that this pattern of breathing resets the autonomic nervous system by stretch-induced inhibitory signals and hyperpolarisation currents through neural and non-neural tissue which synchronizes neural elements in the heart, lungs, limbic system and cortex. Vallath (2010) noted that deep yogic breathing with prolonged exhalation will relax most of the muscles. He also suggested that this breathing style will result in increased tonicity of the parasympathetic nervous system and overall less activation of the central nervous system. He stated that slow breathing increases the alpha waves in the EEG. Vallath stated that

abdominal breathing initiates the relaxation response and that this is further maintained by meditation and awareness.

Philippot et al. (2002) demonstrated the connection between breathing and emotional regulation by inducing emotion, specifically joy, anger, sadness, and fear, in participants and observing the changes in breath. They further demonstrated the connection by instructing participants to change their breathing patterns and then observed the subsequent change in emotion. Burke and Marconett (2008) summarized research on the psychophysiological effects of various breathing exercises, with special emphasis on alternate nostril breathing. This practice involves slow, rhythmical breathing alternating between the right and left nostrils. These authors stated that this mode of breathing has been shown to increase hemispheric symmetry and provide greater parasympathetic activation. In addition, these methods are easy to teach and simple for clients to practice (Burke & Marconett).

Mindfulness and Meditation Techniques

Mindfulness is defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment-by-moment” (Kabat-Zinn, 2009). It is a deliberate focusing of attention on current experiences in the present moment with an attitude of non-judgment and acceptance. The use of mindfulness has been linked to: increased exposure, changes in cognition and behaviour, increases in self-regulation, relaxation, and acceptance (Beauchamp-Turner & Levinson, 1992; Davidson et al., 2003; Farb et al., 2010; Kabat-Zinn et al., 1992).

Davidson et al. (2003) showed that mindfulness meditation produced alterations in brain and immune function. Notably, immune function was significantly improved. Poulin et al. (2008) conducted two studies into the use of mindfulness with human services professionals. The first study explored whether a brief mindfulness meditation was superior to traditional relaxation training for nursing staff. Results indicated that mindfulness participants showed particular improvement in emotional exhaustion compared to the participants in a traditional relaxation program. The second study explored the use of mindfulness-based interventions with teacher trainees. This group experienced greater increases than the control group in mindfulness, satisfaction with life, and self-efficacy.

Mindfulness incorporates a non-judgmental attitude recognizing that labelling experiences good or bad, positive or negative, can impede the observation and description of the experience that might result in a different emotion. Judgments in themselves often generate negative emotions. The development of a “beginner’s mind” (Linehan, 1993) is encouraged. This entails the absence of prejudgment, or bringing old attitudes and conclusions to bear upon the present experience. As a result the client will experience lower levels of stress hormones, and therefore, less pain (Gardner-Nix, 2009). Learned mindfulness skills can reduce focus on the past or future, reduce rumination and ‘distorted thinking,’ worries, negative self-talk, and judgments, all of which are issues for the client with chronic pain. These skills can increase letting go, empathy, patience, being with what is, and kindness to self and others. Mindfulness focuses on self-regulation of attention, thoughts and emotions and will enhance feelings of having control over one’s environment (Poulin et al.).

Farb et al. (2010) used functional magnetic resonance imaging (fMRI) to demonstrate that mindfulness training altered the neural expression of sadness and enhanced recovery from emotional challenge and increased tolerance of negative affect. This study was the first study to use neuroimaging to investigate the changes associated with mindfulness training. These results were also associated with decreased depression scores on the Beck Depression Inventory (BDI).

Meditation is the deliberate “setting aside of a specific period (or periods) in [the] day to systematically cultivate mindfulness by focusing . . . attention moment by moment on some particular aspect of . . . experience” (Gardner-Nix, p.31). Using the breath to refocus attention when the mind wanders contributes to alertness and becoming less judgmental of oneself. Kabat-Zinn et al. (1998) and Davidson et al. (2003) demonstrated by their research that meditation has positive effects on the immune system. Davidson et al. also documented increased left-sided anterior brain activation associated with decreased anxiety and negative affect and increases in positive affect. In addition, other older research studies have shown that meditation enhances the ability to deal with stressful events and to speed up recovery (Goleman & Schwarz, 1976). In their study of 134 men and women aged 25-50, Beauchamp-Turner and Levinson (1992) also demonstrated that frequent meditators reported significantly less stressors and illness symptoms. Hutcherson et al. (2008) reported that a brief loving-kindness meditation increased social connectedness and may help to increase positive social emotions and decrease social isolation, all factors which are pertinent for clients with chronic pain.

Sleep Hygiene

Davies et al. (2008) demonstrated the link between restorative sleep and the resolution of chronic pain in a population-based study of prospective pain. Sleep has also been shown to buffer the relationship between pain and negative affect (Hamilton et al., 2007). Other authors (Lautenbacher et al., 2006) have shown a bidirectional link between sleep deprivation and increased perception of pain. Using the Sleep Hygiene Worksheet, it is suggested that three of the sleep hygiene suggestions be implemented each night.

Nutritional Guidance

In the 1970s, Wurtman (cited in Burford-Mason, 2006) demonstrated that the levels of dopamine, serotonin, and acetylcholine are dependent on a regular intake at each meal of the amino acids tyrosine and tryptophan. Under stress greater amounts of tyrosine are required and the levels in the brain rise in direct proportion to the amount of protein in the diet (Burford-Mason). Gomez-Pinilla (2011) also detailed the use of appropriate nutrition to facilitate the production of hormones for optimal mental fitness. Other authors such as White (2009) have discussed necessary nutritional information for psychologists such as targeted amino acid therapy for attention deficits and increasing dietary intake of omega 3 fatty acids in the treatment of depression. It is suggested that the client also read the information relating to nutritional information in order to become better educated about the role which nutrition plays in maintaining both mental and physical health.

Exercise

Eccleston (2001) suggested that it may be more healthy (although counter-intuitive) in cases of non-malignant chronic pain to engage in physical activity that increases short

term pain (and thus fear of pain), but maintains longer term physical health. These suggestions have been validated by Fox et al. (2007) in a review of exercise programs for older adults demonstrating that regular, moderate intensity physical activity is positively related to health benefits. Richardson et al. (2005) reviewed two meta-analyses on the psychological benefits of regular exercise for persons with serious mental illness and noted that regular exercise can alleviate symptoms of low self-esteem and social withdrawal. Liddle, Baxter and Gracey (2004) completed a study of the most effective exercise strategies for chronic low-back pain and noted that exercise has a positive effect on chronic pain with emphasis on strengthening exercises. These authors identified 54 randomised controlled trials of which 16 were selected based on methodological quality and chronicity of symptoms. In all sixteen trials, exercise had a positive effect, twelve trials included strengthening exercise of which ten maintained their positive result at follow-up. Exercise also appeared to decrease fear-avoidance behaviour and facilitate functional improvements despite ongoing pain. Liddle, Baxter and Gracey noted that supervised high-quality exercises which include muscle strengthening, flexibility and cardiovascular endurance had the greatest observed effect on maintaining positive outcome at follow-up.

Smith et al. (2011) compared the effects of a yoga-based exercise program with a more comprehensive yoga program including the traditional ethical and spiritual components. They found that participants in both programs experienced less depression and stress, an increased sense of hopefulness, and increased flexibility compared to the control group. In addition, the traditional yoga group experienced decreased anxiety symptoms and less salivary cortisol throughout the study. Bosch et al. (2009) documented

the results of a pilot study on the physiological and functional effects of yoga on women with rheumatoid arthritis. They reported that the yoga intervention resulted in significantly lower disability levels on the Health Assessment Questionnaire, decreased perception of pain and depression, and improved balance. Chong et al. (2011) have also summarized the results of eight randomised controlled trials and clinically controlled trials demonstrating the positive effects of yoga as an intervention for stress reduction in healthy adults. These findings would warrant the inclusion of yoga as exercise and use of traditional yoga interventions for clients with chronic pain. Several excellent guides exist to the physiological rationale behind yoga (McCall, 2007), the implementation of *hatha yoga* (Kirk et al., 2006), and the use of yoga exercise techniques for clients with chronic pain (McGonigal, 2009).

Emotion Regulation Techniques

Emotions affect an individual's perception of pain as well as affecting the nerve irritation or inflammation which might change in response to emotions. Bruehl et al. (2003) demonstrated an association between anger expression and intensity of chronic pain. These researchers found that anger increased the level of pain and also increased the amount of narcotic needed to reduce pain. Previous studies have demonstrated that an "anger-out," or expressive style of expression of anger, was positively correlated with endogenous opioid dysfunction (Bruehl et al., 2002a). Carson et al. (2005) examined the relationship of forgiveness to pain and psychological distress and showed that an inability to forgive increased the likelihood of lower back pain. Emotional regulation, therefore, is likely to contribute to a more balanced perception of pain. Various emotion regulation

techniques have been detailed by Courbasson et al. (2009) and will be included in the manual.

Chapter Summary

This chapter has investigated the use of other possible interventions and strategies for the client with chronic pain such as acceptance-based therapy, self-regulation therapy and mindfulness-based chronic pain management. Evidence has been demonstrated from the literature to support the use of acceptance and mindfulness-based approaches in the psychotherapeutic treatment for clients with chronic pain. Advances in neuroscience have resulted in a body of knowledge becoming available to the practitioner which will allow the client to visualize the treatment taking place and which could potentially enhance client's knowledge and the progress which they are able to make in therapy. A rationale was presented for the development of a manual of self care strategies comprising evidence-based acceptance and mindfulness based approaches for the client.

The next chapter, The Client Manual, will comprise the strategies that were outlined at the end of this chapter. These strategies include breathing techniques, mindfulness and meditation practice, nutritional guidance, sleep hygiene, and emotion regulation techniques. The proposed client manual is a self-contained section of the project and can be removed for use apart from the rest of the project. This section will be expanded and further material added before publication.

Chapter 5: The Client Manual

This chapter contains the outline of the proposed client manual which describes self care strategies for the use of clients experiencing chronic pain. The strategies are based on evidence from research that indicates that these self care procedures will assist the client in the day-to-day experience of chronic pain. In addition, many of these strategies embody the principles of cognitive behavioural interventions in order to prepare the client for the implementation of formal therapy at a later date. Continual practice of these strategies will enable the client to experience greater success in therapy and to relieve the continual physical discomfort and psychological distress experienced as a result of chronic pain. The projected client manual is self-contained within this chapter and can be removed for use separately to the rest of the project.

Rationale for Self Care Strategies for Clients with Chronic Pain

In his book, “Man’s Search for Meaning,” Viktor Frankl (1959) describes the “the last of the human freedoms” as the ability to “choose one’s attitude in any given set of circumstances, to choose one’s own way” (p.86). He goes on further to state that:

We must never forget that we may also find meaning in life even when confronted with a hopeless situation, when facing a fate that cannot be changed. For what then matters is to bear witness to the uniquely human potential at its best, which is to turn a personal tragedy into a triumph, to turn one’s predicament into a human achievement. When we are no longer able to change a situation – just think of an incurable disease such as inoperable cancer – we are challenged to change ourselves (p.135).

Although Frankl was basing his advice on his three years' experience in the concentration camp at Auschwitz during World War II, his words have application to the discussion of chronic pain. Chronic pain has been described as a “learned overprotective mind-body response” (McGonigal, 2009) and results in the continual experience of pain for the individual because of the way in which the body responds to pain that has been felt in the past and which is now amplified throughout the body. This experience has been compared to the crossed wires of the old-fashioned telephone exchange, where the brain receives signals that there is damage somewhere in the body when in fact, these signals have come about as a result of neuroplasticity – the ability of the brain to learn and change.

In the development of this manual for self care for you, the person with chronic pain, the guidelines have been those set out by Jon Kabat-Zinn (1990). The aims are to help you work with your body, to organize your life to keep pain under some degree of control, to maintain an optimistic, self-efficacious perspective, and to help you engage in meaningful activities and work within your own capacity (1990, p.286). In this vein, the following acronym may be helpful:

S – Seek social and work support

E – Engage in rest, relaxation, recreation, and reflection

L – Let go of anger, guilt, anxiety

F – Feel and accept emotions and uncertainty

C – Commit to taking care of yourself daily

A – Allow yourself to experience love, joy, pride, peace, beauty, and wonder

R – Respond to your physical, emotional, spiritual, cultural and work-related needs

E – Enjoy life

“The healthier and happier we are, the more we are able to give of ourselves to others,” (Pearly Daniel, Supervisor, Spiritual and Religious Care Services, CAMH). In the song, “The Rose,” (Midler & McBroom, 1978) the singer depicts love as a seed which, although it is presently buried under the harsh snows of winter, in the spring with the warmth of the sun, will turn into a beautiful rose. Perhaps the experience of chronic pain can similarly be transformed and blossom in your life to bring meaning to the experience and benefit to yourself and others.

First look at the Pain Stages of Change Questionnaire below, where do you think that you are in the Stages of Change? How ready are you to make a change in your level of self care? If you are in the precontemplative stage, what would help you to move to a different stage?

Pain Stages of Change Questionnaire

<i>Precontemplation</i>
1. I have tried everything that people have recommended to manage my pain and nothing helps.
2. My pain is a medical problem and I should be dealing with physicians about it.
3. Everybody I speak with tells me that I have to learn to live with my pain, but I don't see why I should have to.
4. I still think despite what doctors tell me, there must be some surgical procedure or medication that would get rid of my pain.
5. The best thing I can do is find a doctor who can figure out how to get rid of my pain once and for all.
6. Why can't someone just do something to take away my pain?
7. All of this talk about how to cope better is a waste of my time.

<i>Contemplation</i>
1. I have been thinking that the way I cope with my pain could improve.
2. I have recently realized that there is no medical cure for my pain condition, so I want to learn some ways to cope with it.
3. Even if my pain doesn't go away, I am ready to start changing how I deal with it.
4. I realize now that it's time for me to come up with a better plan to cope with my pain problem.
5. I am beginning to wonder if I need to get some help to develop skills for dealing with my pain.
6. I have recently figured out that it's up to me to deal better with my pain.
7. I have recently come to the conclusion that it's time for me to change how I cope with my pain.
8. I'm starting to wonder whether it's up to me to manage my pain rather than relying on physicians.
9. I have been thinking that doctors can only help so much in managing my pain and that the rest is up to me.
10. I have been wondering if there is something I could do to manage my pain better.
<i>Action</i>
1. I am developing new ways to cope with my pain.
2. I have started to come up with strategies to help myself control my pain.
3. I'm getting help learning some strategies for coping better with my pain.
4. I am learning to help myself control my pain without doctors.
5. I am testing out some coping skills to manage my pain better.
6. I am learning ways to control my pain other than with medications or surgery.
<i>Maintenance</i>
1. I have learned some good ways to keep my pain problem from interfering with my life.
2. When my pain flares up, I find myself automatically using coping strategies that have worked in the past, such as a relaxation exercise or mental distraction technique.
3. I am using some strategies that help me better deal with my pain problem on a day-to-day basis.
4. I use what I have learned to help keep my pain under control.
5. I am currently using some suggestions people have made about how to live with my pain problem.
6. I have incorporated strategies for dealing with my pain into my everyday life.
7. I have made a lot of progress in coping with my pain.

(Kerns et al., 1997).

Then check the following Self Care Assessment sheet. Complete the questions and circle areas on which you scored 1-3. Choose one item from each area on which you will work actively to improve. Keep a copy of these sheets for later review.

Self Care Assessment Worksheet

This assessment tool developed by Saakvitne and Pearlman (1996) provides an overview of effective strategies to maintain self care. After completing the full assessment, choose one item from each area that you will actively work to improve.

Using the scale below, rate the following areas in terms of frequency:

- 5 = Frequently
- 4 = Occasionally
- 3 = Rarely
- 2 = Never
- 1 = It never occurred to me

Physical Self care

- Eat regularly (e.g. breakfast, lunch and dinner)
- Eat healthy
- Exercise
- Get regular medical care for prevention
- Get medical care when needed
- Take time off when needed
- Get massages
- Dance, swim, walk, run, play sports, sing, or do some other physical activity that is fun
- Take time to be sensual—with yourself, with a partner
- Get enough sleep
- Wear clothes you like
- Take vacations
- Take day trips or mini-vacations
- Make time away from telephones
- Other:

Psychological Self care

- Make time for self-reflection
- Have your own personal psychotherapy
- Write in a journal
- Read literature that is unrelated to work
- Do something at which you are not expert or in charge
- Decrease stress in your life
- Let others know different aspects of you
- Notice your inner experience—listen to your thoughts, judgments, beliefs, attitudes, and feelings
- Engage your intelligence in a new area, e.g. go to an art museum, history exhibit, sports event, auction, theater performance
- Practice receiving from others
- Be curious
- Say “no” to extra responsibilities sometimes
- Other:

Emotional Self care

- Spend time with others whose company you enjoy
- Stay in contact with important people in your life
- Give yourself affirmations, praise yourself
- Love yourself
- Re-read favorite books, re-view favorite movies
- Identify comforting activities, objects, people, relationships, places and seek them out
- Allow yourself to cry
- Find things that make you laugh
- Express your outrage in social action, letters and donations, marches, protests
- Play with children
- Other:

Spiritual Self care

- Make time for reflection
- Spend time with nature
- Find a spiritual connection or community
- Be open to inspiration
- Cherish your optimism and hope
- Be aware of nonmaterial aspects of life
- Try at times not to be in charge or the expert
- Be open to not knowing
- Identify what is meaningful to you and notice its place in your life
- Meditate
- Pray

- Sing
- Spend time with children
- Have experiences of awe
- Contribute to causes in which you believe
- Read inspirational literature (talks, music, etc.)
- Other:

Workplace or Professional Self care

- Take a break during the workday (e.g. lunch)
- Take time to chat with co-workers
- Make quiet time to complete tasks
- Identify projects or tasks that are exciting and rewarding
- Set limits with your clients and colleagues
- Balance your caseload so that no one day or part of a day is “too much”
- Arrange your work space so it is comfortable and comforting
- Get regular supervision or consultation
- Negotiate for your needs (benefits, pay raise)
- Have a peer support group
- Develop a non-trauma area of professional interest
- Other:

Balance

- Strive for balance within your work-life and workday
- Strive for balance among work, family, relationships, play and rest

After experiencing a life-changing stroke, neuroscientist Jill Bolte Taylor (2006) suggested three ways to consciously initiate new circuits of thought: (1) remember something fascinating to ponder more deeply (2) think about something that brings terrific joy (3) think about something you would like to do. These suggestions provide a good starting-point for taking care of your own self as a person experiencing chronic pain. Firstly, though, it is necessary to think about some fundamental self care techniques. The first of these is breathing, a process which is fundamental to life.

Breathing Techniques (adapted from Courbasson et al., 2009)

Anxiety limits the breath to the chest and actually increases the level of anxiety. In rapid, shallow breathing the chest does not expand as much as it should and as a result much of the air exchange takes place at the top of the lungs. Chest breathing does not maximize air exchange as the greatest amount of blood flow is in the lower lobes of the lungs. You can see if you are a “chest breather” by placing one hand on your chest and the other on your abdomen. As you breathe in, notice which hand rises. Try the following breathing exercises, each one is specifically designed to provide relaxation and emotional regulation. Choose one to practice each day until the exercises become easy to remember and use in difficult situations. If you find it difficult to focus on your breathing, try to use mindful awareness. What is there blocking your way? Can you let it be? Let it rise, do not push it away. When feelings arise, can you stay with those feelings and accept them? Be still with yourself. Mindfulness training will help you.

Focusing on the breath. This exercise helps to focus attention especially in times of distress. Wearing comfortable clothing, take a comfortable position, if possible seated in a chair with both feet on the floor and hands resting gently in your lap. Relax the muscles of your face and shoulders. Become aware of your breath as it comes in and out. Notice how it feels in your nostrils, your throat, your lungs and your stomach. Notice your chest expand and contract.

Do not change your breath in any way, just use it as a focus. Notice when your mind wanders and without frustration or anxiety, non-judgmentally, just bring it back to the breath.

Focus over and over again on the breath. Be with this moment, and the next. Live in these moments, in the here and now. Not thinking of the past, not thinking of the future. Just being in the present. Create your own centre for a few moments. Focus on the breath, taking this time, time for yourself.

Tune in perhaps to any feelings or sensations within your body and just note how they change when you become focused. Focus on your breath, the life force that goes to every part of your body. Breathing, acknowledging being. And as these few precious moments come to an end, as you resurface back into the doing part of your life, acknowledge that you have given yourself a few moments of time to experience the here and now (adapted from Gardner-Nix, 2009).

Deepening the breath. While sitting, kneeling or lying down on your back, pay attention to your breath, coming in and out. At first, just observe it as it is, without trying to control it. Then as you breathe in, consciously breathe in more at the end, taking in a little extra air. As you breathe out, in turn, consciously breathe out more at the end. This extends the breath and allows more oxygen to circulate in the body. Be mindful not to get light headed. If you do, allow your breath to return to normal.

Observing your breath as you walk. As you are walking, pay attention to your breath. First, just observe it. Is it slow or fast, light or deep? Gradually deepen and lengthen it as you walk. Notice how deeply you can feel the breath in your chest, how warm or cool the air feels as it comes in and out of your nose and mouth. Walk slowly about ten paces, then slowly and mindfully turn and face in the opposite direction. Walk ten paces and then repeat the process. Keep your eyes open, keep your attention on your

breath or on the movement of your hands and feet, bringing a sense of awareness to being present in each moment.

Following your breath through your body. While sitting or lying on your back, pay attention to your breath coming in and out. As you breathe in, breathe deeply into every part of your body. Follow your breath into your lungs, and imagine it going beyond your lungs to every part of your body. Follow it into your abdomen; into your legs, your feet, and into your toes; into your arms and the tips of your fingers; into your neck and the top of your head.

Diaphragmatic breathing. The breathing process can be trained to maximize the healthful benefits for the body and mind. Focus on breathing in through the nose and out through the mouth while keeping the stomach relaxed. When the diaphragm (the large muscle between the chest and abdominal cavities) is contracted it is forced downwards causing the abdomen to expand. This downward pressure forces air into the lungs and pulls blood into the chest improving the return of blood to the heart. This process also stimulates the vagus nerve, a central part of the parasympathetic nervous system, which runs through the abdomen and chest and back to the brain where powerful hormones are released into the body. This stimulation is known as the relaxation response which results in less tension and an overall sense of wellbeing.

Alternate nostril breathing. This exercise helps to focus the breath and reduce hyperventilation. Close your eyes and use the thumb of your right hand to block your right nostril and inhale deeply through your left nostril for six seconds. Cover your left nostril with fourth finger of your right hand and exhale for six seconds. With the left nostril still blocked, inhale deeply through the right nostril for six seconds. Now block the

right nostril and exhale through the left for six seconds. Inhale again through the left nostril. Repeat this process for two minutes returning to the instructions if necessary to continue the pattern if distracted.

Pursed lip breathing. Begin by breathing out through pursed lips as if drinking through a straw. This will slow down your exhalation. Use your abdominal muscles and pull your belly in as you breathe out. Close your lips and release any tension in your belly. This will automatically bring air into your body through your nose. Expand your belly as you breathe in. Repeat this process for two minutes (McGonigal, 2009).

Mindfulness and Meditation Techniques

Set a timer for 15 minutes. Find a quiet space and sit with your hands resting in your lap or on your knees keeping your back straight. Your neck should be relaxed with your chin slightly tucked in. Defocus your eyes, gazing into the middle distance. Take five deep breaths, breathing in through your nose and out through your mouth. Close your eyes and slowly settle in to your body. Observe your posture and notice the sensations where your body touches the chair and your feet meet the ground. Feel the weight of your arms and hands resting on your legs. Notice anything you can smell, hear or taste. Turn your mind inwards. Scan your body from head to toe observing any tension or discomfort. Scan again, noticing which parts of the body feel relaxed. Then turn your attention to your thoughts. Become aware of what's there without judgment. When the timer sounds, open your eyes, take five deep breaths and slowly focus on your body again, stretch your arms, neck, and back and taking your time, rise to your feet.

You can also use one of the mindfulness exercises below (Courbasson, Dixon & Yanover, 2009) to help to refocus your mind and body.

Lying in bed. As you lie in bed when you wake up or before you go to sleep, try to become aware of all of the aspects of the experience. Notice the feeling of the sheets and bedclothes against your skin. Notice the feeling of pressure where your body meets the bed. Move your legs slowly around in the covers. Notice how warm and cold different parts of your body are. Breathe deeply, noticing how it feels to be awake, but close to sleep.

Mindful awareness while moving. While you are engaged in any activity (sweeping, cleaning, ironing, washing windows or blinds, brushing your hair, cleaning your teeth, etc.), try to be aware of the full experience of the activity. Notice how your body is moving, feel the joints and muscles as they shift your limbs. Why are they moving in the way they are; what is their purpose, what is their function in this particular activity? If your thoughts become distracted by other things or negative judgmental thoughts about your body, move your attention back to the awareness of what is, in a non-judgmental way.

Mindful awareness while walking. As you are walking down the street, take the time to notice the experience of walking. As you walk, gently half-smile (relax all the muscles of your face - forehead, eyes, cheeks, chin and jaw - and then gently raise the corners of your mouth). Keep your gaze ahead, in the direction you are going. Then focus on your breath, coming in and out evenly and smoothly. Follow your breath in this way for a while. Then notice your legs moving, feel each leg swing from the hip joint and take the next step, marking the ground solidly with your heel each time. Then swing your arms lightly, easily, letting them follow a natural, easy arc, in rhythm with the motion of

your legs. As you are more comfortable and easy with the motion, take the chance to look around you and be aware of walking ‘in this place.’

Mindful awareness while listening to sound. Become aware of the process of listening. Centre your attention with your breath and a half-smile. Shift your attention to the sound. Focus on everything about it: how high or low it is; how loud or soft; how soothing or invigorating. Imagine where you are in relation to the sounds. Is it all around you? Is it near or far? Listen with your whole body, not just your ears.

Guided imagery meditation for chronic pain (Gardner-Nix, 2009). This text can be read aloud while working through the guided imagery meditation or recorded on an Ipod or MP3 player for later use:

This is a guided imagery for physical or emotional pain. Find a quiet place, if one is available, if not, just create one inside of yourself. Get into a position that allows you the most comfort at this time. Make sure you are not disturbed. And then, when you are ready, just go to your breath and observe it. Whether at the level of your nostrils, or the mouth, or the chest, or the abdomen, wherever it feels comfortable for you. Perhaps work on slowing your breath down if it seems too fast. Ground yourself in the present moment. Not trying to get anywhere fast, just being patient, committed. Breathing in and breathing out. And when you are ready, take your mind’s eye over to where the pain is: bringing awareness to it, observing it. Imagine walking around it and seeing it from every angle.

Not afraid, not dreading its potential and the emotions associated with it. Not giving it power. Just look at it as if you were seeing it for the first time with beginner’s mind. Breathing. Becoming aware of what the sensation of pain is like for you without emotions amplifying it. Perhaps it is aching like a bad toothache. Or sore and inflamed as

in a swollen reddened joint. Perhaps it is twisting like a hand twisting a towel. Tighter and tighter. Or stabbing like a knife. Perhaps it is burning like a fire. Or scalding like boiling water. Or perhaps it feels like electric shocks on a malfunctioning circuit board.

Perhaps your pain is like a jagged block of ice. Perhaps it is tight and spasming as if it were being stretched like a rubber band. Or perhaps you feel as though you are being sliced or cut. Perhaps your pain is throbbing, keeping pace with your beating heart. Whatever it feels like it is time to fix an image that best fits your pain, and in your mind's eye, work with it. To undo, unwind, what is being done. Perhaps you might imagine gently rubbing a soothing balm into the aching part of you dissolving the pain as it absorbs into your skin. Perhaps you place an ice pack on your inflamed joint. Perhaps a gentle hand grasps the hand that is twisting the painful part of you and stops its action. Or stays the hand that holds the knife. Perhaps you can imagine soaking a blanket in water and throwing it over the fire of your pain. Perhaps you find an extinguisher for electrical fires and spray it over your electric-shocklike pains until they die down. Perhaps your jagged block of ice melts as you breathe warmth over it. Perhaps you can imagine massaging soothing creams into tight muscles and feeling them gradually, little by little, relax.

Be aware of whatever feels right for your pain. Take a few minutes now in silence to work with its undoing. SILENCE. Dissolving, fragmenting, disintegrating, melting, softening, undoing, fading, untwisting, drifting away. The color red changing to blue and green, pain diminishing, receding, shrinking in front of your gaze. Aware of not feeling threatened by the pain, not fearing it, not recoiling from it, just being with it, as it dies

down. Perhaps like a piece of discordant music, difficult to listen to, fading into silence. The silence of peace; the silence of safety.

Sleep Hygiene

Shakespeare described sleep as “Sleep that knits up the ravell’d sleeve of care, The death of each day’s life, sore labour’s bath, Balm of hurt minds, great nature’s second course, Chief nourisher in life’s feast” *Macbeth* (2.2.46-51). Sleep is similarly described in the Wisdom literature of the Hebrew Bible as sweet refreshment for the labourer (Ecclesiastes 5:12), a by-product of man’s adherence to God’s wisdom and an antidote to anxiety (Proverbs 3:24). Sleep is necessary for physical and psychological repair. During sleep the body is first repaired physically (by natural cleansing processes or from injury) and then psychologically (for example, working through anxiety). If the normal process of repair through sleep is disrupted by anxiety, depression or poor sleep habits, the body’s own repair abilities become disrupted and further fatigue and pain result.

As chronic pain develops, it is not uncommon for people to develop poor sleep habits without even realizing it. For example, varying the time that one goes to bed and wakes in the morning, taking long naps during the day, engaging in stressful activities such as doing paperwork or studying while lying in bed, and staying in bed most of the day, are all practices that are detrimental to establishing good sleep habits.

Try to go to bed at the same time each night and wake up at the same time each morning even on weekends. Going to the bed consistently at the same time each night helps your body develop a healthy sleep-wake cycle. This practice helps to train your body so that it will fall asleep at a certain time each evening and awaken and get out of bed at the same time each morning. Getting up and out of bed at the same time each

morning is necessary to avoid disrupting the sleep-wake cycle. This is important even if you had difficulty falling asleep or were awakened through the night.

One of the most common disrupted sleep-wake patterns for the person with chronic pain is getting sleep when they can. Therefore, if you do not fall asleep until 2:00 a.m., you might compensate by sleeping in until noon. Once this pattern gets established, your normal sleep-wake cycle becomes more and more disrupted. Avoid taking long naps if possible during the day, but if it is absolutely necessary for you to take a nap, restrict napping to 25-30 minutes in order to avoid disrupting your night-time sleep. Up until recently, it was recommended that a person with sleep problems not take any naps during the day. More recent findings suggest that short naps of less than 25-30 minutes may actually help energize a person without disrupting nighttime sleep. Long naps, such as 1 hour or more during the day can disrupt restorative nighttime sleep.

If you do not feel sleepy at bed time, then engage in a quiet, non-stimulating activity that helps you to relax. This might include such things as listening to music, reading a book, or practicing some relaxation exercises. It is important to engage in an activity that is relaxing and not stimulating at bed time. Often, watching the late news on television or an action movie at night can be distracting, but certainly not relaxing. In addition, the screen stimulates the brain resulting in further disruption of sleep patterns. This also applies to computer screens, and hand-held video games. If you are not asleep after 20 or 30 minutes, then get out of bed. It is important not to lie in bed and try to fall asleep for hours and hours. This simply creates a more and more stressful situation making it less likely that you will fall asleep. Instead, you should find something to do that will help you feel relaxed and ready to fall asleep. Often, it can be helpful to get out

of bed and return to a relaxing activity such as reading a book until you feel sleepy once again. In this manner, you can train your mind and body to recognize a bed as a place to relax towards the goal of falling asleep.

Develop rituals that help you with relaxation each night before bed. It is helpful to develop rituals that you complete just prior to going to bed and getting ready to fall asleep as this gives the body cues that it is time to relax, get ready for bed, and slow down. This might include such things as taking a warm bath, having a light snack, listening to a few minutes of music, or reading. Even cleaning your teeth, closing windows and doors and turning off lights can inform your brain and body that it is time to go to sleep. Engaging in the same ritual each evening prior to going to bed can actually train your body to become sleepy at bed-time. Taking a warm bath at night will help your body to undergo the transition from a state of warmth to a cooler core body temperature which is necessary in order to sleep.

Try to keep to a regular schedule as much as possible by maintaining a routine schedule throughout the day as well as activities prior to bedtime. This might include such things as eating your meals at the same time throughout the day, engaging in other distractive or volunteer activities at regular times, and completing your pre-bedtime routine as discussed previously.

Stop your intake of caffeine, stop or limit your intake of alcohol, and avoid nicotine prior to bed time. In individuals even without a chronic pain problem, research has demonstrated that caffeine use exceeding 250 mg per day increases the likelihood of interference with slow wave/deep sleep. For you as a person with a chronic pain problem, this situation is likely to be even more significant. Thus, it is recommended that your

caffeine consumption be eliminated, or at the very least restricted, with the caveat that no caffeine be consumed after noontime. Alcohol has been found to be disruptive to a good night's sleep, although it may help you to fall asleep, you will likely awaken during the night and therefore should either be avoided or limited in consumption. If a limited amount of alcohol is consumed, it should only be done 4 hours prior to bedtime. Nicotine has also been found to be disruptive to sleep and, again, should be avoided prior to bedtime.

Avoid vigorous exercises within four to six hours of your bedtime. Regular exercise can promote good sleep, but vigorous exercise just prior to bedtime can be disruptive. Any type of vigorous or cardiovascular exercise should be completed at least six hours prior to bedtime. Relaxing exercises such as breathing exercises, meditation or yoga can be done prior to bedtime in order to help initiate a restful night's sleep.

Make your bedroom a restful place. Your sleep environment should be pleasant and relaxing. Your bed should be comfortable, based on choosing the appropriate mattress and pillow, and your room should not be too hot or too cold, as well as not being too bright. Of course, any distracting sounds that might make it difficult for you to fall asleep or cause you to awaken during the night should be eliminated. In order to maximize the benefits of your sleep it is necessary to avoid overarousal before going to bed, to dim the lights, have a cool temperature in the bedroom, and, if necessary, employ a mild repetitive form of stimulation like a fan, soft looping music, or nature sounds.

Practice psychological sleep techniques. Among the most common psychological techniques used to help with a sleep problem are relaxation training, meditation, hypnosis, and cognitive restructuring. These techniques are similar to those used for

stress management as well as chronic pain management, and rely on a common set of skills: deep muscle relaxation; focus elsewhere rather than on the pain; use of visual, sound, or other relaxing sensory imagery; distancing yourself from the chronic pain. These skills, coupled with the deep breathing techniques, can be very beneficial in improving your sleep and decreasing the perception of pain by retraining your brain. Many of these skills are coupled with exercise in techniques such as yoga and Tai Chi.

Make copies of and use the following Sleep Hygiene Worksheet in order to implement at least three good sleep habits each night.

Sleep hygiene worksheet. Record your use of sleep hygiene strategies over a week. Your goal is to use at least one good sleeping habit from any three categories each night. Check the cell of each habit used.

Sleep Hygiene Category	Good Sleeping Habits	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Timing	Set a constant bedtime							
	Set a constant wake time							
	Do not take naps							
Sleep Behaviour	Have a pre-sleep ritual							
	Use the bed only for sleep							
	If unable to sleep for more than 15 minutes, get out of bed							

Environment	Take a warm bath							
	Keep temperature of room constant							
	Keep bedroom dark							
Ingestion	Avoid caffeine, nicotine, and alcohol before bed							
	Eat a light snack before bed							
Mental Control	Avoid stimulating activities; do mentally quiet tasks							
	Use relaxation techniques (breathing, imagery)							

Total number of habits used per night:

Otis (2007, p.77).

Nutritional Guidance

“Nutrition is a cornerstone that affects and defines the health of all people, rich and poor. It paves the way for us to grow, develop, work, play, resist infection and aspire to realization of our fullest potential as individuals and societies” (WHO, 2003). In order for our brains and bodies to function optimally, we need good nutrition. The USDA dietary guidelines (2010) suggest balancing calories by eating less and avoiding oversized portions. These guidelines describe a plate comprising half of the plate at each meal fruits and vegetables and half of the grains whole grains and recommend switching to fat-free or low-fat (1%) milk, as well as aiming for a reduction in sodium and sugary drinks

<ul style="list-style-type: none"> • 150 ml. (2/3 cup) cereal • 5-6 small crackers • 250 ml. (1 cup) canned soup (not broth) 									
<p>Fruits: 3-7 choices</p> <ul style="list-style-type: none"> • 125 ml. (1/2 cup) fresh fruit • 250 ml. (1 cup) melon • 75 ml. (1/4 cup) dried fruit • 125 ml. (1/2 cup) fruit juice • One apple or banana or pear 	<p>Check your daily choices:</p> <table border="1" data-bbox="873 449 1435 489"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p>Note that fresh whole fruit is preferable to juice as the whole fruit provides fibre</p>								
<p>Vegetables: 3-7 choices</p> <ul style="list-style-type: none"> • 125 ml. (1/2 cup) cooked vegetables • 125 ml. (1/2 cup) vegetable juice • 250 ml. (1 cup) tomato sauce • 125 ml. (1/2 cup) raw veggies 	<p>Check your daily choices:</p> <table border="1" data-bbox="873 709 1435 749"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>								
<p>Fats: 2-6 choices</p> <ul style="list-style-type: none"> • 5 ml. (1 tsp) oil, butter, margarine, salad dressing, nut butter, or tahini • 10 ml. (2 tsp.) reduced calorie dressing • 10 olives • 15 ml. (1 tbsp.) cream cheese • 30 ml. (1 tbsp.) table cream • 8 raw almonds 	<p>Check your daily choices:</p> <table border="1" data-bbox="873 968 1435 1008"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>								
<p>Desserts: To increase eating pleasure and meet energy needs</p> <ul style="list-style-type: none"> • One inch (2.2 cm.) slice of cake • 125 ml. (1/2 cup) ice cream • 125 ml. (1/2 cup) pudding • One snack cake • 2 cookies (oreo size) • 1/2 candy bar 	<p>Check your daily choices:</p> <table border="1" data-bbox="873 1299 1435 1339"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>								

The following nutritional guidelines provide further information on food categories, the function and source of each element and suggested foods which provide this element for optimal nutrition.

Nutritional guidelines (adapted from Vernon, 2011). Food supplies energy for the body which converts it into forms that the body can use. The body requires electrical,

mechanical, thermal and chemical energy to function properly. Electrical energy is required by the brain and nervous system; mechanical energy is required for proper functioning of muscles; thermal energy is required to regulate body temperature; and chemical energy is required for making compounds needed for growth and maintenance such as tissue repair (Vernon, 2011).

Name of Food	Functions	Food Sources	Foods I Might Eat
Carbohydrates	<p>To provide most of our body's energy needs</p> <p>The primary source of fuel for our cells and heat regulation. Carbohydrates have to be metabolized or broken down into glucose, a form of energy our cells can use. Glucose either travels through our blood stream to provide energy to the body or is stored in the liver and muscles as glycogen. Glycogen will be released when the body needs more energy</p> <p>Under conditions of starvation, body fat is used as fuel for the brain and nervous system</p>	<p>Fruits, table sugar, vegetables, cereals, breads, rice, whole grains, legumes, seeds, and pastas</p>	<p>Sandwich with multigrain bread; cereal with white or brown sugar and milk; spaghetti with dressing of olive oil and cheese or sauce; pumpkin seeds; sushi; Chinese food including bowl of rice</p>
Protein	<p>Main purpose is to build and repair body tissue. Protein is also used to regulate metabolism (all the chemical processes that occur in our bodies to enable growth, produce energy, distribute food to cells and eliminate waste). If carbohydrate intake is inadequate, the body uses protein for energy. Protein is used to produce hormones and maintain their normal function. It is also used to</p>	<p><u>Complete Proteins:</u></p> <p>Complete proteins contain essential amino acids required to build and maintain body tissue.</p> <p>Meat, fish, milk, eggs, cheese</p> <p><u>Incomplete</u></p>	<p>Serving of roasted chicken breast or salmon, milk on cereal, poached egg, piece of cheddar cheese, probiotic yogurt</p> <p>Almonds, peanuts,</p>

	<p>maintain the body's fluid balance so that blood volume is maintained. Serum albumin draws water from the tissues to maintain blood volume. With insufficient protein swelling will occur in various parts of the body because of the accumulation of water in the tissues (e.g feet and ankles). Protein also maintains the body's acid-base balance and is an important component in the immune system. Antibodies are made from protein. Some proteins will change vitamins, minerals, nutrients, and medications to a form that enables them to be absorbed by the body and individual cells</p>	<p><u>Proteins:</u></p> <p>Incomplete proteins lack one or more essential amino acids needed to build and repair tissue. They can be used to provide energy or the body will combine them to produce complete proteins if needed</p> <p>Legumes, grains, nuts</p>	<p>hummus on whole grain crackers as a snack; chili; a serving of peas, green beans with dinner; black bean soup</p>
Fats	<p>To provide energy. Fats actually produce more than double the amount of energy provided by carbohydrates or protein</p> <p>To carry food into the cells.</p> <p>To build insulation for our bodies. Subcutaneous fat (located just under our skin) maintains a normal body temperature and preserves body heat.</p> <p>Fatty tissue is needed to protect our vital organs (fatty tissue surrounds all of our vital organs to provide support and cushioning against injury).</p> <p>To build cells needed for clotting in order to maintain</p>	<p>Meat, whole milk, cheese, oil, eggs, nuts, avocados, and fish</p>	<p>Serving of beef, lamb or pork; olive oil mixed with lemon juice as a salad dressing on a green salad with sliced avocados; a fish sandwich from a fast food restaurant, cooked shrimp and seafood sauce</p>

	<p>normal clotting time</p> <p>To build brain and nerve tissue</p> <p>To form bile</p> <p>To transport vitamins in our blood to the cells</p> <p>To assist with nerve impulse transmission</p> <p>Fats slow stomach emptying so we feel satisfied longer</p>		
	<p style="text-align: center;">VITAMINS</p> <p>-are essential for the body's metabolism</p> <p>-are essential for disease prevention</p>		
Vitamin A	<p>To maintain our vision</p> <p>To build and maintain the integrity of our skin and mucous membranes which line all our body orifices (for example, the mouth, nose, bowels, stomach and lungs)</p> <p>Needed for the growth of tissues and bones</p>	Milk, butter, eggs, meat, fish, liver oil; green, yellow, and orange vegetables; yellow and orange fruit	Salad with chopped red, yellow peppers and mandarin oranges; a peach or piece of cantaloupe
Vitamin B	<p>It cannot be stored in the body so it must be provided regularly in our diet</p> <p>To ensure our nervous system functions properly and efficiently</p> <p>To convert food to energy</p>	Pork, organ meats, legumes, grains, nuts, fortified breads and cereals	Pork chop, snow peas, sesame seed whole wheat bagel, serving of oatmeal cereal
Vitamin C	<p>Used in the production of connective tissue</p> <p>To play a role in maintaining the integrity of our small</p>	Citrus fruits, cantaloupe, strawberries, green peppers, broccoli, spinach,	Grapefruit, sliced strawberries, green pepper slices with a sandwich, spinach

	<p>blood vessels</p> <p>To produce haemoglobin which carries oxygen to our cells</p> <p>To be an ingredient in the production of many of our hormones</p> <p>The antioxidant activity may decrease the risk of gastric, esophageal and stomach cancer</p>	<p>potatoes</p> <p>It occurs only in fruits and vegetables</p>	<p>salad with tomatoes, cooked or raw carrots, baked potato</p>
Vitamin D	<p>An essential component of our bones and teeth</p> <p>To stimulate calcium absorption in the intestines</p>	<p>Egg yolks, butter, fortified milk, margarine, some cereals</p>	<p>Scrambled eggs on buttered toast, with lettuce salad</p>
Vitamin E	<p>To keep cell membranes healthy and intact</p> <p>To prevent our red blood cells from breaking down prematurely</p>	<p>Vegetable oils, margarine, nuts, leafy green vegetables</p>	<p>Peanut butter; margarine on a baked potato</p>
Vitamin K	<p>To activate our blood clotting proteins (e.g. fibrinogen)</p>	<p>Leafy green vegetables (spinach), dairy, meat, eggs, cereal, and fruits</p>	<p>Lettuce salad with a chopped hard boiled egg and/or sliced chicken; blueberries</p>
MINERALS			
Calcium	<p>The most abundant mineral in our body</p> <p>99% is housed in our bones and teeth and the remaining 1% is in our blood</p> <p>To maintain the health of our bones and teeth</p>	<p>Dairy products, leafy green vegetables, broccoli, legumes, nuts, and soup stock made from bones (chicken soup)</p>	<p>Make or buy chicken consommé and add chopped broccoli, cup of hot chocolate</p>
Phosphorus	<p>The second most abundant mineral in our body</p> <p>80-90% is found in our bones and teeth and 10% travels in our blood</p>	<p>Milk, meat, fish, nuts, and legumes</p>	

	<p>To maintain strength of our bones and teeth</p> <p>To produce DNA and RNA which is where our genetic information is stored</p>		
Magnesium	<p>Present in all body cells</p> <p>To participate in the conversion of carbohydrates and proteins to energy that our bodies can use</p> <p>To play a role in maintaining the health of our heart and other muscles</p> <p>It is an essential component for all muscle contractions (e.g. heart)</p>	Whole grains, nuts, leafy vegetables	Put cilantro, parsley in a salad or use as a garnish
Sodium	<p>To maintain the body's fluid balance</p> <p>To maintain acid-base balance</p> <p>To assist with transporting glucose across the cell membranes</p> <p>An essential electrolyte needed for the conduction of impulses along nerve pathways</p>	Table salt, prepared foods, canned soups, cheese	Add small amount of salt to pasta when cooking; frozen dinner; macaroni and cheese; deli meat sandwich
Potassium	<p>It is crucial for heart and muscle contractions</p> <p>It is crucial for fluid balance in the body</p> <p>To play an important role in the conduction of nerve impulses in the nervous system</p>	Unprocessed foods and bananas (uncooked fruit and vegetables are the primary source)	Celery sticks, snow peas, carrots, banana, peaches, plums, fruit salad, dried cranberries added to cereals or salads
Chloride	An important ingredient in our stomach acid	Most foods	

	To stimulate the secretion of saliva		
Iron	<p>Present in every cell</p> <p>A necessary ingredient in hemoglobin which transports oxygen to our cells</p> <p>An ingredient of myoglobin which stores oxygen in our muscles until needed</p>	<p>Liver and beef are the best sources</p> <p>Fish, poultry, egg yolk, dark green vegetables, some dried fruits, fortified breads, and cereals</p>	<p>Broccoli, spinach, green beans, turkey, beef, poached egg, dried apricots, figs, Bran Flakes, oatmeal</p>
Iodine	An important ingredient in thyroid hormones which regulate our metabolism	Seafood and iodized salt	Fish dinner; tuna sandwich
Zinc	<p>A component of enzymes that help convert food to energy that can be utilized by the body</p> <p>Important role in:</p> <ul style="list-style-type: none"> • Growth and development • Reproduction • Night vision • Immune system functioning • Taste and smell • Appetite 	Liver, lamb, eggs, beef, seafood, and whole grain products	
WATER			
Water	<p>Water accounts for 60% of an adult's total body weight</p> <p>A major component of body fluids (blood)</p> <ul style="list-style-type: none"> • Secretions • Excretions (urine) <p>An essential component for all the chemical reactions that occur</p>	<p>Daily requirements for an adult: 2500-3000 ml. (2 1/2-3 Liters)</p> <p>Water cannot be stored in the body so must be replaced regularly</p> <p>In a normal</p>	<p>Tea, coffee, juice in moderation and a liter of water</p>

	<p>To carry nutrients to our cells</p> <p>To carry waste from our cells</p> <p>To lubricate our body tissue</p> <p>To lubricate all our joints</p> <p>To regulate our body temperature through the process of perspiration</p> <p>It gives our cells, organs, and our body shape and form by maintaining fluid in all the cells</p>	<p>balanced diet, an adult will consume 700-1000 ml (3/4 Liter) through foods we eat. This requires that we drink fluids from 1 ½ – 2 Liters a day</p>	
	<p style="text-align: center;">FIBER</p> <p>- food that is resistant to chemical digestion</p> <p>- adds bulk to bowel movements</p>		
Fiber	<p>Prevents constipation</p> <p>Provides a feeling of fullness after eating</p> <p>Helps reduce cholesterol in the blood</p> <p>Helps regulate blood sugar</p>	<p>Whole grains, fruits, leafy vegetables, nuts, beans, prunes, root vegetables and their skins</p>	<p>Bran Buds, Bran Flakes, apple, prune juice, flax seed added to cold cereal, baked sweet potato and the skin</p>

Exercise

Exercise is important to maintain your physical functions such as digestion, to improve your heart and circulatory systems, and to calm your thoughts and emotions. Gentle, low-impact exercise such as bicycle-riding, swimming, walking or cross-country skiing can be done outside where fresh air and sunshine will benefit your body. Alternatively, if it is not possible or desirable to exercise outside, suggestions for indoor activities are similar gentle, low-impact exercise using aids such as a stationary bicycle, rowing machine, or cross-country ski machine. Use a practical, supportive manual such as Kortge's (2010) "Healing Walks for Hard Times" for an eight week program of walking exercises specifically designed to promote mindfulness, and physical strengthening through difficult periods in life. See also McGonigal's (2009) manual on "Yoga for Pain Relief" with suggestions for simple practices to calm your mind while healing chronic pain.

Emotion Regulation

The experience of chronic pain often results in isolation and withdrawal. This can be because of the limiting factors imposed by pain or by the feelings of frustration and embarrassment which often ensue. As a result, you might stop doing many of the activities which you previously enjoyed. This, in turn, can contribute to depression which will increase the likelihood of disability and further pain. Introducing pleasant activities into your schedule can help reduce negative thoughts and emotions, increase physical activity, and decrease pain. The next few pages comprise a list of pleasant events. Look over the list and highlight the ones that appeal to you most. Try to schedule at least two pleasant activities each week. If this exercise is difficult for you, try to use mindful

awareness before selecting activities. Be with the feelings that arise and let them be. Try to face those core feelings and then turn to the pleasant activities.

Pleasant events schedule (adapted from Linehan, 1993).

Acting	Complimenting or praising someone
Amusing people	Confessing or apologizing
Asking for help or advice	Cooking meals
Attending a concert, opera or ballet	Counselling someone
Beachcombing	Dancing
Being alone	Dating, courting etc.
Being asked for help or advice	Defending or protecting someone
Being at a family reunion or get-together	Designing or drafting
Being at the beach	Discussing my children or grandchildren
Being at weddings, baptisms etc.	Discussing my hobby or special interest
Being coached	Doing "odd jobs" around the house
Being complimented	Doing a job well
Being counselled, helped	Doing a project in my own way
Being downtown in a city	Doing art work, painting, sculpture etc.
Being a sporty or expensive car	Doing craft work (pottery, beads etc.)
Being in the country/mountains	Doing experiments or other scientific work
Being invited out	Doing favours for people
Being noticed as sexually attractive	Doing housework, laundry, cleaning
Being praised by people I admire	Doing things with children
Being relaxed	Doing volunteer work, community service
Being told I am loved/needed	Dreaming at night
Being with animals	Driving long distances
Beings with friends/family	Eating good meals
Being with happy people	Eating snacks
Being with someone I love	Exploring (hiking etc.)
Bicycling	Expressing my love to someone
Bird-watching	Feeling the presence of God in my life
Boating (canoeing, motor-boating, sailing)	Finishing a project or task
Bowling	Fishing
Brushing my teeth	Fixing machines (cars, motorcycles etc.)
Budgeting my time	Gardening, landscaping, doing yard work
Building or watching a fire	Gathering natural objects (rocks, driftwood etc.)
Buying something for my family	Getting letters, cards, notes
Buying things for myself	Getting massages or backrubs
Camping	Getting up early in the morning
Canning, freezing, making preserves	Giving a party or get-together
Caring for houseplants	Giving a speech or lecture
Cheering, rooting	Giving gifts

Coaching someone	Giving massages or backrubs
Collecting things, coins, shells, stamps etc.	Going on field trips, nature walks etc.
Combing or brushing my hair	Going on outings (park, picnic, barbecue, camping, beach)
Going to amusement park, circus, zoo	Just sitting and thinking
Going to barber or beautician	Kissing
Going to a business meeting	Kicking leaves, sand, pebbles etc.
Going to health club, sauna etc.	Knitting, crocheting, embroidery etc.
Going to museum or exhibit	Laughing
Going to a party	Learning to do something new
Going to plays or concerts	Listening to music
Going to a restaurant	Listening to the radio
Going to a revival or crusade	Listening to the sounds of nature
Going to sports event	Loaning something
Going to auctions, garage sales etc.	Looking at the stars or moon
Going to banquets, luncheons, potlucks	Making a new friend
Going to church functions	Making charitable donations
Going to lectures or hearing speakers	Making food or crafts to sell or give away
Going to reunions or alumni meetings	Meditating or doing yoga
Going to school or government meetings	Meeting new people
Going to the library	Photography
Going to the movies	Planning or organizing something
Having a frank and open conversation	Playing a musical instrument
Having a lively talk	Playing organized sports
Having an original idea	Playing board games
Having coffee, tea with friends	Playing cards
Having daydreams	Playing in a musical group
Having family members/friends do something that makes me proud	Playing in sand, stream, grass etc.
Having friends come to visit	Playing pool
Having house guests	Playing with pets
Having lunch with friends or associates	Pleasing employers, teachers etc.
Having peace and quiet	Pleasing my parents
Having people show interest in me	Preparing a new or special food
Having sexual relations	Protesting social, environmental or political conditions
Having someone agree with me	Putting on makeup, fixing hair etc
Having spare time	Reading a "How To" book or article
Hearing a good joke	Reading cartoons or comic books
Helping someone	Reading essays, technical, academic or professional literature
Hiking	Reading magazines/newspapers
Horseback riding	Reading maps
Improving my health (dentist, diet etc.)	Reading sacred works
Introducing people to each other	Reading stories, novels, poems or plays

Rearranging or redecorating a room	Talking about philosophy or religion
Receiving honours (civic, military etc.)	Talking about politics or public affairs
Receiving money	Talking/thinking about sex
Remembering a departed friend or loved one	Talking about sports
Reminiscing about old times, beautiful scenery, words and deeds of loving people	Talking on the telephone
Repairing things	Talking to myself
Restoring antiques, furniture etc.	Talking to friends
Riding a motorcycle	Teaching someone
Riding in an airplane	Telling people what to do
Rock climbing or mountaineering	Thinking about a good future
Running, jogging	Thinking through an interesting question
Saying prayers	Thinking about other people's problems
Seeing beautiful scenery	Thinking about people I like
Seeing famous people	Thinking up or arranging a song or music
Seeing good things happen to people	Travelling
Seeing old friends	Travelling with a group
Seeing or smelling a flower or plant	Using cologne, perfume or aftershave
Selling or trading something	Visiting friends
Sewing	Visiting people who are sick or shut in
Shaving	Walking barefoot
Shopping	Washing my hair
Singing in a group	Watching people
Singing to myself/around the house	Watching the sky, clouds or a storm
Sitting in the sun	Watching TV
Sleeping late	Watching wild animals
Sleeping soundly at night	Water skiing, surfing, scuba diving
Smiling at people	Wearing clean clothes
Snow skiing/skating	Wearing expensive or formal clothes
Snowmobiling	Wearing informal clothes
Solving a personal problem	Wearing new clothes
Solving a puzzle, crossword etc.	Winning a bet
Speaking a foreign language	Winning a competition
Starting a new project	Woodworking, carpentry
Staying up late	Working in politics
Suffering for a good cause	Working on my finances
Swimming	Working with others as a team
Taking a bath/sauna/steam bath	Writing in a journal or diary
Taking a nap	Writing letters, cards or notes
Taking a shower	Writing papers, essays, reports
Taking a walk	Writing short stories, poetry or plays
Taking tests when well-prepared	

Assertive Communication

Learn how to express your needs clearly and concisely. Interact in a way that makes you feel competent and effective rather than helpless and overly dependent. Be willing to compromise if the other person can't give you exactly what you want or need. Make sure that you validate the other person's response if this relationship is important to you. Restate your needs if necessary, and repeat if the other person tries to engage you in further discussion that is not going to lead to resolution.

Try to be attentive to interpersonal situations where you could use these new skills of assertive communication. If necessary, make opportunities to practice assertiveness such as starting a conversation with a stranger; asking for special fixings on a sandwich at a restaurant, or asking for a substitution in a meal; asking for directions or assistance with a task. Remember that it is okay to want or need something from another person!

If you find this difficult, ask yourself what feelings arise. Let those feelings be, don't push them away. What makes it hard for you to express your needs and wants? Use mindful awareness and then take a step towards asserting your right to express your needs.

In Conclusion

This manual sets out some proven and effective ways to take care of your self. Even if you are dealing with the constant presence of chronic pain, it is important that you do everything that you can to help your mind and body to be in the best possible state. The suggestions that have been given for breathing, meditation, sleep hygiene, nutritional guidance, exercise, emotion regulation and assertiveness have all been tested with people dealing with chronic pain. Most of these suggestions are very easy to implement, some

will require a little more practice, but all of these strategies will help you to deal with your day-to-day experience and prepare you for future therapy.

Remember take good care of your self, take time to sleep and eat well, and try to connect with others on a regular basis. Taking the time to look after your physical, mental and spiritual health will be time that is well invested. This investment will pay returns now and in the future in improved physical and mental functioning and hope for a brighter future.

Chapter Summary

This chapter contains an outline of a proposed self care manual for the client with chronic pain. The manual begins by outlining the need for adequate self care for the client with chronic pain. Several strategies have been described which the client can implement into their day-to-day schedule. These strategies include breathing techniques, mindfulness and meditation techniques, nutritional guidance, sleep hygiene and emotional regulation. Worksheets are also included, a reference list is attached, and suggestions for further reading are included in the text. The client is encouraged to engage in regular practice of the suggested strategies to relieve the stress and discomfort related to the experience of pain.

The following chapter presents conclusions from the project, the review of the literature associated with the implementation of cognitive behavioural therapies for clients with chronic pain, and the provision of a description of a future client manual for suggested self care strategies for the client with chronic pain.

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Chapter 6: Project Summary and Conclusion

This project on In Search of Relief: Self care Strategies for Clients with Chronic Pain was completed as a requirement of the Master of Education (Counselling Psychology) degree through the University of Lethbridge Campus Alberta Applied Psychology (CAAP) program. The main aim of the project was to provide self care strategies for therapists and clients dealing with issues of chronic pain. This aim was accomplished by means of a comprehensive literature review of available psychotherapeutic approaches for a client with chronic pain. Of especial interest were the cognitive behavioural approaches as these have been widely demonstrated by research to be efficacious for this particular population. Research on the efficacy of the use of CBT with chronic pain was reviewed, firstly by two meta-analyses and then several recent studies addressing the use of CBT in smaller, perhaps more difficult to treat, populations. The evidence was strongly in favour of the treatment of clients with chronic pain with cognitive behavioural interventions. Strategies and interventions, such as acceptance and mindfulness-based therapies, were also discussed and suggestions made for implementation in a counselling setting. Many promising areas of future research could be explored with the implementation of CBT earlier in treatment, greater availability of therapists, follow-up studies on maintenance of gains, and the use of acceptance and commitment therapy (ACT), hypnosis, yoga and meditation as adjuncts to treatment. The roles of neuroplasticity and advances in neuroscience were also commented upon together with the potential areas for future research.

This researcher used an existential basis and a biopsychosocial approach to the issues faced by the client with chronic pain and selected various techniques that have

been demonstrated by research to be effective for stress relief, relaxation and pain relief. Chapter 1 provided the Introduction to the project and chapter 2 described Project Development. The subsequent chapters contained the Literature Review (Chapter 3), Possible Interventions and Strategies for Use with Clients with Chronic Pain (Chapter 4), and the Client Manual (Chapter 5).

It is envisaged that the proposed client manual will be used separately as a handbook of suggested strategies for the client with chronic pain to enable them to take greater responsibility for their own well-being and to practice established psychotherapeutic techniques that will enhance their success in subsequent formal therapy programs. In addition, it is hoped that the regular practice of breathing techniques, mindfulness, meditation, sound nutritional advice, sleep hygiene and emotion regulation will relieve the physical discomfort, psychological distress and impact on life and relationships experienced by the client with chronic pain.

This project began with the personal experience of my own family members. It was spurred on by my experience with clients on a crisis support telephone line and at the Centre for Addictions and Mental Health. The overall impression that I gained from working with these individuals was that there was a need for positive, constructive suggestions for self care which could be implemented while waiting for formal therapy to begin. In addition, I had noted the difficulty which many clients encountered trying to introduce mindfulness, and emotion regulation by means of including pleasant events into their daily schedule. These clients also needed basic information and guidelines on nutrition, exercise and sleep hygiene. The proposed client manual described in this project is an attempt to remedy these deficiencies by compiling various suggested and

proven strategies in one convenient form. The future manual also introduces various psychotherapeutic strategies such as breathing techniques that will be incorporated in later therapy programs such as mindfulness based chronic pain management.

In the process of completing this project, I have personally learned many techniques that I will use for my own self care and to recommend to clients. I hope to publish the expanded manual as a self-contained booklet and to make this available to therapists and clients at pain clinics in southern Ontario. It is anticipated that by including self care concurrently with conventional treatment at pain clinics and prior to the implementation of formal therapy, that the client will begin to see a glimmer of hope that can give meaning to their life, improve physical and mental health and enhance relationships. As such, this project has hopefully become the seed that in the winter, “lies far beneath the bitter snows,” but, “with the sun’s love, in the spring becomes the rose” (Midler & McBroom, 1978).

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