

Overview of Behaviour Therapy and Cognitive Behaviour Therapy Interventions, Treatment Targets and Rationales in Chronic Pain Management.

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Behavioural Strategy/Target	Description	Rationale
<ul style="list-style-type: none"> • Goal setting 	<ul style="list-style-type: none"> • Statements of desired specific, realistic, ‘normal life’ activities, set within timeframe of when behaviours are to be achieved or routinised • Goals may need to be graduated over timeframe • Areas for consideration are: <ul style="list-style-type: none"> A. <i>Work (including domestic and voluntary)</i> B. <i>Pleasurable/Leisure Activities</i> C. <i>Daily Exercise</i> D. <i>Social Activities</i> E. <i>Other e.g. medication reduction</i> 	<ul style="list-style-type: none"> • Provides focus away from pain for active engagement in therapy program / self-management efforts • Taps into benefits of planning and organising versus ‘drifting’ (passive, pain-driven lifestyle) • Recording and charting successes provides feedback on progress and may enhance sense of achievement • References to managing pain or distress are avoided to shift focus to ‘normal’ activity. So for B. “going to hydrotherapy once a week” would be discouraged as a goal, even though it may be enjoyable
<ul style="list-style-type: none"> • Graded activity for reactivation based on time/quota contingencies and pacing 	<ul style="list-style-type: none"> • Gradual increase in activity by physical conditioning using quotas and alternating periods of activity and rest (pacing) • A quota-based strategy stipulates resting only after specified activity goals are attained e.g. 10 flexion exercise repetitions. Patients need to persist despite any (tolerable) increases in pain. Patients are first reassured that hurt and discomfort of remobilising does not mean harm • Pacing refers to taking breaks from activity before pain significantly worsens. An average tolerance is established for an activity over at least 2 or 3 trials (e.g. gardening for 10 minutes before pain increases) to establish a baseline. This is the level at which an activity is to be performed regularly, on a good or bad day, before taking a break 	<ul style="list-style-type: none"> • Pain of some (e.g. chronic spinal, arthritic) conditions can be worsened by muscle and joint dysfunction due to reducing activity to avoid pain, or by excessive over-activity. Regular exercise can reduce pain. But these extreme responses can aggravate pain and make exercise and general activity aversive • A ‘middle way’ to approach basic activity problems and prevent deconditioning is to apply the principles of pacing and quotas • Stopping and starting activity is no longer pain-contingent but quota- or time-contingent • Ensuring understanding of these concepts is a central educational issue. Widely regarded as a potent means of enhancing patient’s sense of control over physical functioning

	<ul style="list-style-type: none"> Initially, to increase the chances of success, the task quota is set 50% to 20% below baseline average (5 to 8 minutes in example above) Patients persist to quota level even on a bad day then take a break for a few minutes and do something else, usually involving other muscle groups. Examples: stretching, standing, walking, applying a physical relaxation strategy. The pattern is repeated until completion The baseline level can be increased gradually via therapist-patient negotiation as stamina and exercise tolerance reliably improve (known as ‘pacing up’) 	
<ul style="list-style-type: none"> Graded exposure <i>in vivo</i> with behavioural experiments for pain-related fear 	<ul style="list-style-type: none"> A refinement of graded activity interventions (see above). For chronic, severely disabled musculo-skeletal pain patients who are identified by questionnaires and an interview as having substantial fear of pain, movement, work-related activities or re-injury that is the main contribution to their disability e.g. “I might injure myself if I exercise.” “What if I fell while lifting something at work? That might be dangerous. I don’t want to end up paralysed.” Idiosyncratic fear stimuli that were previously avoided are managed via <i>in vivo</i> hierarchical exposure to fear eliciting situations with behavioural experiments that lead to disconfirmation of danger and harm. Education using a fear avoidance model and faded therapist modelling are also incorporated 	<ul style="list-style-type: none"> Avoidance associated with catastrophic fear can become long-term and lead to physical deconditioning, hypervigilance and psychophysiological reactivity – all contributing to heightened pain Different pain and other physical experiences to those expected, following behaviour change, are more convincing than reassurance or rational argument e.g. “I wouldn’t have believed you if I hadn’t done it. Falling on to the canvas, just like you did, and while carrying the weights, only increased my pain about 10 or 20 points.” The therapist-guided exposure and experimental component often may have a heuristic value. Previously undetected fears may surface with the provocation of such treatment and be managed immediately, adding to treatment effectiveness

<ul style="list-style-type: none"> • Raising daily general activity level 	<ul style="list-style-type: none"> • Encouragement and support to resume normal activities: social/family roles, recreational activities, work and domestic responsibilities • Patients record increases in activities, particularly those that give senses of pleasure / fun and accomplishment 	<ul style="list-style-type: none"> • Generalised inactivity has implications for physical functioning, sleep, preoccupation with the body and pain, mood, self-esteem and occupation
<ul style="list-style-type: none"> • Relaxation <ul style="list-style-type: none"> ▪ Muscle Relaxation e.g. Progressive (general) and Isometric (spot) ▪ EMG Biofeedback ▪ Self-hypnosis ▪ Controlled breathing ▪ Absorbing activities e.g. walking, hobbies 	<ul style="list-style-type: none"> • No single approach has been demonstrated to be more effective than any other • Presenting a range of active and passive relaxation options allows patient to discover more personally useful strategies 	<ul style="list-style-type: none"> • Relaxation strategies can reduce the reflexive tension response to neuromuscular or musculoskeletal pain, bracing for anticipated pain, generalised arousal, and anxiety. Can also be used as an attention diversion strategy, in self-control of stress, to aid sleep, and add to sense of control and self-efficacy • Wise to introduce early in treatment because they are easy to learn and are credible because of physical association
<ul style="list-style-type: none"> • Exercise and fitness 	<ul style="list-style-type: none"> • Structured exercise programs (e.g. walking) to improve physical strength, flexibility and endurance 	<ul style="list-style-type: none"> • May be a prerequisite to raising low general activity levels • Physical fitness aids coping in some pain conditions • Potentially mood enhancing • Deconditioning can exacerbate and maintain pain in many conditions
<ul style="list-style-type: none"> • Contingency management 	<ul style="list-style-type: none"> • Spouse and family members trained to be aware of how they reinforce pain behaviours and in how to reinforce well behaviours 	<ul style="list-style-type: none"> • Addresses any accidentally learned sick role or pain behaviours that reinforce disability/invalidism perception by patient and others • A return to normal activity and confidence may be assisted by significant others rewarding well behaviours (e.g. encouraging patient to use attention diversion strategies) and ignoring pain behaviours

<ul style="list-style-type: none"> • Communication skills training 	<ul style="list-style-type: none"> • Assertiveness, active listening, conflict resolution 	<ul style="list-style-type: none"> • Coaching in and application of core communication skills can assist with management of associated interpersonal strains: punitive responses such as anger at, or ignoring, patient; patient irritability and withdrawal from family; problems arising from loss of usual role in family; direct expression of needs associated with physical changes; issues with feelings of masculinity or femininity
<ul style="list-style-type: none"> • Stress management 	<ul style="list-style-type: none"> • Coping strategies for dealing with arousal and distress associated with: emotions such as worry about future, sadness, anger and frustration; relationship problems; self-doubt; loss; being unoccupied; social isolation 	<ul style="list-style-type: none"> • A significant proportion of emotional disturbance in chronic pain patients is associated with psychosocial influences which are either secondary to, or concurrent with, pain • Inattention to these concerns can affect therapy motivation and engagement • A stress management approach can reduce defensiveness about discussing psychological factors that may influence symptoms e.g. tension accompanying a stressful episode
<ul style="list-style-type: none"> • Sleep hygiene 	<ul style="list-style-type: none"> • Strategies to establish consistent sleep/wake cycles (e.g. stimulus control techniques, increasing daily physical activity, relaxation, self-hypnosis and imagery) 	<ul style="list-style-type: none"> • Up to 70% of chronic pain clinic patients report having problems sleeping • Insomnia and fatigue can interfere with ability to cope with pain • Chronic pain patients who rate their sleep as “poor” or “fair” report greater pain intensity, more disability, and higher levels of depression and anxiety
<ul style="list-style-type: none"> • Activities of daily living (ADL) ergonomics 	<ul style="list-style-type: none"> • Advice on novel or better ways of completing physical tasks and manual handling 	<ul style="list-style-type: none"> • Patient’s native approach to ADL may aggravate pain or in other ways be counterproductive

<ul style="list-style-type: none">• Medication scheduling	<ul style="list-style-type: none">• Review of appropriate medication scheduling, especially if a medication is normally to be taken more than once per day	<ul style="list-style-type: none">• Inappropriate scheduling can have paradoxical effects and make medication less effective, thereby contributing to problems of tolerance and addiction• Delaying medication until the last moment or taking “as needed”, as opposed to “by the clock”, may mean that more medication has to be taken for it to be effective
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Cognitive-Behavioural Strategy/Target	Description	Rationale
<ul style="list-style-type: none"> Establishing realistic beliefs about pain and pain mechanisms 	<ul style="list-style-type: none"> Education / information: acute vs. chronic pain; chronic pain myths and misunderstandings; conceptual models such as fear-avoidance - to assist in dispelling unhelpful beliefs e.g. several examples of how pain in chronic conditions does not mean harm 	<ul style="list-style-type: none"> One of the first cognitive interventions. Lays groundwork for subsequent cognitive strategies for challenging and changing unhelpful beliefs
<ul style="list-style-type: none"> Cognitive restructuring 	<ul style="list-style-type: none"> Rationale for a cognitive approach presented. How cognitions (specific thoughts, general beliefs, images / fantasies, interpretations of events, expectations and predictions) may intensify experiences of pain and suffering and interfere with adaptive coping responses Patients self-monitor, with diaries or imaginal recall, and identify stress-inducing cognitions and associated feelings linked to problematic situations Themes flagged in the literature should be closely checked for, especially: catastrophising; harm, illness and disability beliefs; low self-efficacy / helplessness Common thinking errors à la Beck or specific self-defeating beliefs à la Ellis may also be a focus if noted Alternative conceptions or responses generated through standard change strategies (e.g. elicit competing thoughts, modelling by other patients, challenging questions from therapist, written self-challenges, reinforcing adaptive responses) 	<ul style="list-style-type: none"> Cognitive reactions to pain are often intense and form an important component of the persistent pain problem See accompanying text in this Treatment section for research grounds and further directions on cognitive therapy for persistent pain

	<ul style="list-style-type: none"> • Between-session diaries and practice of alternative cognitions, combined with behavioural techniques / experiments and therapist / group / self reinforcement 	
<ul style="list-style-type: none"> • Problem-solving 	<ul style="list-style-type: none"> • Encourages a constructive response to pain-associated concerns. Often incorporated into cognitive restructuring • Standard six-step algorithm is one option • Following strategies have been suggested for improving pain patients' problem-solving ability <ul style="list-style-type: none"> ▪ a record of coping attempts ▪ brainstorming - "the more solutions, the better" ▪ focusing on the consequences of pain, not pain itself 	<ul style="list-style-type: none"> • Chronic pain patients' poor problem-solving style has been shown to be correlated with increased disability. This involves: <ul style="list-style-type: none"> ▪ problem avoidance ▪ lack of positive problem-solving orientation ▪ impulsive decision-making • Seems not to be related to pain intensity, disability or duration but to worrying, and in particular to catastrophic thinking
<ul style="list-style-type: none"> • Attention Regulation 	<ul style="list-style-type: none"> • Attention Regulation or Attention Management has been defined as: "the limitation of the impact of pain either by switching attention to another stimulus or 'retuning' attention to the pain so that aspects are attended to which are less distressing and interruptive" • Overall aim of attention regulation component of CBT is to facilitate patients' disengagement from excessive pain • Its techniques aim either to change patients' perception of pain and their relationship to it, or to increase their control over pain experiences 	<ul style="list-style-type: none"> • Attention management is a skill that requires practise, but once developed should help reduce the distress caused by persistent pain and increase patients' sense of self efficacy • Strong evidence for its relapse reduction in patients experiencing recurrent episodes of depression supports application to chronic pain patients with recurrent, intrusive disturbances in their cognitive processing of pain. In both patient groups techniques involve switching from evaluating to observing • Patients highly anxious about illness symptoms who use distraction usually fare worse, in the short term. Akin to initial effects of reducing reassurance-seeking in

	<ul style="list-style-type: none"> • Examples of attention diversion techniques: <ul style="list-style-type: none"> ▪ focal points (distraction) ▪ imagery ▪ coping self-statements ▪ self-hypnosis ▪ mindfulness meditation 	<p>OCD patients. Anxiety increases as functional value of worry is displaced. See Treatment text for more on this issue</p> <ul style="list-style-type: none"> • Not a sole treatment. Combined with other, more active, coping skills that need to be established previously • See associated material and references in larger body of text e.g. hypnosis and mindfulness meditation • An excellent treatment manual is available on the Web. “Attention Management in Chronic Pain: A treatment manual for the cognitive-behavioural treatment of chronic pain” Stephen Morley, Jonathan Biggs & David Shapiro (University of Leeds) http://www.leeds.ac.uk/medicine/psychiatry/attman/introduction.htm • Four modules provide core material e.g. rating scales, checklists, exercises, visual aids, handouts, etc.
<ul style="list-style-type: none"> • Relapse Prevention 	<ul style="list-style-type: none"> • Throughout treatment the significant potential for reversals in treatment gains is managed with a variety of cognitive and behavioural strategies 	<ul style="list-style-type: none"> • Identifying risks and rehearsing for signs of setbacks raise the chances of continued success for patients

Levels of Evidence for Cognitive Behaviour Therapy and Behaviour Therapy Treatment of Chronic Pain

High quality treatment programs for chronic pain conducted within Cognitive Behaviour Therapy and Behaviour Therapy formats have attained Level 1 and Level 2 (NHMRC, 1999) evidence of efficacy standards.

Levels of evidence (National Health and Medical Research Council, 1999)

Level I: Evidence obtained from a systematic review of all relevant randomised controlled trials.

Level II: Evidence obtained from at least one properly designed randomised controlled trial.

Level III-1: Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).

Level III-2: Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a parallel control group.

Level III-3: Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group.

Level IV: Evidence obtained from case-series, either post-test, or pre-test and post-test.

For examples of this Level 1 and 2 support see systematic reviews and meta-analyses by:

Flor, Fydrich, & Turk. (1992), Guzman, Esmail, Karjalainen, Malmivaara, Irwin, & Bombadier, C. (2001), Morley, Eccleston, & Williams, (1999), and Schonstein, Kenny, Keating, Koes, & Herbert (2003).

There has long been a difficulty with attributing apparent gains to specific psychological approaches when these form part of a wider program of chronic pain management (Jensen Turner, & Romano, 1994; Nicholas, 2003). Despite the successes of programs to date, there is no clear evidence of which strategies contribute more effectively or efficiently.

Successful treatments tend to share the following features: intensiveness e.g. Guzman et al. (2001) > 100 hours; a group format; multidisciplinary input; and assessment using multiple outcome measures.

It is recommended that to assist matching outcomes of successful programs therapists use treatment manuals obtained from the relevant authors.